September 15, 2021

The University of Calgary
Cumming School of Medicine

Standardized format for curriculum vitae

I BIOGRAPHICAL DATA

Name:	Richard Frayne, PhD	Date of Birth:	7 Jan 1966
Address:	Seaman Family MR Research Centre Foothills Medical Centre University of Calgary 1403 29th Street NW Calgary, Alberta CANADA T2N 2T9	Citizenship:	Canada, UK
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II ACADEMIC RECORD

Final degree: PhD
Date completed: 1994
Specialty: Medical Biophysics (Medical Imaging)
Institution/City/Country: University of Western Ontario/London/Canada

i. Undergraduate: BASc, 1989, Electrical Engineering, University of Waterloo/Waterloo/Canada

ii. Special professional: None

iii. Graduate and post-doctoral: Post-doctoral Fellowship, 1996, Medical Physics and Radiology, University of Wisconsin-Madison/Madison/USA

iv. Licensure, certification and boards (e.g. FRCPC): Cumming-Haskayne Leadership Program, 2018, University of Calgary/Calgary/Alberta.

III AWARDS AND DISTINCTIONS

June 1987 and Nov 1988	University of Waterloo, Department of Electrical Engineering	Allen-Bradley Canada Limited Outstanding Work Report Award
May 1989	University of Waterloo, Faculty of Engineering	Georges Dufault Award for Excellence in Communication
Aug 1990, Aug 1991, and Aug 1992	Society of Magnetic Resonance in Medicine	Student Travel Stipend
May 1993 - April 1994	University of Western Ontario, Faculty of Graduate Studies	Nellie L Farthing Memorial Fellowship
Jan 2000 – Dec 2000	University of Calgary	Calgary Herald Young Innovator Award
July 2000 – June 2001	Heart and Stroke Foundation of Canada	Henry JM Barnett Research Scholarship Award
Oct 2003 –Sep 2013	Canada Research Chairs Program	Canada Research Chair in Image Science
Oct 2012	Killam Trusts	Killam Interdisciplinary Research Award (with EC Fear and MR Smith)
Nov 2017	University of Waterloo, Faculty of Engineering	Alumni Achievement Award (Academic Achievement)

IV ACADEMIC APPOINTMENTS

i. University Appointments

June 1994 - Aug 1994	University of Western Ontario Department of Diagnostic Radiology London, Ontario, Canada	Post-doctoral Fellow Supervisor: BK Rutt
Aug 1994 - Aug 1996	University of Wisconsin—Madison Departments of Medical Physics and Radiology, Madison, Wisconsin, USA	Research Associate/Post-doctoral Fellow Supervisor: CA Mistretta
Sep 1996 - March 1998	University of Wisconsin—Madison Departments of Medical Physics and Radiology, Madison, Wisconsin, USA	Assistant Scientist
April 1998 - Sep 1999	University of Wisconsin—Madison Departments of Medical Physics and Radiology, Madison, Wisconsin, USA	Associate Scientist
Sep 1999 - June 2002	University of Calgary Departments of Radiology and Clinical Neurosciences Calgary, Alberta, Canada	Assistant Professor
Sep 1999 - Aug 2005	University of Calgary Department of Electrical and Computer Engineering Calgary, Alberta, Canada	Adjunct Professor
Sep 1999- Nov 2000	University of Calgary Neurosciences Research Group Calgary, Alberta, Canada	Associate Member
April 2000 - June 2014	University of Calgary Department of Physics and Astronomy Calgary, Alberta, Canada	Adjunct Professor
Nov 2000 - June 2004	University of Calgary Neurosciences Research Group Calgary, Alberta, Canada	Member
July 2002 - March 2009	University of Calgary Departments of Radiology and Clinical Neurosciences Calgary, Alberta, Canada	Associate Professor
July 2004 -	Hotchkiss Brain Institute Cumming School of Medicine, University of Calgary Calgary Alberta, Canada	Member

April 2009 -	University of Calgary Departments of Radiology and Clinical Neurosciences Calgary, Alberta, Canada	Professor
Jan 2010 -	University of Calgary Department of Radiology Calgary, Alberta, Canada	Hopewell Professorship in Brain Imaging
Sep 2010 -	Libin Cardiovascular Institute of Alberta Calgary Alberta, Canada	Associate Member
July 2017 -	Hotchkiss Brain Institute Cumming School of Medicine, University of Calgary Calgary Alberta, Canada	Deputy Director

ii. Non-university Appointments

Jan 2010 - June 2017	Seaman Family Magnetic Resonance Research Centre, Alberta Health Services Calgary Alberta, Canada	Scientific Director
Jan 2012 - June 2015	Alberta Children's Hospital Child and Adolescent Imaging Research Program, Alberta Health Services Calgary Alberta, Canada	Scientific Director (Interim)

iii. Visiting Appointments

July 2014 -	Faculdade de Engenharia Elétrica e de Computação (FEEC), Universidade Estadual de Campinas (UNICAMP), Campinas, São Paulo, Brazil	Professor Visitante (initially funded by Coordenação de Aperfeiçoamento de Pessoal de Nivel Superior, CAPES)

V EDUCATIONAL ACTIVITIES

i. Undergraduate

Sep 1989 - April 1992	Physics 024 – Introductory Physics (Fall + Winter terms) Department of Physics, University of Western Ontario, London, Ontario, Canada Laboratory Demonstrator (12 three-hour laboratory sessions per year)
Sep 1999 - Dec 1999	Electrical Engineering 415 – Assembly Language Programming and Interfacing (Fall term) Department of Electrical and Computer Engineering, University of Calgary, Calgary, Alberta, Canada Guest Lecturer (1 two-hour lab visit per year)
Jan 2000 - April 2006 Jan 2008 - April 2010 (even years only)	Biochemistry 551 – Structural Biology/Biological Spectroscopy (before 2005) (Winter term) Department of Biological Sciences, University of Calgary, Calgary, Alberta, Canada Co-instructor (3 one-hour lectures and 1 two-hour lab visit per year)
Jan 2000 - Dec 2000	Electrical Engineering 515 – Processor Architecture (Winter term) Department of Electrical and Computer Engineering, University of Calgary, Calgary, Alberta, Canada Guest Lecturer (1 two-hour lab visit per year)
Sep 2001- Aug 2005	Medicine 410 – Neurosciences (Fall term) Faculty of Medicine, Undergraduate Medical Program, University of Calgary, Calgary, Alberta, Canada Lecturer (1 thirty-min lecture on stroke imaging, 1 ninety-minute lecture on cerebral metabolism and function)
Jan 2006	Biomedical Engineering 103 – Healthcare Management (Winter block week) (formerly Biomedical Engineering 003) Centre for Bioengineering Research, University of Calgary, Calgary, Alberta, Canada Lecturer (1 ninety-minute lecture on aspects of management in radiology)

ii. Graduate

Sep 1995 - Dec 1995	Medical Physics 710 – Advances in Medical Magnetic Resonance (Fall term) Department of Medical Physics, University of Wisconsin-Madison, Madison, Wisconsin, USA Guest Lecturer (4 one-hour lectures per year)
Jan 1998 - May 1999	Medical Physics 401 – Physics of the Body (Winter term) Department of Medical Physics, University of Wisconsin-Madison, Madison, Wisconsin, USA Co-instructor (10 one-hour lectures per year)

Jan 2001 - April 2002	Medical Sciences 755.40 (cross-listed as Electrical Engineering 619.58 and Physics 697.06) – Principles of Magnetic Resonance Imaging (Winter term) Faculty of Medicine, Medical Sciences Graduate Program, University of Calgary, Calgary, Alberta, Canada Instructor (13 three-hour lectures per year)
Sep 2002 - Dec 2017	Medical Sciences 689.01 (cross-listed as Electrical Engineering 619.01 until Fall 2013) – Medical Imaging Techniques (Fall term) Faculty of Medicine, Medical Sciences Graduate Program, University of Calgary, Calgary, Alberta, Canada Course Coordinator and Instructor (3 one-hour lecture per year)
Jan 2003 - April 2004	Medical Sciences 689.02 (cross-listed as Electrical Engineering 619.02 and Physics 697.06) – Advanced Magnetic Resonance Imaging (Winter term) Faculty of Medicine, Medical Sciences Graduate Program, University of Calgary, Calgary, Alberta, Canada Instructor (13 three-hour lectures per year)
Sep 2004 - Dec 2013	Biomedical Engineering 601 – Fundamentals of Biomedical Engineering (Fall term) Faculties of Engineering, Kinesiology, Medicine (BME Program), University of Calgary, Calgary, Alberta, Canada Guest Instructor (1 three-hour lecture per year)
Jan 2005 - April 2007, Jan 2010 - April 2010	Biomedical Engineering 603 – Frontiers of Biomedical Engineering (Winter term) Faculties of Engineering, Kinesiology, Medicine (BME Program), University of Calgary, Calgary, Alberta, Canada Course Coordinator and Instructor (10 two-hour lecture per year)
Jan 2005 - April 2005	Mechanical Engineering 619.30 – Seminars in Biomedical Engineering (Winter term) Faculties of Engineering, Kinesiology, Medicine (BME Program), University of Calgary, Calgary, Alberta, Canada Course Coordinator (meets 4 times per semester with Biomedical Engineering 603)
Jan 2005 - April 2005	Medical Sciences 689.99 – Medical Imaging Project – "Molecular Imaging" (Winter term) Faculty of Medicine, Medical Sciences Graduate Program, University of Calgary, Calgary, Alberta, Canada Instructor (13 three-hour lectures per year)
Sep 2005 - Dec 2005, Sep 2007 - Dec 2007	Biomedical Engineering 605 – Seminars in Biomedical Engineering (Fall term) Faculties of Engineering, Kinesiology, Medicine (BME Program), University of Calgary, Calgary, Alberta, Canada Course Coordinator and Instructor (meets 4 times per semester)

Jan 2006 - April 2007	Biomedical Engineering 607 – Seminars in Biomedical Engineering (Winter term) Faculties of Engineering, Kinesiology, Medicine (BME Program), University of Calgary, Calgary, Alberta, Canada Course Coordinator and Instructor (meets 4 times per semester with Biomedical Engineering 603)
Jan 2007 - April 2008	Medical Sciences 689.04 – Advanced Molecular Imaging (Winter term) Faculty of Medicine, Medical Sciences Graduate Program, University of Calgary, Calgary, Alberta, Canada Instructor (13 two-hour lectures/discussions per year)
Jan 2012 - April 2012, Jan 2013 - April 2013	Biomedical Engineering 607 – Seminars in Biomedical Engineering (Winter term) Faculties of Engineering, Kinesiology, Medicine (BME Program), University of Calgary, Calgary, Alberta, Canada Course Coordinator and Instructor (meets 5-8 times per semester)

iii. Postgraduate

Oct 2001 - Feb 2008	Physics of Radiology for Radiology Residents (Fall + Winter terms) Department of Radiology, University of Calgary, Calgary, Alberta, Canada Coordinator of 5-day session, Instructor (10 hours per year)
Sep 2002 - Dec 2008 (even years only)	Neuroimaging for Psychiatry Residents (Fall term) Department of Psychiatry, University of Calgary, Calgary, Alberta, Canada Guest Lecturer (2 hours per year)

iv. Continuing medical education

None.

v. Student and other trainee supervision

[Co-supervised students denoted by †]

Student and other trainee supervision summary table	**Supervised**	**Co-supervised**	**Total**
High School and Undergraduate Students	58	10	68
Medical Students and Residents	12	2	14
Postgraduate Students (MSc, MEng)	18	8	26
Postgraduate Students (PhD)	11	4	15
Postdoctoral Fellows	18	1	19
Visiting and Exchange Students	9	0	9
Total	**126**	**25**	**151ß**

High School and Undergraduate Students - Thesis and Project Students, and Summer Students:

Aug 1997 - April 1998	O Wieben	†	Diplom Student, Institut für Biomedizinische Technik, Universität Karlsruhe (Academic Advisor: O Dössel, PhD)
Jan 1998 - May 1998	R Stuckman, BS	†	Undergraduate Independent Project Student, Mechanical Engineering, University of Wisconsin-Madison (Co-supervisor: R Vanderby, PhD)
May 2000 - Aug 2000 and April 2001 - Aug 2001	A Harris		Undergraduate Summer Student, Biological Engineering, Dalhousie University (AHFMR Summer Student, 2000 and 2001)
May 2000 - Aug 2000	R Ryder, BSc		Undergraduate Summer Student, Neurosciences, University of Lethbridge
May 2000 - Dec 2000 and Sep 2001 - April 2002	D Tang		Undergraduate Summer Student, Electrical and Computer Engineering, University of Calgary (NSERC Undergraduate Research Assistant, 2000)
May 2000 - July 2001	B Wong		Engineering Intern, Electrical and Computer Engineering, University of Calgary
July 2000 - Aug 2000	A Doyle		High School Summer Student (Heritage Youth Research Summer Program Student)

Sep 2000 - April 2001	C Akins, C Meijndert, K Nielsen, and S Stradberg	Fourth Year Project Team, Electrical and Computer Engineering, University of Calgary
April 2001 - Aug 2001	T Clark	Summer Student, Chemistry, University of Calgary (Co-supervisor: George A Shimizu, PhD)
May 2001 - Aug 2002	R Lau	Engineering Intern, Electrical and Computer Engineering, University of Calgary (AHFMR Summer Student (2001,2002) and NSERC Undergraduate Research Assistant)
Sep 2001 - April 2002	T Biggs, J Kosior, and M Ly †	Fourth Year Project Team, Electrical and Computer Engineering, University of Calgary (Co-supervisor: J Ross Mitchell, PhD)
May 2002 - Aug 2002	K Ho	Undergraduate Summer Student, Biological Sciences, University of Calgary
May 2002 - Aug 2002 and May 2003 - Aug 2003	A Kurji †	Undergraduate Summer Student, Bioengineering, University of California-Berkeley (AHFMR Summer Student in 2002 and 2003; Co-supervisor: Marc J Poulin, PhD)
Sep 2002 - May 2003	J Synder	Undergraduate Thesis Student, Physics and Astronomy, University of Calgary
May 2003 - Aug 2003	C Thomas	Undergraduate Thesis Student, Physics and Astronomy, University of Calgary
July 2003 - Aug 2003	L Lee	High School Summer Student (Heritage Youth Research Summer Program Student)
Jan 2004 - April 2004	G LaCroix	Undergraduate Thesis Student, Physics and Astronomy, University of Calgary
May 2004 - Aug 2004	J Robertson, BSc†	Undergraduate Summer Student, Biological Sciences, University of Calgary (Supervisor: Marc J Poulin, PhD)
May 2004 - Aug 2004 and May 2005 - Aug 2005	G Dudar	Undergraduate Summer Student, Biological Sciences, University of Calgary (NSERC Undergraduate Research Assistant, 2004 and AHFMR Summer Studentship, 2005)
May 2004 - Aug 2004	G LaCroix, BSc	Undergraduate Summer Student, Education, University of Calgary

July 2004 - Aug 2004	L Lee		Undergraduate Summer Student, Health Sciences, University of Calgary
Sep 2004 - April 2005	G Dudar		Undergraduate Thesis Student, Biological Sciences, University of Calgary
Jan 2005 - April 2005	H Graves, BASc		Unclassified Student, Medical Sciences/Biomedical Engineering, University of Calgary
May 2005 - Aug 2005	M Gorvindaraj		Undergraduate Summer Student, Chemical Engineering (Biomedical Engineering Specialization), University of Calgary (NSERC Undergraduate Student Research Award)
July 2005 - Aug 2005, and July 2006 - Aug 2006	J Woher		High School Summer Student (Heritage Youth Research Summer Program Student, 2005)
Sep 2005 - Dec 2005	R Thaler		Undergraduate Thesis Student, Physics and Astronomy, University of Calgary
Sep 2005 - April 2006	C Williams		Undergraduate Thesis Student, Physics and Astronomy, University of Calgary
Sep 2005 - April 2006	M Bates, C Hahn, and J Volano	†	Fourth Year Project Team, Electrical and Computer Engineering, University of Calgary (Co-supervisor: M Sabati, PhD)
May 2006 - Aug 2006 and May 2007 - Aug 2007	M Haakstasd		Undergraduate Summer Student, Electrical Engineering (Biomedical Engineering Specialization), University of Calgary (NSERC Undergraduate Student Research Award)
May 2007 - Aug 2007 May 2008 - Aug 2008 May 2009 - Aug 2009	J Woher		Undergraduate Summer Student, Science, University of Alberta (2006-7), Undergraduate Student, Engineering, University of Calgary (2006-7) (NSERC Undergraduate Student Research Award, 2008)
July 2008 - Aug 2008, May 2009 - Aug 2009	R Sharkey		Undergraduate Summer Student, Science, University of Calgary.
Sep 2008 - Dec 2008	L Lee		Undergraduate Thesis Student, Health Sciences, University of Calgary. (Supervisor: C Anglin, PhD)

Sep 2008 - Dec 2008	N Arronte	Undergraduate Independent Project Student, Physics and Astronomy, University of Calgary on exchange form Universidad Complutense de Madrid
July 2009 - Aug 2009	L Sevick	High School Summer Student
May 2010 - Aug 2010, May 2011 - Aug 2011, and May 2012 - Aug 2012	L Li	Undergraduate Summer Student, Health Sciences, University of Calgary. (URSP Award, 2011, NSERC Undergraduate Student Research Award, 2012)
May 2010 - Aug 2010, and June 2012 - Aug 2012	N Swailes	Undergraduate Summer Student, Engineering, University of Calgary (NSERC Undergraduate Student Research Award, 2010, AI-HS Summer Studentship, 2012)
May 2011 - Aug 2011 and May 2012 - Aug 2013	D Adair	Undergraduate Intern, Engineering, University of Calgary (NSERC Undergraduate Student Research Award, 2012)
June 2011 - Aug 2011	L Sevick	Undergraduate Summer Student, Biology, University of Waterloo
May 2012 - Aug 2012	A Pulwicki	Undergraduate Summer Student, Natural Science, University of Calgary
May 2012 - Aug 2012, May 2013 - Aug 2013	K Brown	Undergraduate Summer Student, Chemistry, University of Calgary
June 2012 - Aug 2012, May 2013 - Aug 2013, May 2014 - Aug 2014, May 2015 - Aug 2015	J Shepherd	Undergraduate Summer Student, Arts, University of Calgary
Sep 2012 - April 2013	N Khambati	Undergraduate Project Student, Software Engineering (Biomedical Engineering Specialization), University of Calgary
Sep 2012 - April 2013	L Li	Undergraduate Honors Thesis Student, Health Sciences, University of Calgary.

May 2013 - Aug 2013	R Wang	Undergraduate Summer Student, Neurosciences, University of Calgary
May 2013 - Aug 2013	M Krongold	Undergraduate Summer Student, Neurosciences, University of Calgary
Jan 2014 - April 2014	D MacDonald	Undergraduate Project Student, Physics, University of Calgary.
May 2014 - Aug 2014, May 2015-Aug 2015	C McDougall	Undergraduate Summer Student, Physics, University of British Columbia-Okanogan. (NSERC CREATE I3T Summer Student, 2014, QUiCKR Award, 2015)
July 2014 - Aug 2014, June 2015 - Aug 2015	C O'Neill	High School Summer Student
May 2015 - Aug 2015	M Hafeez	Undergraduate Summer Student, Biological Science, University of Calgary (Markin URSP, 2015)
Sep 2015 - April 2016	Z Vujadinovic	Undergraduate Thesis Student, Neurosciences, University of Calgary (co-supervisor)
Jan 2016 - April 2016	B Mund	Undergraduate Project Student, Software Engineering (Biomedical Engineering Specialization), University of Calgary
May 2016 - July 2016	Y Ribeiro	Undergraduate Summer Student, Electrical Engineering, Universidade Federal de Itajubá (Science without Borders Award)
May 2016 - Aug 2016	E Miekelham	Undergraduate Summer Student, Electrical Engineering (Biomedical Engineering Specialization), University of Calgary (NSERC Undergraduate Student Research Award)
May 2016 - Aug 2016	C O'Neill	Undergraduate Summer Student, Mechanical Engineering, University of Calgary
May 2017 - Aug 2017	J Park	Undergraduate Summer Student, Mechanical Engineering (Biomedical Engineering Specialization), University of Calgary (NSERC CREATE I3T Summer Student)

May 2017 - Aug 2017, and May 2018 - Aug 2018	C Seefledt	Undergraduate Summer Student, Neurosciences, University of Lethbridge (NSERC Undergraduate Student Research Award)
Sep 2017 - Dec 2017	H Charette, BSc	Undergraduate Project Student, Mechanical Engineering (Biomedical Engineering Specialization), University of Calgary
Jan 2019 - April 2019	K Chung	Undergraduate Project Student, Mechanical Engineering (Biomedical Engineering Specialization), University of Calgary
May 2019 - Aug 2019	B Ciechanover	Business Development Intern, Biotechnology Program (MBT), University of Calgary.
Sep 2019 - April 2020	Y Beuaferris	Undergraduate Project Student, Mechanical Engineering (Biomedical Engineering Specialization), University of Calgary
May 2020 - Aug 2020	Y Beuaferris	Undergraduate Summer Student, Mechanical Engineering (Biomedical Engineering Specialization), University of Calgary
June 2020 - Aug 2020	M Alsuliman	Undergraduate Summer Student, Chemistry, Mount Royal University, Calgary
Sep 2020 - Dec 2020	J Park	Undergraduate Project Student, Mechanical Engineering (Biomedical Engineering Specialization), University of Calgary
May 2021 - Aug 2021	R Renegado	Undergraduate Summer Student, Software Engineering (Biomedical Engineering Minor), University of Calgary (BME Summer Student Award)
May 2021 - Aug 2021	K Lee	Undergraduate Summer Student, Pyschology and Neuroscience, University of Toronto

Medical Students and Residents – Research Project and Summer Students:

Sep 1999 - March 2002	R Pereira, PhD	Undergraduate Student, Medicine, University of Calgary
Sep 2000 - Sep 2001	J Yang, BSc	Undergraduate Student, Medicine, University of Calgary
June 2002 - Aug 2002 and June 2003 - Aug 2003	N Sharma, BSc	Undergraduate Student, Medicine, University of Saskatchewan (CIHR Health Professional Student Research Award, 2002)

Sep 2002 - May 2004	P Chen, BSc		Undergraduate Student, Medicine, University of Calgary
Oct 2004 - April 2006	D Levin, BSc		Undergraduate Student, Medicine, University of Calgary
Oct 2004 - March 2006	M Wilson, MSc	†	Undergraduate Student, Medicine, University of Calgary (Co-supervisor: JH Wong, MD)
Nov 2004 - March 2006	M Brietlung, BSc	†	Undergraduate Student, Medicine, University of Calgary (Co-supervisor: H Mahallati, MD)
May 2005 - Aug 2005	S Galante, BSc		Undergraduate Student, Medicine, University of Alberta (CIHR Health Professional Award, 2005)
Nov 2005 - March 2007	V Ciura, BSc		Undergraduate Student, Medicine, University of Calgary
Oct 2007 - March 2008	M Wilson, MD	†	Resident, University of Calgary (Co-supervisor: T Raedler, MD)
March 2008 - March 2009	M Hirji, BSc		Undergraduate Student, Medicine, University of Calgary
May 2008 - Aug 2008, and June 2009 - Aug 2009	HS Gill, BSc		Undergraduate Student, Medicine, University of Alberta (AHFMR Summer Studentship, 2008)
June 2009 - Aug 2009	N Leia, BSc		Undergraduate Student, Medicine, University of Alberta
May 2011 - Aug 2011	M Zeng, BSc		Undergraduate Student, Medicine, University of Alberta (AHFMR Summer Studentship, 2011)
Nov 2011 - Feb 2013	B Litt, BSc		Undergraduate Student, Medicine, University of Calgary

Postgraduate Students (MSc, MEng):

July 1998 - Aug 1999	D Skuldt, BS	†	MS Student, Electrical and Computer Engineering, University of Wisconsin-Madison (Academic Advisor: WJ Tompkins, PhD)

Jan 2001 - Dec 2002	L Hong, BSc	†	MSc Student, Electrical and Computer Engineering, University of Calgary (Supervisor: MR Smith, PhD)
July 2002 - Nov 2004	N Nagarajappa, BSc		MSc Student, Electrical and Computer Engineering, University of Calgary
Sep 2002 - Sep 2004	J Chen, BSc	†	MSc Student, Electrical and Computer Engineering, University of Calgary (NSERC Canada Graduate Studentship, 2002-2004; Recipient of the Governor General's Gold Medal, 2005; Co-supervisor: MR Smith, PhD)
June 2004 - Aug 2006	R Stafford, BSc		MSc Student, Physics and Astronomy, University of Calgary
July 2004 - Aug 2006	J Draper, BSc		MSc Student, Electrical and Computer Engineering, University of Calgary (AHMFR Studentship, 2006)
Sep 2005 - Feb 2006	A Castillo, MSc		MEng Student, Electrical and Computer Engineering, University of Calgary (part-time) *Withdrew from program due to lack of support from employer.*
Jan 2006 - July 2008	I Valdez, BSc	†	MSc Student, Electrical and Computer Engineering, University of Calgary (Supervisor: BG Goodyear, PhD)
Sep 2006 - Dec 2008	H Chen, BSc		MSc Student, Physics and Astronomy, University of Calgary
Sep 2007 - Dec 2009	A-L Aulanier, BSc		MSc Student, Electrical and Computer Engineering, University of Calgary
Sep 2008 - Aug 2010	E McDonald, BASc		MSc Student, Electrical and Computer Engineering, University of Calgary
Sep 2008 - Dec 2010	C Curtis, BSc	†	MSc Student, Electrical and Computer Engineering, University of Calgary (Supervisor: EC Fear, PhD)
Sep 2009 - Oct 2011	P Gauderon, BSc		MSc Student, Biomedical Engineering, University of Calgary
July 2010 - April 2013	M Boesen, BSc		MSc Student, Physics and Astronomy, University of Calgary
Aug 2011 - April 2014	E Lee, BSc		MSc Student, Biomedical Engineering, University of Calgary (NSERC PGS-M, 2012)

Jan 2012 - Dec 2013	S Batool, MD	†	MSc Student, Medical Sciences, University of Calgary (NSERC CREATE I3T Scholarship, 2013-4; Supervisor: EE Smith, MD, MPH).
Sep 2013 - Aug 2015	R Wang, BSc	†	MSc Student, Medical Sciences, University of Calgary (Supervisor: EE Smith, MD, MPH).
Sep 2013 - May 2015	A Rahami, MSc		PhD Student, Physics and Astronomy, University of Calgary (NSERC CREATE I3T Scholarship, 2013-4; Withdrew from program for personal reasons)
May 2014 - Dec 2015	L Li, BSc		MSc Student, Biomedical Engineering, University of Calgary (NSERC CREATE I3T Scholarship, 2014-5; Initial supervisor: YP Starreveld, MD, PhD).
Sep 2014 - June 2017	D Adair, BSc		MSc Student, Biomedical Engineering, University of Calgary (NSERC CREATE I3T Scholarship, 2014-5; Initial supervisor: YP Starreveld, MD, PhD, part-time student).
Sep 2015 - June 2017	M Jones, BSc	†	MSc Student, Biomedical Engineering, University of Calgary (NSERC CSGM Scholarship, 2016-7; Supervisor: RM Lebel, PhD).
Sep 2017 - Nov 2019	L Souto, BSc		MSc Student, Biomedical Engineering, University of Calgary (NSERC CREATE I3T Scholarship, 2017-8).
Feb 2018 - April 2019	A Danko, BSc		MSc Student Biochemistry and Molecular Biology, changed to Medical Science, University of Calgary (Queen Elizabeth, 2017-8).
May 2018 - Aug 2020	X Wang, MSc		MSc Student, Medical Sciences, University of Calgary.
Sep 2020 -	A Sidhu, BSc		MSc Student, Biomedical Engineering, University of Calgary (Entrance Scholarship Award, 2020; NSERC CREATE Studentship 2020-2)
Sep 2020 -	J Guerra, BSc, MBA		MSc Student, Biomedical Engineering, University of Calgary (NSERC CREATE Studentship 2020-2)

Postgraduate Students (PhD):

Aug 1997 - Sep 1999 *(PhD granted in 2002)*	O Wieben, MS	†	PhD Student, Electrical and Computer Engineering, University of Wisconsin-Madison (Academic Advisor: WJ Tompkins, PhD)
Sep 2000 - Nov 2004	M Sabati, MSc		PhD Student, Electrical and Computer Engineering, University of Calgary (Heart and Stroke Foundation of Canada Doctoral Research Award, 2002-2004)
May 2003 - June 2009	J Kosior, BSc		PhD Student, Electrical and Computer Engineering, University of Calgary (AHFMR Studentship, 2005-; NSERC Postgraduate Studentship 2007-)
July 2003 - June 2008	A Harris, BEng, BSc		PhD Student, Biomedical Engineering, University of Calgary (AHFMR Studentship, 2003-2008; NSERC Julie Payette Studentship, 2004; NSERC Canada Graduate Scholarship, 2005-2008)
Jan 2005 - May 2010	M Salluzzi, MSc	†	PhD Student, Electrical and Computer Engineering, University of Calgary (Co-supervisor: MR Smith, PhD; AHFMR Studentship, 2008)
May 2005 - Dec 2010	R Kosior, BSc		PhD Student, Electrical and Computer Engineering, University of Calgary (NSERC Canada Postgraduate Studentship, 2005-2009; AHFMR Studentship, 2007-)
July 2006 - April 2008	R Brown, BSc		PhD Student, Electrical and Computer Engineering, University of Calgary (NSERC Post Graduate Scholarship, 2006-2008)
Sep 2006 - Nov 2010	R Stafford, BSc		PhD Student, Physics and Astronomy, University of Calgary (AHFMR Studentship, 2008-2010)
Jan 2008 - June 2012	J Yerly, MSc		PhD Student, Electrical and Computer Engineering, University of Calgary (AHFMR Studentship, 2008-11, HSFC Focus on Stroke Studentship 2012-13)
Sep 2009 - Dec 2012	W Misik, BSc		PhD Student, Physics and Astronomy, University of Calgary (NSERC CGSM, 2010-11; Withdrew from program for personal reasons)

Sep 2010 - Sep 2014	E McDonald, MSc	PhD Student, Electrical and Computer Engineering, University of Calgary (NSERC PGS-D, 2010-2012; AHFMR Studentship 2011-2013; TC Fong Studentship, 2010-11)
July 2012 - April 2016, and May 2018 - Aug 2018	X Wang, MSc †	PhD Student, Medical Sciences, University of Calgary (Supervisor: P Federico, MD, PhD; withdrew from program due to failed candidacy examination)
July 2014 - Nov 2015	M Boesen, MSc	PhD Student, Biomedical Engineering, University of Calgary (NSERC CREATE I3T Scholarship, 2013-4; withdrew from program to accept full-time employment)
Jan 2016 -	S Schmid, MSc	PhD Student, Biomedical Engineering, University of Calgary (NSERC CREATE I3T Scholarship, 2016-7; HBI Berlin-Burns Dementia Studentship, 2017-9; Alberta Innovates Studentship, 2017-20; Family Leaves 2019-20; 2021-2)
May 2017 - April 2018	F Rezapoor, MASc†	PhD Student, Biomedical Engineering, University of Calgary (Co-supervisor: M Lebel, PhD; NSERC CREATE I3T Scholarship, 2017-8; withdrew from program due to family relocation from Calgary)

Postdoctoral Fellows:

April 1998 - April 1999	Y Zhou, PhD	Post-doctoral Fellow, Medical Physics, University of Wisconsin-Madison
July 2000 - June 2003	B Goodyear, PhD	Post-doctoral Fellow, Clinical Neurosciences and Radiology, University of Calgary (CIHR and AHFMR Post-doctoral Fellowships, 2000-2003)
July 2003 - June 2005	P Federico, MD, PhD	Assistant Professor, Clinical Neurosciences, University of Calgary (CIHR Clinician Scientist – Phase 1 Award, 2003-2005)
July 2004 - Aug 2007	H Peng, PhD	Post-doctoral Fellow, Radiology and Clinical Neurosciences, University of Calgary
Dec 2004 - Dec 2006	M Sabati, PhD	Post-doctoral Fellow, Radiology and Clinical Neurosciences, University of Calgary
May 2008 - Feb 2009	R Brown, PhD	Post-doctoral Fellow, Radiology and Clinical Neurosciences, University of Calgary

July 2008 - Dec 2008	A Harris, PhD	Post-doctoral Fellow, Radiology and Clinical Neurosciences, University of Calgary
Sep 2009 - July 2013	A Dorion, PhD †	Post-doctoral Fellow, Chemical and Petroleum Engineering, Radiology and Clinical Neurosciences, University of Calgary (Supervisor: KD Rinker, PhD; TC Fong Fellowship, 2010-11)
Dec 2010 - April 2011	R Stafford, PhD	Post-doctoral Fellow, Radiology and Clinical Neurosciences, University of Calgary
Jan 2011 - June 2011	R Kosior, PhD	Post-doctoral Fellow, Radiology and Clinical Neurosciences, University of Calgary
Jan 2011 - June 2012	M Salluzzi, PhD	Post-doctoral Fellow, Radiology and Clinical Neurosciences, University of Calgary (part-time)
April 2011 - Jan 2012	S Beladi, PhD	Post-doctoral Fellow, Radiology and Clinical Neurosciences, University of Calgary
April 2013 - July 2015	A Eilaghi, PhD	Post-doctoral Fellow, Radiology and Clinical Neurosciences, University of Calgary (Eye's High Scholar)
June 2013 - June 2015	C d'Esterre, PhD	Post-doctoral Fellow, Radiology and Clinical Neurosciences, University of Calgary (HSFC Focus on Stroke Fellowship)
Jan 2015 - Oct 2016	A Tsang, PhD	Post-doctoral Fellow, Radiology and Clinical Neurosciences, University of Calgary (HBI Berlin-Burns Fellowship)
Oct 2016 - June 2017	S Salajeghe, PhD	Post-doctoral Fellow, Radiology and Clinical Neurosciences, University of Calgary
June 2017 - June 2020	R Souza, PhD	Post-doctoral Fellow, Radiology and Clinical Neurosciences, University of Calgary (NSERC CREATE I3T Fellowship, 2017-8; TC Fong Fellowship, 2018-9; Canadian Open Neuroscience Fellowsip, 2020-21).
June 2017 -	M Bento, PhD	Post-doctoral Fellow, Radiology and Clinical Neurosciences, University of Calgary (HBI Berlin-Burns Fellowship, 2017-8; Family leave 2019-20; Canadian Open Neuroscience Fellowsip, 2020-21)
April 2019 -	W Loos, PhD	Post-doctoral Fellow, Radiology and Clinical Neurosciences, University of Calgary (Eyes High Fellowship, 2019-2021).

Visiting and Exchange Students:

Sep 2008 - Dec 2008	N Arronte	Visiting MSc Student, Universidad Complutense de Madrid Madrid, Spain
May 2013 - July 2013	L Souto	Visiting BSc Student, Electrical Engineering Universidade Federal de Campina Grande Campina Grande, PB, Brazil
May 2013 - Dec 2016	X Wang	Visiting MSc Student, Capital Medical University, Beijing, China
Dec 2013 - March 2014	W Loos	Visiting MSc Student, Electrical and Computer Engineering, University of Campinas, Campinas, SP, Brazil
Jan 2016 - June 2016	M Bento	Visiting PhD Student, Electrical and Computer Engineering, University of Campinas, Campinas, SP, Brazil
May 2016 - July 2016	Y Ribeiro	Visiting BSc Student, Electrical Engineering, Universidade Federal de Itajuba, Itajubá, MG, Brazil
Jan 2017 - June 2017	R Souza	Visiting PhD Student, Electrical and Computer Engineering, University of Campinas, Campinas, SP, Brazil
May 2019 - Aug 2019	I Fantini	Visiting PhD Student, Electrical and Computer Engineering, University of Campinas, Campinas, SP, Brazil
Sep 2019 - Aug 2020	K Duarte	Visiting PhD Student, Electrical Engineering, University of Campinas, Campinas, SP, Brazil

vi. Advisory and examination committees

[Excludes committees for students that I supervise or co-supervise. Thesis Advisory Committee Members serve on Candidacy and Thesis Examination Committees at the University of Calgary.]

Advisory and examination committee summary table.	
Thesis Advisory Committee Member (MSc, MEng)[1]	11
Thesis Advisory Committee Member (PhD)	15
Candidacy Examiner (PhD)	4
Thesis Examiner (MSc, MEng)	12
Thesis Examiner (PhD)	1
"Internal" (Extra-departmental) External Examiner (MSc, MEng)	3
"Internal" (Extra-departmental) External Examiner (PhD)	4
External Examiner (PhD)	11
Neutral Chair (MSc Defense, PhD Candidacy or Defense)	32
Total	**93**

Jan 2001	S Boyd, MSc	"Internal" External Examiner, PhD Defense, Mechanical and Manufacturing Engineering, University of Calgary
Sep 2001	R Moss, BSc	"Internal" External Examiner, MSc Defense, Mechanical and Manufacturing Engineering, University of Calgary
Oct 2001 - June 2004	C Tobolowski, BSc	PhD Thesis Advisory Committee, Psychology, University of Calgary
Sep 2003 - Nov 2006	Y Zhang, MD	PhD Thesis Advisory Committee, Medical Sciences, University of Calgary
Sep 2003 - June 2005	E Douglas, BSc	MSc Thesis Advisory Committee, Neurosciences, University of Calgary
July 2004 - Sep 2005	C Igna, BSc	MSc Thesis Advisory Committee, Physics, University of Calgary
Oct 2004 - Jan 2007	J Power, BSc	MSc Thesis Advisory Committee, Physics, University of Calgary
Dec 2004	A Landry, MSc	External Examiner, PhD Defense, Medical Biophysics, University of Western Ontario

Dec 2004	T Williams, BASc	Examiner, PhD Candidacy Examination, Electrical and Computer Engineering, University of Calgary
Jan 2005	G Meng, BSc	Neutral Chair, MSc Defense, Mechanical and Manufacturing Engineering, University of Calgary
Feb 2005	M Bock, BSc	Neutral Chair, MSc Defense, Physics and Astronomy, University of Calgary
Dec 2005	K (McLaughlin) Connly, BSc	Examiner, MSc Defense, Mechanical and Manufacturing Engineering, University of Calgary
Feb 2006	N Ploquin, MSc	Neutral Chair, PhD Candidacy Examination, Physics and Astronomy, University of Calgary
April 2006	M Zec, BSc	Neutral Chair, PhD Defense, Biomedical Engineering, University of Calgary
April 2006	R Cheng, BSc	Examiner, MSc Defense, Geomatics Engineering, University of Calgary
Sep 2006	S Boucousis, BSc	Examiner, MSc Defense, Electrical and Computer Engineering, University of Calgary
Oct 2006	J MacNeil, BSc	Examiner, PhD Candidacy Examination, Mechanical and Manufacturing Engineering, University of Calgary
Oct 2006 -	G McFeetors, BSc	PhD Thesis Advisory Committee, Electrical and Computer Engineering, University of Calgary
Dec 2006	Y Huang, MSc	External Examiner, PhD Defense, Medical Biophysics, University of Toronto
Feb 2007 - April 2014	K Mountain, BSc	PhD Thesis Advisory Committee, Biomedical Engineering/Medical Sciences, University of Calgary
March 2007	I Fjeld, BSc	Examiner, MSc Defense, Mechanical and Manufacturing Engineering, University of Calgary
June 2007	Q Wei, BSc	Examiner, MSc Defense, Electrical and Computer Engineering, University of Calgary

July 2007	S Wynd, DC	Neutral Chair, PhD Defense, Biomedical Engineering, University of Calgary
Aug 2007	Y Bahgat, MSc	External Examiner, PhD Defense, Biomedical Engineering, University of Alberta
Aug 2007	N Ploquin, MSc	Neutral Chair, PhD Defense, Physics and Astronomy, University of Calgary
Nov 2007	J Yerly, BSc	Examiner, MSc Defense, Electrical and Computer Engineering, University of Calgary
Dec 2007	J Kupper, BSc	Examiner, MSc Defense, Mechanical and Manufacturing Engineering, University of Calgary
Dec 2007	K Myers, BSc	Neutral Chair, PhD Defense, Biomedical Engineering, University of Calgary
Jan 2008 - Dec 2010	N Zayed, MSc	PhD Thesis Advisory Committee, Biomedical Engineering/Medical Sciences, University of Calgary
April 2008	C Bryant, BSc	Neutral Chair, PhD Defense, Physics and Astronomy, University of Calgary
April 2008	P Haghighat, BSc	Neutral Chair, MSc Defense, Chemical and Petroleum Engineering, University of Calgary
May 2008	T Williams, BASc	Examiner, PhD Defense, Electrical and Computer Engineering, University of Calgary
July 2008 - Jan 2012	Y Pauchard, MSc	PhD Thesis Advisory Committee, Electrical Engineering, University of Calgary
Aug 2008	X Liu, BSc	Neutral Chair, MSc Defense, Civil Engineering, University of Calgary
Dec 2008	N Babcock, BSc	Neutral Chair, PhD Candidacy, Physics and Astronomy, University of Calgary
Dec 2008 - Aug 2011	Q Wei, MSc	PhD Thesis Advisory Committee, Electrical Engineering, University of Calgary
Dec 2008	J Desrochers, MSc	Neutral Chair, PhD Candidacy, Biomedical Engineering, University of Calgary

March 2009	I Robu, BSc	Examiner, MSc Defense, Mechanical and Manufacturing Engineering, University of Calgary
May 2009 - May 2012	E Graf, MSc	PhD Thesis Advisory Committee, Kinesiology, University of Calgary
Aug 2009	S Nalu, MD	Neutral Chair, MSc Defense, Medical Sciences – Mountain Medicine Program, University of Calgary
Aug 2009	O Rempel, MSc	Examiner, PhD Candidacy, Physics and Astronomy, University of Calgary
Oct 2009	N Jain, BSc	Neutral Chair, MSc Defense, Physics and Astronomy, University of Calgary
Dec 2009	Y Thakur, MSc	External Examiner, PhD Defense, Biomedical Engineering, University of Western Ontario
Dec 2009	A Eissa, BSc	External Examiner, PhD Defense, Physics, University of Alberta
April 2010	A Kouznetsov, MSc	Neutral Chair, PhD Candidacy, Physics and Astronomy, University of Calgary
April 2010	A Hussien, MSc	Neutral Chair, PhD Candidacy, Physics and Astronomy, University of Calgary
July 2010	K Ho, BSc	Examiner, MSc Defense, Civil Engineering, University of Calgary
Jan 2010	H Saiedi, BSc	Neutral Chair, MSc Defense, Civil Engineering, University of Calgary
Jan 2010	G Mendez, BSc	Neutral Chair, MSc Defense, Chemical and Petroleum Engineering, University of Calgary
Jan 2011 - Aug 2015	C Curtis, MSc	PhD Thesis Advisory Committee, Electrical and Computer Engineering, University of Calgary
Sep 2011 - Sep 2016	E Bishop, BSc	PhD Thesis Advisory Committee, Biomedical Engineering, University of Calgary
Sep 2011 - Aug 2017	X Dai, BSc	PhD Thesis Advisory Committee, Biomedical Engineering, University of Calgary

Dec 2011	J Tinani, MSc	Neutral Chair, PhD Defense, Biomedical Engineering, University of Calgary
Dec 2011	K Lee, BSc	Examiner, MSc Defense, Biomedical Engineering, University of Calgary
Jan 2011 - July 2013	M Bernbaum, BSc	MSc Thesis Advisory Committee, Neurosciences, University of Calgary
July 2012	J Luu, BSc	"Internal" External Examiner, PhD Candidacy, Medical Sciences, University of Calgary
Sep 2012	A MacKenzie, BSc	Neutral Chair, MSc Defense, Biomedical Engineering, University of Calgary
Oct 2012	S Andrews, BSc	Neutral Chair, PhD Defense, Biomedical Engineering, University of Calgary
Dec 2012	B McKenzie, BSc	Neutral Chair, PhD Defense, Medical Sciences, University of Calgary
Dec 2012	M Rodriguez, BSc	"Internal" External Examiner, PhD Candidacy, Electrical and Computer Engineering, University of Calgary
Dec 2012 - March 2018	C Brideau, MSc	PhD Thesis Advisory Committee, Biomedical Engineering, University of Calgary
Dec 2012	A Soudra, MSc	Examiner, MSc Defense, Biomedical Engineering, University of Calgary
Jan 2013 - March 2018	M Noor, MSc	PhD Thesis Advisory Committee, Biomedical Engineering, University of Calgary
May 2013	A Tsang, MSc	External Examiner, PhD Defense, Biomedical Engineering, University of Alberta
June 2013	J Owoc, BSc	Examiner, MSc Defense, Biomedical Engineering, University of Calgary
Aug 2013	A Santarino, BSc	Neutral Chair, MSc Defense, Biomedical Engineering, University of Calgary
Aug 2013	A Hernandez, BSc	Neutral Chair, MSc Defense, Physics and Astronomy, University of Calgary
Aug 2013	L Angulo, BSc	Examiner, MSc Defense, Biomedical Engineering, University of Calgary

Jan 2014 - Dec 2015	A Munir, BSc	MSc Thesis Advisory Committee, Neurosciences, University of Calgary
Jan 2014 - June 2015	M Korngold, BSc	MSc Thesis Advisory Committee, Biomedical Engineering, University of Calgary
Jan 2014 - Dec 2015	A Mah, BSc	MSc Thesis Advisory Committee, Biomedical Engineering, University of Calgary
Aug 2014	J Wiebe, BSc	Neutral Chair, MSc Defense, Physics and Astronomy, University of Calgary
Oct 2014	K Fuh, MSc	Neutral Chair, PhD Candidacy, Biomedical Engineering, University of Calgary
Jan 2015 - Oct 2019	A Forneris, MSc	PhD Thesis Advisory Committee, Biomedical Engineering, University of Calgary
March 2015 - Sep 2017	R Basiri, BSc	MSc Thesis Advisory Committee, Biomedical Engineering, University of Calgary
Dec 2015	S Maia, MSc	"Internal" External Examiner, PhD Defense, Computer Science, University of Calgary
Jan 2016	M Walton, BSc	Neutral Chair, MSc Defense, Medical Sciences, University of Calgary
Jan 2016 - Dec 2019	B Geeraert, BSc	PhD Thesis Advisory Committee, Biomedical Engineering, University of Calgary
March 2016 - Oct 2019	R Phellan, MSc	PhD Thesis Advisory Committee, Biomedical Engineering, University of Calgary
Sep 2016	K Ronayne, BSc	Examiner, MSc Defense, Biomedical Engineering, University of Calgary
Sep 2016	Z Faraji-Dana, MSc	External Examiner, PhD Defense, Medical Biophysics, University of Toronto
Nov 2016	Y Xu, MSc	Neutral Chair, PhD Defense, Medical Sciences, University of Calgary
Nov 2016	N Al-Jezani, BSc	Neutral Chair, MSc Defense, Medical Sciences, University of Calgary
Dec 2016	J-D Jutras, MSc	External Examiner, PhD Defense, Physics, University of Alberta
May 2017	A Michakalski, MSc	Neutral Chair, PhD Candidacy, Biomedical Engineering, University of Calgary

Sep 2017	J Cheng, MSc	External Examiner, PhD Defense, Electrical and Computer Engineering, City University of Hong Kong
Nov 2017	P Adipour, BSc	MSc Thesis Advisory Committee, Electrical Engineering, University of Calgary
Dec 2017	R Golem, MSc	Internal-External Examiner, PhD Defense, Computer Science, University of Calgary
Dec 2017	K McPhee, MSc	External Examiner, PhD Defense, Physics, University of Alberta
Oct 2018	L Rodrigues, BSc	External Examiner, MSc Defense, Computer Engineering, State University of Campinas
Dec 2018	P Johnson, MSc	External Examiner, PhD Defense, Medical Biophysics, Western University
Feb 2019	A Kroker, MSc	Neutral Chair, PhD Defense, Biomedical Engineering, University of Calgary
Dec 2019	I Blanchard, BSc	Neutral Chair, MSc Defense, Medical Sciences, University of Calgary
March 2020	A Miklaski, MSc	Neutral Chair, PhD Defense, Biomedical Engineering, University of Calgary
April 2020	T Van der Zee	Neutral Chair, PhD Candidacy, Biomedical Engineering, University of Calgary
April 2020	A Shukla	Neutral Chair, PhD Candidacy, Medical Sciences, University of Calgary
May 2020	R Beddoes	Neutral Chair, MSc Defense, Biomedical Engineering, University of Calgary
June 2020	S Dumanski	Neutral Chair, MSc Defense, Medical Sciences, University of Calgary
July 2020	S Pishgar	Neutral Chair, MSc Defense, Biomedical Engineering, University of Calgary
May 2021	C Firminger	Neutral Chair, PhD Defense, Biomedical Engineering, University of Calgary

VI ADMINISTRATIVE RESPONSIBILITIES

[I serve on multiple institute and faculty committees in my role as HBI Deputy Director (2017-). On average this includes ~8 Search and Selection Committees per year, as well as ~10 HBI and Cumming School of Medicine Committees. These committees have not been included below, except for major committees and committees that I chair.]

i. Departmental

Sep 1992 - Aug 1994	Member, Department of Medical Biophysics - Appointments, Promotion and Tenure Committee, University of Western Ontario
Dec 1999 - June 2000	Member/Coordinator, Academic MR Scientist Recruitment and Selection Committee, Departments of Radiology and Clinical Neurosciences, University of Calgary
Sep 2001 - Sep 2002 and Jan 2003 - July 2003	Chair, Senior MR Scientist/Scientific Director of Experimental Imaging Centre Recruitment and Selection Committee, Department of Radiology, University of Calgary
Jan 2002 - Oct 2002	Chair, Academic Functional MR Scientist Recruitment and Selection Committee, Department of Radiology, University of Calgary
March 2002 - June 2006	Acting Division Head, Division of Image Science, Department of Radiology, University of Calgary
June 2002 - Aug 2004	Member, Curriculum Committee, Graduate Program in Biomedical Engineering, University of Calgary
Sep 2002 - Nov 2002	Chair, MR Hardware Scientist Recruitment and Selection Committee, Department of Radiology, University of Calgary
Aug 2004 - June 2007	Chair, Curriculum Committee, Graduate Program in Biomedical Engineering, University of Calgary
Jan 2006 - June 2014	Member, Graduate Admission and Scholarship Committee, Department of Physics and Astronomy, University of Calgary
Nov 2007 - June 2014	Member, Graduate Affairs Committee, Department of Physics and Astronomy, University of Calgary
Jan 2008 - Aug 2010	Member, Curriculum Committee, Graduate Program in Biomedical Engineering, University of Calgary
Sep 2008 - May 2010	Member, Steering Committee, Expansion of Graduate Program in Biomedical Engineering, University of Calgary
June 2010 - May 2016	Member, Graduate Education Committee, Biomedical Engineering Graduate Program, University of Calgary

June 2010 - June 2012 and Jan 2013 - May 2016	Associate Director (Medicine), Biomedical Engineering Graduate Program, University of Calgary
Jan 2012 - Sep 2013	Chair, Image Scientist Recruitment and Selection Committees (3 + 2 positions), Department of Radiology, University of Calgary
June 2012 - Dec 2012	Acting Director, Biomedical Engineering Graduate Program, University of Calgary
July 2012 - June 2017	Member, HBI Education Committee, University of Calgary
Sep 2013 - June 2017	Member, Graduate Education Committee, Medical Sciences Graduate Program, University of Calgary
July 2016 - Dec 2016	Member, Image Scientist Recruitment and Selection Committees (2 positions), Department of Radiology, University of Calgary
July 2017 -	Chair, HBI Scientific Research and Innovation Committee, University of Calgary
July 2017 -	Member, HBI Executive Committee, University of Calgary
July 2017 -	Member (*ex officio*), HBI Strategic Advisory Board, University of Calgary
Sep 2017 - March 2020	Chair, Radiology Research Allocation Committee, Department of Radiology, University of Calgary

ii. Faculty

March 1990 - June 1994	Member, Faculty of Graduate Studies Council, University of Western Ontario
Jan 1991 - June 1994	Member, Policy Committee, Faculty of Graduate Studies, University of Western Ontario
Jan 1992 - Sep 1992	Member, Faculty of Medicine - Graduate Education in the Sciences Basic to Medicine Sub-committee, Liaison Committee on Medical Education, University of Western Ontario
Dec 1999 - Nov 2000	Member, Working Group, Experimental Brain Imaging Centre, Faculty of Medicine, University of Calgary
Dec 2000 - Jun 2004	Member, Management Committee, Experimental Imaging Centre, Faculty of Medicine, University of Calgary
July 2001 - Oct 2001	Member, Scientific Review Committee, Experimental Imaging Centre, Faculty of Medicine, University of Calgary

Nov 2001 - July 2004	Member, Operations Committee, Experimental Imaging Centre, Faculty of Medicine, University of Calgary
Nov 2001 - March 2004	Chair, Scientific Review Committee, Experimental Imaging Centre, Faculty of Medicine, University of Calgary
Jan 2003 - Dec 2003	Member, Steering Committee, Cardiovascular MR Scanner Project
Jan 2003 - Nov 2003	Acting Academic Director, Experimental Imaging Centre, Faculty of Medicine, University of Calgary
July 2003 - May 2004	Member, Steering Committee, Calgary Brain Institute
July 2003 - March 2005	Member, Executive Committee, Neuroscience Research Group
March 2004 - Feb 2007	Member, Research Committee, Hotchkiss (formerly Calgary) Brain Institute
July 2005 - June 2008	Member, Graduate Scholarship Committee, Faculty of Graduate Studies
March 2009 - June 2012	Co-leader, Cerebral Circulation (formerly Cerebral Blood Flow and Regulation) Foundational Theme, Hotchkiss Brain Institute
April 2009 - June 2012	Member, Strategic Research and Innovation Committee, Hotchkiss Brain Institute
July 2012 - March 2013	Member, Striking Committee, Faculty of Graduate Studies
July 2012 - June 2018	Program Director, NSERC CREATE International and Industrial Training (I3T) Program, Cumming School of Medicine
Sep 2012 - June 2018	Coordinator, Medical Imaging Graduate Specialization (MEDI), Faculty of Graduate Studies

iii. University

July 1990 - June 1991	Member, Graduate Policy and Planning Committee, Senate Committee on University Planning, University of Western Ontario

iv. Calgary Regional Health Authority/Calgary Health Region/Alberta Health Services

Sep 1999 -	Member, Steering Committee, Seaman Family MR Research Centre, Alberta Health Services (formerly Calgary Health Region)

Sep 1999 - Oct 2001	Member, Scientific Review Committee, Seaman Family MR Research Centre, Calgary Health Region
Sep 1999 - Jun 2006	Member, High Field Operations Committee, Seaman Family MR Research Centre, Calgary Health Region
July 2000 - Nov 2000	Member, Joint MR Selection Committee, Capital and Calgary Health Regions
Nov 2001 - June 2006	Chair, Scientific Review Committee, Seaman Family MR Research Centre, Calgary Health Region
Nov 2001 - June 2006	Member, Resource Allocation Committee, Seaman Family MR Research Centre, Calgary Health Region
March 2003 - Dec 2003	Member, MR Equipment Selection Committee, Peter Lougheed Centre, Calgary Health Region
July 2004 - Sep 2004	Member, Cardiac MR Selection Committee, Foothills Medical Centre, Calgary Health Region
Oct 2004 - Jan 2005	Member, MR Equipment Selection Committee, Foothills Medical Centre and South Calgary Health Centre, Calgary Health Region
Nov 2004 - Dec 2011	Member, Stephenson Cardiovascular MR Centre Management Committee, Foothills Medical Centre, Alberta Health Services
July 2005 - Sep 2008	Chair, Molecular Imaging Initiative Steering Committee, Foothills Medical Centre, Calgary Health Region
Aug 2005 - Feb 2006	Co-Chair, Molecular Imaging Initiative Partnership/Infrastructure Selection Committee, Foothills Medical Centre, Calgary Health Region
July 2009 - Nov 2009	Member, MR 1.5 T Selection Committee, Alberta Health Services
Nov 2009 - Oct 2010	Member, MR 3.0 T Selection Committee, Alberta Health Services
Dec 2010 - July 2015	Member, Alberta Children's Hospital Child and Adolescent Imaging Research Program - Steering Committee, Alberta Children's Hospital, Alberta Health Services
Jan 2012 - July 2015	Chair, Alberta Children's Hospital Child and Adolescent Imaging Research Program - Operating Committee, Alberta Children's Hospital, Alberta Health Services

v. Other

Sep 1999 - Nov 1999	Member, Working Committee on Image-guided Therapy, Alberta Cancer Board
Dec 2001 - Dec 2014	Member, Department of Physics/Tom Baker Cancer Clinic Medical Radiation Oncology Physics Graduate Program Committee
April 2008 - March 2015	Member, Steering Committee, Canadian Atherosclerosis Imaging Network
April 2008 - March 2015	Chair, Training and Transfer Committee, Canadian Atherosclerosis Imaging Network
Sep 2008 - Aug 2011 March 2014 -	Member, Scientific Review Committee, Heart and Stroke Foundation of Canada (HSFC).
April 2009 - March 2015	Member, External Advisory Board, CIHR Strategic Training Program in Vascular Research, University of Western Ontario
Feb 2011 - March 2016	Chair, Training, Transfer and Mentorship Committee, Medical Imaging Trials Network of Canada
Feb 2016 -	Member, International Advisory Board, Brazilian Institutes for Neuroscience and Neurotechnology (BRAINN), Campinas, São Paulo, Brazil
July 2017 - June 2020	Executive Vice Chair, Scientific Review Committee, HSFC (Acting Executive Chair, April-June 2020).
July 2017 - March 2021	Member, Council on Mission: Priorities, Advice, Science and Strategy (CoMPASS), HSFC
May 2020 -	Member (*ex officio*), Board Research Subcommittee, HSFC
July 2020 – June 2022	Executive Chair, Scientific Review Committee, HSFC
March 2021 -	Member (*ex officio*), Research Partnership Advisory Group, HSFC

VII PROFESSIONAL ACTIVITIES

i. Membership in professional and learned societies

Jan 1990 - Dec 2012	Canadian Organization of Medical Physicists (COMP)	Member
Jan 1990 - Dec 2012	American Association of Physicists in Medicine (AAPM)	Member
Jan 1990 -	International Society of Magnetic Resonance in Medicine (ISMRM)	Member
July 2006 - Dec 2007	Society for Molecular Imaging (SMI)	Member
June 2009 -	International Society for Cerebral Blood Flow and Metabolism (ISCBFM)	Member
July 2018 -	International Society of Vascular Behavioural and Cognitive Disorders (Vas•Cog)	Member

ii. Professional service

Professional leadership

Oct 2010 - Sep 2015	Member, Board of Directors, International Magnetic Resonance Angiography Club (renamed to Society for Magnetic Resonance Angiography)
Sep 2015 - Sep 2018	Member, Advisory Board, Society for Magnetic Resonance Angiography
Sep 2016 - Aug 2022	Member, Executive Committee, Society for Magnetic Resonance Angiography (President-elect 2016-7, President 2017-8, Past-president 2018-21 (three years due to COVID and a resignation), Past-past-president 2021-2)
Sep 2018 - Sep 2021	Chair, Advisory Board, Society for Magnetic Resonance Angiography

Granting agencies review and committee service

Oct 1999 -	Reviewer, Heart and Stroke Foundation of Canada (HSFC)
Oct 2000 -	Reviewer, Physicians Service Incorporated of Ontario
Oct 2001 -	Reviewer, Canadian Institutes for Health Research (CIHR)

Dec 2001 - Dec 2004	Member, Grant Review Panel II, HSFC
Dec 2003 -	Reviewer, National Science and Engineering Research Council (NSERC)
Jan 2004 - March 2005	Deputy Chair/Scientific Officer, Grant Review Panel - Special Strategic Initiative in Vascular Health and Dementia, HSFC, the Alzheimer Society of Canada, and the CIHR
Feb 2006 – December 2018	Reviewer, Manning Foundation
Oct 2006 - June 2009	Member, New Investigators A (NIA) Grant Review Panel, CIHR
June 2007	Reviewer, Ministry of Research and Innovation, Province of Ontario
Sep 2007	Reviewer, Eidgenössische Technische Hochschule (ETH) Zürich, Switzerland
July 2008 - June 2011	Deputy Chair/Scientific Officer, Grant Review Panel II, HSFC
July 2008 - March 2012	Member, Medical Physics and Imaging Grant Review Panel, CIHR
March 2010 -	Reviewer, Canada Foundation for Innovation
Dec 2010 -	Reviewer, Canada Research Chairs Program
Feb 2011 - June 2011, Feb 2013 - May 2013	Member, Team Grant: Terry Fox New Frontiers Program in Cancer Panel, CIHR
March 2013 - July 2015	Deputy Chair/Scientific Officer, Grant Review Panel XII Mid-Career Investigator & Clinician Scientist Award, HSFC/HSFO/HSFA
Nov 2013	Member, Group Grant Review Panel, Saskatchewan Health Research Foundation (SHRF)
Feb 2014 - July 2015	Member, Budget Review Committee, HSFC
Sep 2014 - Aug 2015	Member, Foundation Awards – Stage 1 – Review Committee, CIHR
July 2015 - June 2017	Deputy Chair/Scientific Officer, Budget Review Committee, HSFC
July 2015 - June 2017	Deputy Chair/Scientific Officer, Senior Personnel Committee (Panel VIII), HSFC

Dec 2015 -	Reviewer, Technology Foundation STW, The Netherlands.
Dec 2015 -	Member, Foundation Awards – Stage 2 – Review Committee, CIHR
March 2016	Member, Canadian Cancer Society Research Institute (CCSRI) - I2 - Imaging and Technology Development Panel
Jan 2017	Member, Project Awards - Stages 1 and 2 - Review Committees, CIHR
March 2017 - June 2020	Executive Vice Chair, Scientific Review Committee, HSFC
July 2017 - June 2018	Chair, Senior Personnel Committee (Panel VIII), HSFC
July 2020 - June 2022	Executive Chair, Scientific Review Committee, HSFC

Journals and meeting review

Oct 1996 -	Reviewer, *Physics in Medicine and Biology*
June 1997 -	Reviewer, *Journal of Magnetic Resonance Imaging*
Aug 1998 - Dec 2005	Reviewer, *American Journal of Neuroradiology*
March 2000 - Dec 2003	Reviewer, *Neurology*
March 2000 - Dec 2012	Reviewer, *Medical Physics*
Jan 2004 - Dec 2008	Reviewer, *Journal of Vascular and Interventional Radiology*
Dec 2004 - Dec 2008	Reviewer, *Canadian Journal of Neurological Sciences*
April 2005 -	Reviewer, *Magnetic Resonance in Medicine*
Nov 2005 -	Reviewer, International Society for Magnetic Resonance in Medicine, Annual Scientific Meeting
March 2006 -	Reviewer, *IEEE Transactions on Medical Imaging*
June 2007-	Reviewer, *Journal of Neuroscience Methods*

Sep 2008 - March 2009 and July 2016 -	Reviewer, *NMR in Biomedicine*
Oct 2008 -	Reviewer, *Stroke*
Nov 2012 -	Reviewer, *Neuroimage Clinical*
March 2013 -	Reviewer, *Neuoroimage*

Meeting organization, community and other service

Jan 1998 - June 1998	Member, Local Arrangements Committee, 1998 American Association of Physicists in Medicine Summer School - "Imaging in Radiotherapy", Madison, Wisconsin, USA.
April 2002 - April 2008	Judge, Calgary Science Fair, Calgary, Alberta, Canada.
Nov 2003	Organizer, Imaging Session, Alberta Cancer Board Annual Meeting, 13-15 Nov 2003, Banff, Alberta, Canada
July 2004 - Dec 2006	Organizer, Physics Refresher Session on 3 T MR Imaging, Radiological Society of North America, Dec 2004-2006, Chicago, Illinois, USA.
Sep 2005 - Jan 2012	Organizer, XXIII Annual International Conference on Magnetic Resonance Angiography, 26-28 Sep 2011, Banff, Alberta, Canada
Nov 2006	Organizer, PAMIS – Provincial Alberta Molecular Imaging Strategy, Inaugural Meeting, 7 Nov 2006, Banff, Alberta, Canada.
Oct 2009	Organizer and Chair, Canadian Atherosclerosis Imaging Network (CAIN) - "Hearts and Minds" -- A Collaborative Framework for Vascular Imaging Studies in Canada. Peer-reviewed workshop at the Canadian Cardiovascular Congress, Oct 2009, Edmonton, Alberta, Canada.
June 2010	Organizer and Chair, Canadian Atherosclerosis Imaging Network (CAIN) - "Hearts and Minds" -- A Collaborative Framework for Vascular Imaging Studies in Canada. Workshop at the Canadian Stoke Congress, June 2010, Quebec City, Quebec, Canada.
Jan 2011 -	Organizer and Chair/co-Chair, Annual Alberta Imaging Symposium, Calgary and Edmonton, Alberta.
April 2011	Organizer and Chair, Canadian Atherosclerosis Imaging Network (CAIN) - "Update 2011, April 2011, Montreal, Quebec, Canada.

April 2011 -	Organizer and Chair, Alberta Imaging Symposium
Oct 2011	Organizer, Canadian Atherosclerosis Imaging Network (CAIN) – Clinical Update. Peer-reviewed workshop at the Canadian Cardiovascular Congress, Oct 2011, Vancouver, British Columbia, Canada.
March 2012 - June 2013	Member, Standards for Determing the Vascular Contribution to Neurodegeneration Working Group Chair, Technical Subcommittee Centres of Excellence in Neurodegeneration
Sep 2012	Organizer and Chair, Canadian Atherosclerosis Imaging Network (CAIN) - "Hearts and Minds" -- A Collaborative Framework for Vascular Imaging Studies in Canada. Workshop at the Canadian Stoke Congress, Sep 2012, Calgary, Alberta, Canada
Oct 2012	Organizer and Chair, Canadian Atherosclerosis Imaging Network (CAIN) – Medical Imaging Trials Network of Canada (MITNEC) – CMOD/Health Canada Workshop, Oct 2012, Ottawa, Ontario, Canada.
Nov 2012	External Referee (Application for Full Professor), Northwestern University
July 2013	External Referee (Application for Full Professor), Simon Fraser University
Oct 2013 - April 2015, and May 2016 - April 2017	Organizer, Imaging Network of Ontario Meeting, Toronto and London, Ontario, Canada
Sep 2014 - June 2015	Member, METACOHORTS Working Group Centres of Excellence in Neurodegeneration
May 2015 - April 2016	Chair, Imaging Network of Ontario Meeting, Toronto, Ontario, Canada
Sep 2015	Program Review, Biomedical Engineering, McMaster University
Oct 2015	External Referee (Application for Full Professor), University of Chicago
Jan 2017 - April 2019	Member, HARNESS Working Group Centres of Excellence in Neurodegeneration
Oct 2017	External Referee (Application for Tenure), University of Ontario Institute of Technology

Oct 2017	External Referee (Application for Promotion to Scientist), Sunnybrook Research Institute
Oct 2017	External Referee (Appraisal Letter), Canada Research Chairs Program
March 2019	External Referee (Application for Full Professor), University of British Columbia
June 2019	External Referee (Application for Tenure), Chinese University of Hong Kong
April 2020 - Oct 2020	Chair, Organizing Committee, Society for Magnetic Resonance Angiography Virtual Meeting, 12-14 Sep 2020 (*Last minute change from in-person meeting (April 2020) due to COVID-19 pandemic*)
Sep 2020	Program Review, Medical Biophysics, University of Western Ontario
Jan 2021 - Oct 2022	Member, Organizing Committee, Society for Magnetic Resonance Angiography Virtual Meeting, 10-12 Sep 2021
June 2021	External Referee (Application for Tenure), University of Western Ontario

VIII RESEARCH SUPPORT

Junior Personnel Award
Granting Agency: Heart and Stroke Foundation of Canada (HSFC)
Status: Completed
Principal Investigator: **R Frayne** (under the supervision of BK Rutt)
1 July 1990-30 June 1994 Total: C$ 60,000

Post-doctoral Fellowship
Granting Agency: Heart and Stroke Foundation of Canada (HSFC)
Status: Completed
Principal Investigator: **R Frayne** (under the supervision of CA Mistretta)
22 Aug 1994-21 Aug 1996 Total: C$ 54,000

Post-doctoral Fellowship
Granting Agency: National Science and Engineering Research Council-Canada (NSERC)
Status: Declined - Accepted Heart and Stroke Foundation of Canada Award
Principal Investigator: **R Frayne** (under the supervision of CA Mistretta)
1 Sep 1994-30 Aug 1996 Total: C$ 58,000

Post-doctoral Fellowship
Granting Agency: National Science and Engineering Research Council-Canada (NSERC)
Status: Declined - Accepted Assistant Scientist position.
Principal Investigator: **R Frayne** (under the supervision of CA Mistretta)
1 Sep 1996-30 Aug 1998 Total: C$ 58,000

Measurement of Coronary Artery Flow in Dogs using MR
Granting Agency: NIH/NHLBI (NIH 1 R01 HL52747)
Status: Completed
Principal Investigator: TM Grist
Co-investigators: CA Mistretta, FR Korosec, **R Frayne**, JD Folts, MS Van Lysel, WP Miller
1 July 1995-30 June 1998 Total: US$ 377,107

Time-resolved Contrast-enhanced 3D MR Angiography
Granting Agency: NIH/NHLBI (NIH 1 R29 HL57501)
Status: Completed
Principal Investigator: **R Frayne**
Co-investigators: FR Korosec, TM Grist, CA Mistretta
1 Dec 1996-4 Oct 1999 Total: US$ 293,119

Improved Time-resolved Contrast-enhanced 3D MR Angiography
Granting Agency: Whitaker Foundation (RG-96-0485)
Status: Completed
Principal Investigator: **R Frayne**
Co-investigators: FR Korosec, TM Grist, CA Mistretta
1 April 1997-30 Sep 1999 Total: US$ 201,731

Cerebrovascular Time-resolved Contrast-enhanced 3D MRA
Granting Agency: NIH/NHLBI (NIH 1 R01 HL57983)
Status: Completed
Principal Investigator: PA Turski
Co-investigators: **R Frayne**, FR Korosec, CA Mistretta, TM Grist, VB Graves, SG McKinnon
1 Dec 1997-30 Nov 2000 Total: US$ 526,908

Reducing Health Care Costs using 3D Time-resolved Contrast-enhanced MR Angiography
Granting Agency: NSF (BES-7908319)

Status: Completed
Principal Investigator: TM Grist
Co-investigators: CA Mistretta, DG Fryback, **R Frayne**, FR Korosec
15 Aug 1997-14 Aug 2000 Total: US$ 762,000

UW Radiological Sciences Training Grant
Granting Agency: NIH (5 T32 CA09206)
Status: Completed
Program Director: PM DeLuca
Co-Trainer: 20+ including **R Frayne**
1 Aug 1978-31 May 2004 Annual Total: US$208,736

Synthesis of MR Signal-emitting Coating Materials and Preliminary Evaluation of their Toxicity and Biocompatibility
Granting Agency: University of Wisconsin-Madison, University Industrial Relations
Status: Completed
Principal Investigators: H Yu, **R Frayne,** CM Strother
1 Oct 1998-30 June 1999 Total: US$ 35,447

Assessment of Acute Stroke using Perfusion Magnetic Resonance Imaging
Granting Agency: Young Innovator Competition, University of Calgary
Status: Completed
Principal Investigator: **R Frayne**
1 Feb 2000 – 31 Jan 2001 Total: C$20,000

Endovascular MR Systems for Stroke Therapy
Granting Agency: Alberta Heritage Foundation for Medical Research (Establishment Grant)
Status: Completed
Principal Investigator: **R Frayne**
1 July 2000 - 30 June 2002 Total: C$ 300,000

Endovascular MR Systems for Stroke Therapy
Granting Agency: Alberta Heritage Foundation for Medical Research (Medical Scholar Award)
Status: Completed
Principal Investigator: **R Frayne**
1 July 2000 - 30 June 2005 Total: C$ 350,000

Endovascular MR Systems for Stroke Therapy
Granting Agency: Heart and Stroke Foundation of Canada (Research Scholarship)
Status: Completed
Principal Investigator: **R Frayne**
1 July 2000 - 30 June 2005 Total: C$ 300,000

Optimized Diffusion Imaging for Acute Stroke
Granting Agency: Neuro-Degenerative Disease Research, Faculty of Medicine, University of Calgary
Status: Completed
Principal Investigator: **R Frayne**
1 July 2000 – 31 Aug 2001 Total: C$ 8,500

Vascular Imaging and Intervention Laboratory Renovation Funds
Granting Agency: Alberta Heritage Foundation for Medical Research (Renovation funds associated with Medical Scholar Award)
Status: Completed
Principal Investigator: **R Frayne**
1 July 2000 - 31 Dec 2001 Total: C$ 75,000

Henry JM Barnett Scholarship
Granting Agency: Heart and Stroke Foundation of Canada
Status: Completed
Principal Investigator: **R Frayne**
1 July 2000 - 30 June 2001 Total: C$ 15,000

Optimal Parameters for Diffusion-weighted Magnetic Resonance Imaging of Acute Stroke
Granting Agency: Calgary Regional Health Authority - Adult Research Committee
Status: Completed
Principal Investigator: **R Frayne**
15 Oct 2000 – 31 Oct 2001 Total: C$ 4,833

Reducing Embolic Complications in Endovascular Therapy using MR
Granting Agency: Heart and Stroke Foundation of Canada
Status: Completed
Principal Investigator: **R Frayne**
1 July 2001 - 30 June 2003 Total: C$ 99,000

Visual Cortical Plasticity in Acute Stroke as Determined by Functional Magnetic Resonance Imaging
Granting Agency: Calgary Regional Health Authority - Research Development Funding Competition
Status: Completed
Principal Investigators: **R Frayne**, B Goodyear
1 Jan 2001 – 31 Dec 2001 Total: C$ 19,962

High Field Imaging for Vascular Diagnosis and Therapy
Granting Agency: Canada Foundation for Innovation, New Opportunities Program
Status: Completed
Principal Investigator: **R Frayne**
1 July 2001 – 30 June 2005 Total: C$ 220,000

Large FOV Interactive Peripheral Magnetic Resonance Angiography
Granting Agency: Whitaker Foundation
Status: Completed
Principal Investigator: **R Frayne**
1 Dec 2001 – 31 Sep 2003 Total: US$ 66,200

High-field Imaging for Multiple Sclerosis
Granting Agency: Neuro-Degenerative Disease Research, Faculty of Medicine, University of Calgary
Status: Completed
Principal Investigator: JR Mitchell
Co-investigators: 4 including **R Frayne**
1 July 2001 – 31 Aug 2002 Total: C$ 15,000

Development of CT Based Indices of Tissue Viability and Infarction in Stroke
Granting Agency: Canadian Stroke Network
Status: Completed
Principal Investigator: TY Lee
Co-investigators: 25 including **R Frayne**
1 Jan 2002 – 31 Dec 2002 Total: C$ 116,000

Detection of Hemorrhagic Transformation in Acute Stroke
Granting Agency: Canadian Stroke Network
Status: Completed
Principal Investigator: DJ Mikulis
Co-investigators: 5 including **R Frayne**
1 Jan 2002 – 31 Dec 2003 Total: C$ 190,000

Absolute Quantitative Perfusion with Dynamic Susceptibility Contrast Magnetic Resonance Imaging
Granting Agency: Canadian Institutes for Health Research
Status: Completed
Principal Investigator: **R Frayne**
1 April 2002 – 31 March 2005 Total: C$ 320,832

High Field Imaging for Vascular Diagnosis and Therapy
Granting Agency: Alberta Innovation and Science Research Investments Program
Status: Completed
Principal Investigator: **R Frayne**
1 July 2001 – 30 June 2005 Total: C$ 220,000

Blood Gas Analyzer for Cardiovascular Research Group
Granting Agency: Alberta Heritage Foundation for Medical Research
Status: Completed
Principal Investigator: JV Tyberg
Co-investigators: T Anderson, I Belenkie, A Gillis, R Sheldon, **R Frayne**
1 July 2002 – 30 June 2003 Total: C$39,990

Endovascular MR: Animal Validation of a New Method for Stroke Therapy
Granting Agency: Heart and Stroke Foundation of Canada
Status: Award declined in favour of CIHR Award
Principal Investigator: **R Frayne**
Co-investigator: RJ Sevick
1 July 2003 - 30 June 2006 Total: C$ 283,000

Endovascular MR: Animal Validation of a New Method for Stroke Therapy
Granting Agency: Canadian Institutes for Health Research
Status: Completed
Principal Investigator: **R Frayne**
Co-investigator: RJ Sevick, JH Wong
1 April 2003 - 30 March 2006 Total: C$ 283,000

Advanced Signal Processing Techniques for Rapid Reconstruction of Real-time Magnetic Resonance Images
Granting Agency: Natural Sciences and Engineering Research Council of Canada
Status: Completed
Principal Investigator: **R Frayne**
1 April 2003 - 31 Mar 2008 Total: C$ 172,000

VISION - vascular imaging of acute stroke for identifying predictors of clinical outcome and recurrent ischemic events
Granting Agency: Canadian Institutes for Health Research
Status: Completed
Principal Investigator: AM Demchuk
Co-investigator: AM Buchan, M Eliasziw, **R Frayne**, MD Hill, JR Mitchell, RJ Sevick
1 Sep 2003 – 31 Aug 2006 Total: C$ 440,000

Cortical and subcortical circuits in partial epilepsy
Granting Agency: Canadian Institutes for Health Research
Status: Completed
Principal Investigator: P Federico
Co-investigator: BG Goodyear, **R Frayne**
1 Sep 2003 – 31 Aug 2006 Total: C$ 330,000

Vascular Imaging
Granting Agency: Canada Research Chairs
Status: Completed
Principal Investigator: **R Frayne**
1 Oct 2003 – 30 Sep 2013 (renewed in 2008) Total: C$ 1,000,000

Comprehensive Magnetic Resonance Imaging of Vascular Disease at High Field - Infrastructure for Conducting
Imaging Research Studies in the 21st Century
Granting Agency: Canada Foundation for Innovation/Canada Research Chairs
Status: Completed
Principal Investigator: **R Frayne**
1 Oct 2003 – 30 Sep 2005 Total: C$ 181,758

Blood Flow changes in the Elderly: Effect of Age on Cerebral Blood Flow Regulation in Women
Granting Agency: Canadian Institutes for Health Research
Status: Completed
Principal Investigator: MJ Poulin
Co-investigator: D Proud, **R Frayne**
1 April 2004 – 31 March 2007 Total: C$ 330,000

Large Field-of-view MR Angiography for Rapid Assessment of Peripheral Arterial Disease
Granting Agency: Heart and Stroke Foundation of Canada
Status: Completed
Principal Investigator: **R Frayne**
Co-investigators: H Mahallati
1 July 2004 – 30 June 2007 Total: C$ 165,000

Breast Imaging with Tissue Sensing Adaptive Radar
Granting Agency: Breast Cancer Society of Canada
Status: Completed
Principal Investigator: EC Fear
Co-investigators: M Okoniewski, **R Frayne**
1 Sep 2004 – 30 Aug 2006 Total: C$ 54,400

TE-averaged MR Spectroscopy in Alzheimer's Disease: Validation of a New Method for Improved Quantification of Glutamate
Granting Agency: University of Calgary
Status: Completed
Principal Investigator: **R Frayne**
Co-investigators: DB Hogan
1 Sep 2004 – 30 Aug 2005 Total: C$ 45,000

Magnetic Resonance-derived Tissue Markers in Human Acute Ischemic Stroke: Enhancing Our Understanding the Therapeutic Tissue Window
Granting Agency: Canadian Institutes for Health Research
Status: Active
Principal Investigator: **R Frayne**
Co-investigators: AM Demchuk, RJ Sevick, MR Smith
1 April 2005 – 31 March 2010 Total: C$ 687,000

Magnetic Resonance-derived Tissue Markers in Human Acute Ischemic Stroke: Enhancing Our Understanding the Therapeutic Tissue Window
Granting Agency: Alberta Heritage Foundation for Medical Research (Salary Award)
Status: Active
Principal Investigator: **R Frayne**

1 July 2005 – 30 June 2010 Total: C$ 350,000

Magnetic Resonance Imaging for Guidance and Monitoring of Intra-arterial Stroke Therapy
Granting Agency: Canadian Institutes for Health Research
Status: Active
Principal Investigator: **R Frayne**
Co-investigators: AM Demchuk, RJ Sevick, JH Wong
1 Oct 2006 – 30 Sep 2010 Total: C$ 365,000

Non-contrast Enhanced Magnetic Resonance Angiography
Granting Agency: Heart and Stroke Foundation of Canada (Special Grants-In-Aid for Patient-Centered Research)
Status: Active
Principal Investigator: **R Frayne**
Co-investigators: H Mahallati
1 July 2008 – 30 June 2011 Total: C$ 230,000

Advanced Signal Processing for Rapid Imaging
Granting Agency: Natural Science and Engineering Research Council
Status: Active
Principal Investigator: **R Frayne**
1 April 2008 – 30 March 2013 Total: C$ 225,000

Medical Imaging of Knee Kinematics after Joint Replacement to Improve Implant Design and Surgical Technique
Granting Agency: NSERC Collaborative Health Research Program
Status: Active
Principal Investigator: C Anglin
Co-investigators: **R Frayne**, C Hutchinson, JL Ronsky, D Wilson
1 July 2008 – 30 June 2011 Total: C$ 450,000

CT and MRI in the Triage of TIA and Minor Cerebrovascular Events to Identify High Risk Patients
Granting Agency: Canadian Institutes for Health Research
Status: Active
Principal Investigator: S Coutts
Co-investigators: AM Demchuk, **R Frayne**, MD Hill, M Goyal
1 Sep 2008 – 30 Aug 2011 Total: C$ 300,000

Designing for Defect-intolerant Embedded Systems
Granting Agency: Natural Science and Engineering Research Council
Status: Active
Principal Investigator: MR Smith
Co-investigators: JM Miller, V Garousi, **R Frayne**
1 Jan 2009 – 31 Dec 2012 Total: C$ 150,000

Multi-modal study of vascular function in cerebral small vessel disease
Granting Agency: Canadian Stroke Network
Status: Active
Project Leader: EE Smith
Principal Investigators: **R Frayne**, BG Goodyear, MJ Poulin
1 April 2009-30 March 2011 Total: C$ 347,000

PURE-MRI (PURE-MIND pilot funding)
Granting Agency: Heart and Stroke Foundation and Canadian Stroke Foundation
Status: Active
Principal Investigator: EE Smith, M O'Donnell

Co-investigators: **R Frayne** + 15 others
1 Jan 2010-31 Dec 2012 Total: C$ 400,000

Imaging of Small Vessel Disease in Dementia
Granting Agency: Canadian Institute for Health Research
Status: Awarded
Principal Investigator: **R Frayne**
Co-investigators: TY Lee, EE Smith, MR Smith
1 Oct 2010 – 30 Sep 2015 Total: C$ 870,000

Determining the relationship between chronic cerebrospinal venous insufficiency (CCSVI) and multiple sclerosis (MS)
Granting Agency: Multiple Society of Canada
Status: Awarded
Principal Investigator: FE Costello, MD Hill
Co-investigators: M Goyal, J Scott, **R Frayne**, R Mitchell, B Steed, D Lyons, S Wilson, D Bharav, J Mah, J Davenport, R Bell, B Goodyear, J Trufyn
1 July 2010 – 30 June 2012 Total: C$ 200,000

Seeking Novel Approaches to Augment Collateral Blood Flow to Ischemic Brain Tissue
Granting Agency: Faculty of Medicine, University of Calgary
Status: Awarded
Principal Investigator: DG Welsh (team leader)
Co-investigators: **R Frayne** (co-leader) + 11 others
1 Oct 2011 – 30 Sep 2014

Longitudinal Study of Vascular Dysfunction in Cerebral Amyloid Angiopathy
Granting Agency: Heart and Stroke Foundation of Canada
Status: Awarded
Principal Investigator: EE Smith
Co-investigators: **R Frayne**, BG Goodyear, MJ Poulin
1 July 2012-30 June 2015 Total: C$ 180,000

Voxel-based Relaxometry in Focal Epilepsy
Granting Agency: Epilepsy Canada
Status: Awarded
Principal Investigator: P Federico
Co-investigators: **R Frayne**
1 Sep 2012-31 Aug 2014 Total: C$ 200,000

MR Quantitative Iron Imaging in Alzheimer's Disease and Dementia
Granting Agency: Alberta Innovates-Health Solutions (Alberta/Pfizer Translational Research Opportunity)
Status: Awarded
Principal Investigator: **R Frayne**
Co-investigator: EE Smith
1 Oct 2013 – 30 March 2015 Total: C$ 200,000

Reconstruction of Sparse Multi-dimensional Imaging Data for Time-efficient Imaging
Granting Agency: Natural Science and Engineering Research Council of Canada
Status: Awarded
Principal Investigator: **R Frayne**
1 April 2013-30 March 2020 Total: C$ 175,000

Prevalence and Incidence of Brain Small Vessel Disease in Canada: The PURE-MIND Study Granting Agency: Canadian Institute for Health Research

Status: Awarded
Principal Investigator: EE Smith
Co-investigators: 17 including **R Frayne**
1 Oct 2013-30 Sep 2016 Total: C$ 1,204,705

Precise and Rapid Assessment of Collaterals using Multi-phase CTA in the Triage of Patients with Acute Ischemic Stroke for IV or IA Therapy (PRoVe-IT) (Project Grant)
Granting Agency: Canadian Institutes for Health Research
Status: Awarded
Principal Investigator: B Menon
Co-investigators: AM Demchuk, M Eesa, **R Frayne**, M Goyal, M Hill, T Lee
1 April 2014-30 March 2017 Total: C$ 307,000

Evolving Brain Damage Following Large Artery Recanalization: Identifying Targets for Improving Stroke Outcome
Granting Agency: Heart and Stroke Foundation of Canada
Status: Awarded
Principal Investigator: PA Barber
Co-investigators: 5 including **R Frayne**
1 July 2014-30 June 2017 Total: C$ 300,000

Superior Seizure Focus Localization: Implications for Surgical Outcome
Granting Agency: Canadian Institute for Health Research (Project Grant)
Status: Awarded
Principal Investigator: P Federico
Co-investigators: 4 including **R Frayne**
1 April 2014-30 March 2017 Total: C$ 1,250,000

Quantitative MR Imaging of Vascular Contributions to Aging, Cognitive Decline and Stroke
Granting Agency: Canadian Institutes for Health Research (Foundation Award)
Status: Awarded
Principal Investigator: **R Frayne**
1 July 2015-30 June 2022 Total: C$ 1,300,000

Biomarkers of Vascular Function and Integrity in Cerebral Amyloid Angiopathy: A Prospective Longitudinal Cohort Study (Project Grant)
Granting Agency: Canadian Institutes for Health Research
Status: Awarded
Principal Investigator: EE Smith
Co-investigators: **R Frayne** + 5 others
1 Sep 2015-31 Aug 2018 Total: C$ 500,000

Differentiating Between True and Pseudo-Progression in Patients with Glioblastoma Multiforme
Granting Agency: Canadian Cancer Society Research Institute
Status: Awarded
Principal Investigator: **R Frayne, M Lebel**
Co-investigators: J Easaw
1 Feb 2016-31 Jan 2019 Total: C$ 155,000

Imaging Tools for Quick and Appropriate Triage of Stroke Patients
Granting Agency: Canadian Institutes for Health Research (Project Award)
Status: Awarded
Principal Investigator: B Menon
Co-investigators: **R Frayne** + 7 others
1 July 2016- 30 June 2019 Total: C$ 573,375

A Novel in-vivo Mechanical Marker of Early Changes in Post-traumatic Osteoarthritis

Granting Agency: Canadian Institutes for Health Research (Project Award)
Status: Awarded
Principal Investigator: JL Ronsky
Co-investigators: **R Frayne** + 8 others
1 July 2016- 30 June 2019 Total: C$ 596,311

Novel Blood and Neuroimaging Markers of Alzheimer's Disease and Cerebral Amyloid Angiopathy
Granting Agency: Brain Canada (MIRI Team Grant)
Status: Awarded
Principal Investigator: EE Smith
Co-investigators: **R Frayne** + 11 others
1 July 2016- 30 June 2019 Total: C$ 1,387,500

Promoting Brain Health to Prevent Dementia: Roles of Covert Vascular Brain Injury and Cognitive Reserve in Age-Related Cognitive Decline
Granting Agency: Canadian Institutes for Health Research (Foudnation Grant)
Principal Investigator: EE Smith
Co-investigators: **R Frayne** + 15 others
1 July 2017- 30 June 2024 Total: C$ 2,856,357

Understanding Neurodegeneration, Venules, Amyloid Imaging and Leukoaraiosis (UNVAIL)
Granting Agency: Canadian Institutes for Health Research (Bridge Grant)
Status: Awarded
Principal Investigator: SE Black
Co-investigators: **R Frayne** + >25 others
1 July 2017- 30 June 2018 Total: C$ 100,000

Magnetic Resonance Imaging Evaluation of NA1 Neuroprotection on Infarct Growth Following Endovascular Treatment for Acute Ischemic Stroke (Project Grant)
Granting Agency: Canadian Institutes for Health Research
Principal Investigator: PA Barber
Co-investigators: **R Frayne** + 10 others
1 April 2018- 31 March 2021 Total: C$ 466,650

Micro MR Angiography (μMRA) — A Tale of Two Approaches
Granting Agency: Heart and Stroke Foundation of Canada
Status: Awarded
Principal Investigator: **R Frayne**
Co-investigators: RJ Sevick, EE Smith
1 July 2018-30 June 2021 Total: C$ 293,000

Prediction of disease deterioration in multiple sclerosis using multi-stream deep learning
Granting Agency: Multiple Sclerosis Society of Canada
Status: Awarded
Principal Invetigator: Y Zhang
Co-investigators: L Brown, **R Frayne**
1 July 2020-30 June 2023 Total: C$300,000

Prediction of Multiple Sclerosis Disability Worsening Scores using Multi-stream Deep Learning
Granting Agency: Canadian Institutes for Health Research (Bridge Grant)
Status: Awarded
Principal Invetigator: Y Zhang
Co-investigators: L Brown, **R Frayne**
1 April 2020-31 March 2021 Total: C$100,000

Prediction of Multiple Sclerosis Disability Worsening Scores using Multi-stream Deep Learning

Granting Agency: Canadian Institutes for Health Research (Project Grant)
Status: Awarded
Principal Invetigator: Y Zhang
Co-investigators: L Brown, **R Frayne**
1 Oct 2020-30 Sep 2025 Total: C$711,500

Advanced Deep Learning Approaches to Enhance Magnetic Resonance Tomography
Granting Agency: Natural Science and Engineering Research Council (NSERC)
Principal Investigator: **R Frayne**
1 April 2021-31 March 2026 Total: C$ 250,000

NeuroCOVID19: Impact of the Virus on the Brain
Granting Agency: Canadian Institutes for Health Research (Project Grant)
Status: Under Review
Principal Investigator: SA Graham
Co-investigators: **R Frayne** + 27 others
1 October 2021- 30 September 2026 Total: C$ 2,820,000

The PREVENT Dementia Study
Granting Agency: Canadian Institutes for Health Research (Project Grant)
Status: Under Review
Principal Investigator: PA Barber
Co-investigators: **R Frayne** + 7 others
1 October 2021- 30 September 2026 Total: C$ 835,000

Predicting Early Neurodegeneration in Adults using Data-driven Extraction of MR Image Features
Granting Agency: Canadian Institutes for Health Research (Project Grant)
Status: Under Review
Principal Investigator: **R Frayne**
1 October 2021- 30 September 2026 Total: C$ 1,595,000

Institutional and Multi-centre Funding Applications
Seaman Family MR Research Centre at the University of Calgary
Granting Agency: Canada Foundation for Innovation
Status: Completed
1 July 1999 - 30 June 2004 Total: C$ 4,720,000

Experimental Imaging Centre
Granting Agency: Alberta Innovation and Science
Status: Completed
Principal Investigators: AM Buchan, KA Sharkey, **R Frayne**
1 Jan 2001 – 31 Dec 2003 Total: C$ 375,000

Experimental Imaging Centre
Granting Agency: Alberta Heritage Foundation for Medical Research
Status: Completed
Principal Investigators: AM Buchan, KA Sharkey, **R Frayne**
1 March 2001 Total: C$ 590,000

Experimental Imaging Centre
Granting Agency: Western Economic Diversification
Status: Completed
Principal Investigators: AM Buchan, KA Sharkey, **R Frayne**
1 March 2001 Total: C$ 1,000,000

Centre for Advanced Medical Imaging
Granting Agency: Canada Foundation for Innovation
Status: Completed
Principal Investigators: AM Buchan
Co-investigators: 10 including **R Frayne**
1 Jan 2002 – 31 Dec 2005 Total: C$ 4,525,215

Broadband Network Rewiring in Support of Bioinformatics and Imaging
Granting Agency: Canada Foundation for Innovation
Status: Completed
Principal Investigators: C Sensen
Co-investigators; 10 including **R Frayne**
1 Jan 2002 – 31 Dec 2005 Total: C$ 1,039,172

Integrating Research in Osteoarthritis: From the bedside to the bench and back again
Granting Agency: Canada Foundation for Innovation
Status: Completed
Principal Investigators: D Hart
Co-investigators; 25 including **R Frayne**
1 Jan 2002 – 31 Dec 2005 Total: C$ 4,303,020

Alberta Provincial Training Program in Bone and Joint Health
Granting Agency: Canadian Institutes for Health Research
Status: Completed
Principle Investigator: RF Zernicke
Co-investigators: 25+ including **R Frayne**
1 July 2002 – 30 June 2008 Total: C$ 1,800,000

Centre for Advanced Medical Imaging
Granting Agency: Alberta Innovation and Science Research Investments Program
Status: Completed
Principal Investigators: AM Buchan
Co-investigators: 10 including **R Frayne**
1 Jan 2002 – 31 Dec 2005 Total: C$ 1,800,000

AIM-HIGH Carotid MRI Study
Granting Agency: National Institutes for Health
Status: Active
Principal Investigators: X Qiao
Co-investigators: 40+ including **R Frayne** (site leader for imaging)
1 Jan 2007 – 31 Dec 2010 Total: US$ 4,400,000

Canadian Atherosclerosis Imaging Network (CAIN) – "Hearts and Minds"
Granting Agency: Canadian Institutes for Health Research/Canada Foundation for Innovation – Clinical Research Initiative
Status: Active
Principle Investigator: J-C Tardif
Co-investigators: 9 including **R Frayne** (site-coordinator)
1 April 2008-30 March 2015 Total C$ 10,000,000

Communication and Imaging Infrastructure for the Canadian Atherosclerosis Imaging Network (CAIN)
Granting Agency: Canada Foundation for Innovation – National Platform Fund
Status: Active
Principal Investigator: J-C Tardif
Co-investigators: 9 including **R Frayne** (site-coordinator)
1 Jul 2009 – 30 Jun 2014 Total: C$ 8,700,000

Communication and Imaging Infrastructure for the Canadian Atherosclerosis Imaging Network (CAIN)
Granting Agency: Alberta Strategic Research Investment Program
Status: Active
Principal Investigator: **R Frayne**
Co-investigators: 9 others
1 Jul 2009 – 30 Jun 2014 Total: C$ 1,200,000

Medical Imaging Trials Network for Canada (MITNEC)
Granting Agency: Canadian Institutes for Health Research
Status: Active
Principal Investigator: JC Tardif
Co-investigators: **R Frayne** + 9 others
1 Feb 2011 – 31 March 2016 Total: C$ 9,400,000

Standards for Determining the Vascular Contribution to Neurodegeneration
Granting Agency: Centres of Excellence in Neurodegeneration (UK MRC/Germany DZNE/CIHR)
Status: Active
Principal Investigator: J Wardlaw, M Dichigans, EE Smith
Co-investigators: **R Frayne** and 10 others
1 Jan 2012 – 30 Jun 2013 Total: £20,000

NSERC CREATE International and Industrial Imaging Training (I3T) Program
Granting Agency: Natural Science and Engineering Research Council
Status: Active
Principal Investigator: **R Frayne**
Co-investigators: 9 others
1 Jul 2012 – 30 Jun 2018 Total: C$ 1,650,000

Deep Brain Stimulation for Treatment Resistant Depressive Disorders
Granting Agency: AI-HS Collaborative Research and Innovation Opportunities (CRIO) Project
Principal Investigators: ZHT Kiss, R Ramasubbu
Co-investigators: **R Frayne** and 5 others
1 Jan 2013 – 31 Dec 2016 Total: C$ 750,000

CVCD Alliance – now Canadian Alliance for Healthy Hearts and Minds
Granting Agency: The Canadian Partnership Against Cancer
Status: Funded
Principal Investigator: S Anand, M Friedrich, J Tu
Co-investigators: **R Frayne** + 77 others
1 Apr 2013 – 31 Mar 2018 Total: C$ 13,986,253

Canadian Imaging Network
Granting Agency: NOI - Canadian Institutes of Health Research - Other: ICRH Emerging Network Grants
Status: Funded
Principal Investigator: GA Wright, JC Tardif
Co-investigators: **R Frayne** + 72 others
1 Jan 2013 – 2 June 2013 Total: C$ 30,000

Canadian Consortium for Neurodegeneration in Aging
Granting Agency: Canadian Institutes of Health Research
Status: Funded
Principal Investigator: HM Chertkow
Co-investigators **R Frayne** + >50 others
1 April 2014 – 31 March 2019 Total: C$ 34,000,000

Novel Blood and Neuroimaging Markers of Alzheimer's Disease and Cerebral Amyloid Angiopathy
Granting Agency: Brain Canada
Status: Funded
Principal Investigator: EE Smith
Co-investigators: **R Frayne** + 8 others
1 Jan 2016 – 31 Dec 2018 Total: C$ 2,000,000

Novel MRI Biomarkers for Monitoring Disease Progression in ALS
Granting Agency: ALS Canada-Brain Canada Arthur J. Hudson Translation Team Grant
Status: Funded
Principal Investigator: S Kalra
Co-applicants: **R Frayne** + 8 others
1 April 2015 - 31 March 2020 Total: C$2,946,303

MR-guided Focused Ultrasound Research Platform
Granting Agency: Canada Foundation for Innovation
Status: Submitted
Principal Investigator: GB Pike
Co-applicants: **R Frayne** + 8 others
1 April 2018 - 31 March 2023 Total: C$3,200,000
(Total Project Cost: C$8,090,300)

Canadian Consortium for Neurodegeneration in Aging
Granting Agency: Canadian Institutes of Health Research
Status: Funded
Principal Investigator: HM Chertkow
Co-investigators **R Frayne** + >50 others
1 April 2019 – 31 March 2024 Total: C$ 25,000,000

IX INVITED ADDRESSES

[‡ indicates talks that I presented. Underlined names denote my direct trainees.]

1. BK Rutt, **R Frayne**. Velocity imaging and quantification. Society of Magnetic Resonance 1st Annual Meeting, 7-9 March 1994, Dallas, Texas, USA.
2. BK Rutt, **R Frayne**. Phase contrast MRA: Quantitative accuracy and comparison with time-of-flight MRA. IV International Workshop and Symposium on Magnetic Resonance Angiography, 15-18 Oct 1992, East Lansing, Michigan, USA.
3. **R Frayne**, BK Rutt. Estimation of fluid shear-rate using Fourier-encoded velocity imaging. VI International Workshop on Magnetic Resonance Angiography, 6-9 Oct 1994, East Lansing, Michigan, USA.
4. JA Polzin, TM Grist, FR Korosec, **R Frayne**, KL Wedding, DC Peters, Y Mazaheri, MT Alley, M Bernstein, CA Mistretta. MR techniques for measuring coronary flow and flow reserve. Cardiovascular Science and Technology Conference, 9 Dec 1994, Chevy Chase, Maryland, USA.
5. **R Frayne**.‡ Measuring coronary volume flow with MR. Department of Medical Physics, University of Wisconsin–Madison, 27 Feb 1995, Madison, Wisconsin, USA.
6. BK Rutt, R Kasrai, RF Smith, **R Frayne**, DW Holdsworth. Comparison of MR and ultrasound in the presence of turbulent flows. Society of Magnetic Resonance Workshop on Quantitative Magnetic Resonance Flow Imaging, 2-4 June 1995, St. Louis, Missouri, USA.
7. TM Grist, JA Polzin, **R Frayne**, FR Korosec, TK Foo, MA Bernstein, KL Wedding, Y Mazaheri, JA Bianco, CA Mistretta. Flow measurement of coronary arteries. Society of Magnetic Resonance Workshop on Quantitative Magnetic Resonance Flow Imaging, 2-4 June 1995, St. Louis, Missouri, USA.
8. **R Frayne**.‡ Shear imaging with FEVI and motion challenges in estimates of coronary flow and coronary flow reserve. Applied Sciences Laboratory, General Electric Medical Systems, 25 July 1995, Waukesha, Wisconsin, USA.
9. **R Frayne**.‡ MR angiography and flow imaging of cerebral aneurysms. Target Theraputetics, 18 Dec 1996, Fremont, California, USA.
10. CA Mistretta, **R Frayne**, TM Grist, FR Korosec. Intravenous angiography: Historical perspective and current research in 3D MR-DSA. Society of Photo-optical Instrumentation Engineers, Physics of Medical Imaging, 22-28 Feb 1997, Newport Beach, California, USA.
11. FR Korosec, TJ Carroll, **R Frayne**, TM Grist, CA Mistretta. Contrast-enhanced MRA using a low-resolution subtraction mask. IX International Workshop on Magnetic Resonance Angiography, 7-11 Oct 1997, Valencia, Spain.
12. TM Grist, FR Korosec, **R Frayne**, JS Swan, PA Turski, CA Mistretta. Clinical applications of 3D MR DSA. IX International Workshop on Magnetic Resonance Angiography, 7-11 Oct 1997, Valencia, Spain.
13. CA Mistretta, TM Grist, FR Korosec, **R Frayne**, DC Peters, Y Mazaheri, TJ Carroll. Comparison of methods for contrast-enhanced 3D MR DSA. IX International Workshop on Magnetic Resonance Angiography, 7-11 Oct 1997, Valencia, Spain.
14. **R Frayne**,‡ TM Grist, JS Swan, FR Korosec, CA Mistretta. Dose volume and injection rate effects in 3D MR DSA. IX International Workshop on Magnetic Resonance Angiography, 7-11 Oct 1997, Valencia, Spain.
15. DS Willig, PA Turski, **R Frayne**, VB Graves, TM Grist, FR Korosec, JS Swan, CA Mistretta. Contrast-enhanced three-dimensional magnetic resonance digital subtraction angiography of the carotid bifurcation: Comparison to non-contrast-enhanced 2D and 3D time of flight techniques. IX International Workshop on Magnetic Resonance Angiography, 7-11 Oct 1997, Valencia, Spain.
16. **R Frayne**,‡ Advances in contrast-enhanced MRA. Biomedical Engineering Seminar Series, College of Engineering, University of Wisconsin–Madison, 10 Nov 1997, Madison, Wisconsin, USA.
17. **R Frayne**,‡ MR-guided endovascular therapy. Departments of Medical Physics and Radiology, University of Wisconsin–Madison, 26 May 1998, Madison, Wisconsin, USA.

18. **R Frayne**,‡ A Wehlie, Z Yang, O Unal, CM Strother, H Yu. Endovascular MR using gadolinium-coated catheters. X International Workshop on Magnetic Resonance Angiography. 28 Sep-3 Oct 1998, Park City, Utah, USA.
19. **R Frayne**.‡ Diagnostic and therapeutic applications of contrast-enhanced magnetic resonance angiography. Departments of Clinical Neurosciences and Radiology, University of Calgary. 7 Dec 1998, Calgary, Alberta, Canada.
20. TM Grist, O Unal, RA Omary, D Koscielski, ER Niendorf, **R Frayne**, FR Korosec. Observations of renal perfusion and function using MRI technology. XI International Workshop on Magnetic Resonance Angiography. 20-27 Sep 1999, Lund, Sweden.
21. **R Frayne**.‡ Interventional MR imaging at the Seaman Family MR Research Centre. Alberta Cancer Board Annual Research Meeting, 8-10 Nov 1999, Edmonton, Alberta, Canada.
22. **R Frayne**.‡ MR imaging for neuroscience investigation: Experience at the Seaman Family MR Research Centre. Neuroscience Research Group, University of Calgary. 11 Feb 2000, Calgary. Alberta, Canada.
23. **R Frayne**.‡ Applications of magnetic resonance imaging in diagnosis and treatment of neurological disease. Imperial College Forum 2000. Imperial College, 27 May 2000, Lake Louise, Alberta, Canada.
24. **R Frayne**.‡ High field clinical imaging at the Seaman Family MR Centre. National Research Council of Canada, Institute for Biodiagnostics. 23 June 2000, Winnipeg, Manitoba, Canada.
25. **R Frayne**,‡ RJ Sevick, M Hudon, W Morrish, AM Demchuk, PA Barber, MD Hill, AM Buchan. Intracranial TOF in hyper-acute stroke. XII International Workshop on Magnetic Resonance Angiography, 4-7 Oct 2000, Lyon, France.
26. RA Omary, R Smith, O Unal, D Koscielski, K Henseler, **R Frayne**, C Strother, T Grist. Intraarterial gadolinium-enhanced MRA: *In vitro* injection protocol validation. XII International Workshop on Magnetic Resonance Angiography, 4-7 Oct 2000, Lyon, France.
27. **R Frayne**.‡ High field magnetic resonance in stroke imaging. Grand Rounds, Department of Clinical Neurosciences, University of Calgary. 27 Oct 2000, Calgary, Alberta, Canada.
28. **R Frayne**.‡ Magnetic resonance imaging of stroke: What happens at the Seaman Family MR Centre? Department of Diagnostic Imaging, Foothills Medical Centre, Calgary Regional Health Authority, 16 Feb 2001, Calgary, Alberta, Canada.
29. **R Frayne**.‡ Magnetic resonance imaging at the Seaman Family MR Centre. Department of Diagnostic Imaging, Rockyview General Hospital, Calgary Regional Health Authority, 16 May 2001, Calgary, Alberta, Canada.
30. **R Frayne**,‡ RJ Sevick, AM Demchuk, MD Hill, AM Buchan and the Calgary Stroke Program. High-field MR and MRA in Acute Stroke. XIII International Workshop on Magnetic Resonance Angiography, 26-29 Sep 2001, Madison, Wisconsin, USA.
31. JR Mitchell, **R Frayne**.‡ MR research in acute care setting. Grand Rounds, Tom Baker Cancer Centre, 20 Feb 2002, Calgary, Alberta, Canada.
32. **R Frayne**.‡ Stroke: New magnetic resonance (MR) imaging approaches. Brain Awareness Day, Faculty of Medicine, University of Calgary, 6 April 2002, Calgary, Alberta, Canada.
33. **R Frayne**.‡ MR imaging of stroke: Technical issues of clinical neuro-imaging at 3 T. Frontiers In Biomedical Engineering Joint Seminar Series, Universities of Alberta and Calgary, 12 April 2002, Calgary, Alberta, Canada.
34. **R Frayne**.‡ Technical challenges of clinical 3 T imaging. Grand Rounds, Department of Clinical Neurosciences, University of Calgary. 26 April 2002, Calgary, Alberta, Canada.
35. **R Frayne**.‡ Technical challenges of clinical 3 T imaging. American Society of Neuroradiology, 40th Annual Meeting, 13-17 May 2002, Vancouver, British Columbia, Canada. [invited plenary talk]
36. **R Frayne**.‡ Clinical MR imaging research from the perspective of an electrical engineer. Department of Electrical Engineering, 28 Feb 2003, University of Calgary, Calgary, Alberta, Canada.

37. **R Frayne**.‡ Stroke imaging. Section of Magnetic Resonance Technologists, Twelfth Annual Meeting, 10-11 July 2003, Toronto, Ontario, Canada.
38. **R Frayne**.‡ 3.0 T imaging activities in Calgary. General Electric 3.0 T Users' Meeting, 11 July 2003, Toronto, Ontario, Canada.
39. **R Frayne**.‡ MR imaging research in Calgary. Department of Radiation Physics, Princess Margaret Hospital, 16 July 2003, Toronto, Ontario, Canada.
40. H Zhu, BG Goodyear, ML Lauzon, **R Frayne**, B Zhu, JR Mitchell. The Stockwell transform based noise filters in biomedical signal processing, Applications of Mathematics in Medicine Workshop, 28-30 July 2003, The Fields Institute, Toronto, Ontario, Canada.
41. **R Frayne**.‡ Historical overview of imaging in cancer 1895 – 2003. Alberta Cancer Board Research Meeting, 12-14 Nov 2003, Banff, Alberta, Canada.
42. **R Frayne**,‡ RJ Sevick. Advanced imaging centre. Calgary Brain Institute Research Day, 12 March 2004, Calgary, Alberta, Canada.
43. **R Frayne**.‡ Magnetic resonance imaging of vascular disease. Canadian Prairies Group of Chartered Engineers (CPGCE). 14 April 2004, Calgary, Alberta, Canada.
44. **R Frayne**.‡ MR physics for clinical neurology. Canadian Congress of Neurological Societies Neurobiology Review Course, 8-12 June 2004, Calgary, Alberta, Canada.
45. **R Frayne**.‡ Acute stroke imaging - MR: Technical. 23rd International Congress of Radiology. 25-29 June 2004, Montreal, Quebec, Canada.
46. **R Frayne**,‡ M Sabati, ML Lauzon, H Mahallati. Developments in interactive large FOV peripheral MR angiography. XVI International Workshop on Magnetic Resonance Angiography, 5-8 Oct 2004, London, Ontario, Canada.
47. **R Frayne**.‡ Benefits and challenges of 3 T imaging. Physics Refresher Session, Radiological Society of North America, 28 Nov-3 Dec 2004, Chicago, Illinois, USA. (Session Organizer).
48. **R Frayne**.‡ High-field vascular imaging research at the Seaman Family MR Centre. First Calgary Cardiovascular Symposium. The Stephenson CMR Centre. 18 March 2005, Calgary Alberta, Canada.
49. **R Frayne**.‡ Progress in MR imaging of vascular diseases: Stroke and Alzheimer's disease research. Calgary Centennial Rotary Club, 13 April 2005, Calgary, Alberta, Canada.
50. M Wilson, RJ Sevick, M Hudon, **R Frayne**, JY Wong. Use of MR angiography in treatment planning and follow-up of aneurysms treated by endovascular techniques. XVII International Workshop on Magnetic Resonance Angiography, 21-24 Sep 2005, Beijing, China.
51. H Peng, M Sabati, ML Lauzon, **R Frayne**.‡ Image reconstruction for interactive continuous moving table (iCMT) contrast-enhanced MR angiography. XVII International Workshop on Magnetic Resonance Angiography, 21-24 Sep 2005, Beijing, China.
52. **R Frayne**.‡ MR imaging of cerebrovascular disease. AHFMR 25th Anniversary Talk Series, 3 Oct 2005, Hinton, Alberta, Canada.
53. **R Frayne**.‡ Benefits and challenges of 3 T imaging. Physics Refresher Session, Radiological Society of North America, 28 Nov-3 Dec 2005, Chicago, Illinois, USA. (Session Organizer).
54. **R Frayne**.‡ Basics of diffusion and stroke. American Society of Neuroradiology. 1-5 May 2006, San Diego, California, USA.
55. **R Frayne.**‡ Acquisition and reconstruction of magnetic resonance imaging data using linear and non-linear approaches. Department of Mathematics and Statistics, York University. 26 May 2006, Toronto, Ontario, Canada.
56. **R Frayne.**‡ Imaging of acute ischemic stroke. Department of Medical Imaging, Hospital for Sick Children. 27 May 2006, Toronto, Ontario, Canada.
57. AD Harris, JN Draper, LB Andersen, ML Lauzon. **R Frayne**.‡ Models and techniques for MR-guided IA stroke therapy. XVIII International Workshop on Magnetic Resonance Angiography, 13-15 Sep 2006, Basel, Switzerland.

58. **R Frayne**.‡ Development of a molecular imaging initiative in Calgary. Department of Nuclear Medicine, University of Leipzig, 20 Sep 2006, Leipzig, Germany.
59. **R Frayne**,‡ Development of a clinical research molecular imaging initiative in Calgary. Alberta Association of Radiology Managers, 22 Sep 2006, Banff, Alberta, Canada.
60. **R Frayne**.‡ Benefits and challenges of 3 T imaging. Physics Refresher Session, Radiological Society of North America, 26 Nov-1 Dec 2006, Chicago, Illinois, USA. (Session Organizer).
61. **R Frayne**.‡ Stroke imaging for diagnosis and therapy. Department of Medical Biophysics, University of Toronto/Sunnybrook Health Science Centre, 14 Dec 2006, Toronto, Ontario, Canada.
62. **R Frayne**.‡ New concepts for real-time 3D MRA. Tenth Annual Society for Cardiovascular Magnetic Resonance Scientific Sessions/Sixth Meeting of the Euro CMR Working Group, 2-4 Feb 2007, Rome, Italy.
63. MB Hogan, **R Frayne**.‡ Differentiating ischemic penumbra and infarct (CT/MR). Behavioural Research and Imaging Network Symposium. Imaging Network Ontario 6th Imaging Symposium, 28-29 March 2007, Toronto, Ontario, Canada.
64. **R Frayne**.‡ A molecular imaging initiative for Calgary. Alberta College of Medical Diagnostic and Therapeutic Technologists Annual General Conference. 26-28 April 2007, Edmonton, Alberta, Canada.
65. **R Frayne**.‡ Stroke imaging for diagnosis and therapy. Department of Biomedical Engineering, University of Alberta, 2 Aug 2007, Edmonton, Alberta, Canada.
66. RB Stafford, M Sabati, H Mahallati, **R Frayne**.‡ Non-contrast enhanced MRA with a novel bSSFP Dixon approach. XIX International Workshop on Magnetic Resonance Angiography, 3-5 Oct 2007, Istanbul, Turkey.
67. **R Frayne**.‡ Advances in signal and image processing in acute stroke – Applying good engineering and science to rethink a clinical problem. Faculty of Applied Sciences, Simon Fraser University, 24 Jan 2008, Burnaby, British Columbia, Canada.
68. **R Frayne**.‡ Vascular imaging with high-field MR. Keller Centre for Imaging Innovation. Barrow Neurological Institute, 4 Sep 2008, Phoenix, Arizona, USA.
69. **R Frayne**.‡ Windows onto vascular disease. Trophy Club, 27 May 2009, Calgary. Alberta, Canada.
70. **R Frayne**.‡ The good, the bad, and the ugly – Vascular imaging news from Calgary. Department of Biomedical Engineering, University of Alberta, 3 Dec 2009, Edmonton, Alberta, Canada.
71. **R Frayne**,‡ The good, the bad, and the ugly – Vascular imaging news from Calgary. Imaging Research Laboratories, Robarts Research Institute, University of Western Ontario, 6 Dec 2009, London, Ontario, Canada.
72. **R Frayne,**‡ S Dukelow. The rise of the machines in stroke. Telus World of Science/Body Works Lecture Series. 14 May 2010, Calgary, Alberta, Canada.
73. **R Frayne.** Research Highlights at the Seaman Family Centre. Department of Radiology. Seoul National University Hospital. 5 Oct 2010, Seoul, Korea.
74. **R Frayne**.‡ The Canadian Atherosclerosis Imaging Network – A Framework for pan-Canadian, multi-modality vascular imaging studies. XXII International Workshop on Magnetic Resonance Angiography, 6-8 Oct 2010, Seoul, South Korea.
75. **R Frayne**.‡ Quantitative techniques in neuroimaging. Advanced Methods, Education and Training in Hyperspectral Science and Technology (AMETHYST) Meeting. 19 Nov 2010, University of Lethbridge, Lethbridge, Alberta, Canada.
76. **R Frayne**.‡ CAIN training/transfer – objectives, key approaches, status update. 29 April 2011, CAIN Update 2011!, Montreal, Quebec, Canada.
77. **R Frayne**.‡ Potential for compressed sensing in clinical MR imaging. Fields-MITACS Conference on Mathematics of Medical Imaging. 20-24 June 2011, Toronto, Ontario, Canada.
78. **R Frayne**.‡ Applications of compressed sensing in cross-sectional medical imaging. Medical and Seismic Imaging. 14-18 July 2011, Vancouver, British Columbia, Canada.

79. WE Misik, AM Demchuk, **R Frayne**, B Menon. Predicting Evolution of Acute Ischemic Stroke Using Quantitative Perfusion Gradient Mapping. 2012 Alberta Imaging Symposium, 8 June 2012, Calgary, Alberta, Canada.

80. DG Gobbi, Q Lu, **R Frayne**, M Salluzzi. An efficient pipeline for white matter lesson quantification. 2012 Alberta Imaging Symposium. 8 June 2012, Calgary, Alberta, Canada.

81. J Yerly, R Sevick, ML Lauzon, **R Frayne**. Comparison of State-of-the-Art Acquisition and Reconstruction Techniques to Accelerate MR Stroke Protocol. 2012 Alberta Imaging Symposium. 8 June 2012, Calgary, Alberta, Canada.

82. **R Frayne**.‡ NSERC CREATE international and industrial imaging training (I3T) program. 3rd Workshop on Accelerated Magnetic Resonance Imaging. 23-24 Sep 2012, Freiburg, Germany.

83. **R Frayne**.‡ Les opportunités de recherches et de formation à calgary (Research and training opportunities in calgary). l'Ecole d'ingénieurs et d'architectes de Fribourg (EIA-FR), 25 Sep 2012, Fribourg, Switzerland.

84. **R Frayne**.‡ Advances in MR imaging of cerebrovascular diseases. Advances in MR Imaging of Cerebrovascular Diseases. Special Program in Neuroscience (SPiN). Canadian Stroke Network Trainee Association (CSNTA), 27-28 Sep 2012, Calgary, Alberta, Canada.

85. **R Frayne**.‡ Imaging networks in Canada: CAIN, MITNEC and other clinical trials networks. 3rd Canadian Stroke Congress, 30 Sep - 2 Oct 2012, Calgary, Alberta, Canada.

86. **R Frayne**.‡ Cerebrovascular brain imaging. Interdisciplinary Research Forum, University of Calgary Society of Young Researchers (UCSYR) and the Students of the Arts and Science Honours Academy (SASHA). 6 Oct 2012, Calgary, Alberta, Canada.

87. **R Frayne**.‡ Measuring Perfusion with MR. CMOD/CAIN/MITNEC Workshop. 22 Oct 2012, Ottawa, Ontario, Canada.

88. **R Frayne**.‡ An Overview of Biomedical Engineering Research Training at the University of Calgary. 26 Feb 2013, Programa de Engenharia Biomédica (PEB), Universidade Federal do Rio de Janeiro (UFRJ), Rio de Janerio, Brazil.

89. **R Frayne**.‡ Biomedical Engineering and Medical Imaging Research at the University of Calgary. 1 March 2013, Faculdade de Engenharia Elétrica e de Computação (FEEC), Universidade Estadual de Campinas (UNICAMP), Campinas, São Paulo, Brazil.

90. **R Frayne**.‡ Biomedical Engineering and Medical Imaging Research and Research Training in Calgary. 25 March 2013, Biomedical Engineering Program, University of British Columbia, Vancouver, British Columbia, Canada.

91. **R Frayne**.‡ Biomedical Engineering and Medical Imaging Research and Research Training in Calgary. 26 March 2013, Biomedical Engineering Program, Simon Fraser University, Burnaby, British Columbia, Canada.

92. **R Frayne**.‡ STRIVE: Can We Recommend a Standard Imaging Protocol? 6th International Society of Vascular Behavioural and Cognitive Disorders (VAS●COG) Congress, 24-29 June 2013, Toronto, Ontario, Canada.

93. **R Frayne**.‡ The Core Minimum for VCI - Structural Acquisitions and Analysis. 6th International Society of Vascular Behavioural and Cognitive Disorders (VAS●COG) Congress, 24-29 June 2013, Toronto, Ontario, Canada.

94. **R Frayne**.‡ Chronic Vascular Changes on Neuroimaging. University of Ottawa Heart Institute Molecular and Functional Imaging Symposium, 27-28 June 2013, Ottawa, Ontario, Canada.

95. **R Frayne**.‡ Role of Imaging Small Vessel Disease in Dementa. Western Biomedical Imaging Research Centre, 27 Nov 2013, London, Ontario, Canada.

96. **R Frayne**.‡ Hearts and Minds - New Ideas for MR Imaging of Atherosclerosis in the Carotid Arteries. 2014 Libin Research Day, 8 April 2014, Calgary, Alberta, Canada.

97. **R Frayne**.‡ Carotid Artery MR Imaging. University of Ottawa Heart Institute Molecular and Functional Imaging Symposium, 19-20 June 2014, Ottawa, Ontario, Canada.

98. **R Frayne**.‡ Quantitative Susceptibility Imaging - A New Inverse Problem for Magnetic Resonance Imaging. Annual Meeting of the Canadian Applied and Industrial Mathematics Society, 22-26 June 2014, Saskatoon, Saskatchewan, Canada.

99. **R Frayne**.‡ Neurovascular Imaging: Health Aging, QSM, and Carotid Distensibility. 6 Nov 2014. Radiology Institute, Universidade de São Paulo, São Paulo, Brazil.

100. **R Frayne**.‡ Neurovascular Imaging. 7 Nov 2014. Faculdade de Engenharia Elétrica e de Computação (FEEC), Universidade Estadual de Campinas (UNICAMP), Campinas, São Paulo, Brazil.

101. **R Frayne**.‡ Multi-centre magnetic resonance studies of vascular disease on brain health. 13-14 April 2015, The Brazilian Institute of Neuroscience and Neurotechnology (BRAINN) Congress, Campinas, São Paulo, Brazil.

102. **R Frayne.**‡ Acute stroke: What the physicist can add. 30 May 2015. 23rd International Society for Magnetic Resonance in Medicine Annual Meeting, Toronto, Ontario, Canada.

103. **R Frayne.**‡ Magnetic resonance imaging state-of-the-art technology and current research. 8 June 2015, World Congress on Medical Physics and Biomedical Engineering, Toronto, Ontario, Canada.

104. **R. Frayne.** MR imaging of mild TBI. 22 Aug 2015, Calgary-Melbourne Sport Concussion Research Symposium, Melbourne, Victoria, Australia.

105. **R Frayne.**‡ Vascular imaging/angiography in stroke and other vascular dementias. 15 Sep 2015. XXVII International Workshop on Magnetic Resonance Angiography, Cincinnati, Ohio, USA.

106. **R Frayne.**‡ Opportunity and challenges of sparse sampling and constrained reconstruction. 20-22 Oct 2015, 7º Simpósio de Instrumentação e Imagens Médicas (SIIM) / 6º Simpósio de Processamento de Sinais da UNICAMP (SPS-UNICAMP 2015), Campinas, São Paulo, Brazil.

107. **R Frayne.**‡ Medical imaging research at the Seaman Family Centre, Calgary. 15 April 2016, Center of Imaging Sciences and Medical Physics, Ribeirão Preto Medical School, University of São Paulo, Ribeirão Preto, São Paulo, Brazil.

108. **R Frayne.**‡ Innovative neuroimaging markers of VCI. 24-27 May 2016, Campus Alberta Neuroscience 2016 International Conference: Promoting Healthy Brain Aging and Preventing Dementia: Research and Translation, Banff, Alberta, Canada.

109. **R Frayne.**‡ Vascular imaging/angiography in stroke. 21-23 Sep 2016 15 Sep 2015. XXVII Society for Magnetic Resonance Angiography (formerly International Workshop on Magnetic Resonance Angiography), Chicago, Illinois, USA.

110. **R Frayne.**‡ Development and application of new imaging techniques in humans for the study, detection and treatment of neurovascular disease. XXV Congresso Brasileiro de Engenharia Biomédica - Brazilian Congress of Biomedical Engineering (CBEB 2016), 17-20 Oct 2016, Foz do Iguaçu, Paraná, Brazil.

111. **R Frayne.**‡ Imaging small vessel disease in aging and dementia. 17 March 2017, Faculty of Applied Health Sciences, University of Waterloo, Waterloo, Ontario, Canada.

112. **R Frayne.**‡ MR imaging of small vessel disease in aging and dementia. 27-29 March 2017, The Brazilian Institute of Neuroscience and Neurotechnology (BRAINN) Congress, Campinas, São Paulo, Brazil.

113. **R Frayne.**‡ Human epilepsy imaging at the Seaman Family Centre. HBI - Melbourne Epilepsy Symposium, 1-2 May 2017, Calgary, Alberta, Canada.

114. **R Frayne.**‡ Imaging small vessel disease in aging and dementia. University of Edinburgh, 27 June 2017, Edinburgh, UK.

115. **R Frayne.**‡ Dynamic carotid artery MR imaging. Glasgow University, 28 June 2017, Glasgow, UK.

116. **R Frayne.**‡ Quantitative magnetic resonance (MR) imaging – An important area for the medical physicist. 6-9 Sep 2017. XXII Congresso Brasileiro de Física Médica – Brazilian Congress of Medical Physics (CBFM 2017), Ribeirão Preto, São Paulo, Brazil.

117. **R. Frayne.**‡ Sparse sampling and constrained reconstruction in magnetic resonance imaging. 14 Nov 2017, Distinguished Speaker Seminar Series, Department of Electrical Engineering, University of Waterloo, Waterloo, Ontario, Canada.

118. **R. Frayne.**‡ From here to there (and back again). 14 Nov 2017, Undergraduate Seminar, Department of Electrical Engineering, University of Waterloo, Waterloo, Ontario, Canada.

119. **R. Frayne.**‡ Reconstruction of MR imaging data - The weird and wonderful. São Paulo-Alberta BrainHack, 17-19 Oct 2018, State University of Campinas, Campinas, São Paulo, Brazil.

120. **R. Frayne.**‡ Medical image processing applied to large datasets. Mini-Course, XXVI Congresso Brasileiro de Engenharia Biomédica - Brazilian Congress of Biomedical Engineering (CBEB 2018), 21-25 Oct 2018, Búzios, Rio de Janeiro, Brazil.

121. **R. Frayne.**‡ Magnetic resonance of the carotid arteries. Department of Electronic Engineering, City University of Hong Kong, 20 Nov 2018, Hong Kong, China.

122. **R. Frayne.**‡ Machine learning methods for image quality control. Alberta-São Paolo Brain Hack 2019, 28 Oct 2019, Campinas, São Paulo, Brazil.

123. **R. Frayne.**‡ New horizons in MR imaging I – Opportunity and challenges of sparse sampling and constrained reconstruction. IV Scientific Conference of the School of Exact Sciences and Computation (SESC), Pontifical Catholic University of Goiás (PCUG) and Institute Federal of Goias (IFG), 14 Nov 2019, Goiânia, Goiás, Brazil.

124. **R. Frayne.**‡ New horizons in MR imaging II – Novel magnetic resonance techniques for the study, detection and treatment of neurovascular disease. IV Scientific Conference of the School of Exact Sciences and Computation (SESC), Pontifical Catholic University of Goiás (PCUG) and Institute Federal of Goias (IFG), 14 Nov 2019, Goiânia, Goiás, Brazil.

125. R Souza,‡ KJ Chung, **R Frayne**. W-net: A Dual-domain Deep Learning Model for Image Reconstruction. GeoConvention 2020 - Calgary Geoscience Conference, 11-13 May 2020, Calgary, AB, Canada.

X PUBLICATIONS/PRESENTATIONS

[Underlined names denote my direct trainees.]

Publications and presentations summary table.	**Published**	**Accepted**	**Total**
Peer-reviewed manuscripts	186	3	189
Peer-reviewed manuscripts	*179*	*2*	*181*
Peer-reviewed manuscripts – as group author	*9*	*0*	*9*
Manuscripts on open-access archival services	*7*	*-*	*7*
Non-peer reviewed manuscripts	4	0	4
Books, chapters and other contributions	8	0	8
Published proceedings and abstracts (all peer-reviewed)	561	0	561
Conference proceedings (multi-page)	*68*	*0*	*68*
Published abstracts (single page or less)	*493*	*0*	*493*
Unpublished communications	0	-	0
Patents	20	-	20
Proffered presentation	547	-	547
Total	**1328**	**2**	**1330**

i. Peer reviewed manuscripts

1. S Napel, DH Lee, **R Frayne**, BK Rutt. Visualizing three-dimensional flow with simulated streamlines and three-dimensional phase-contrast MR imaging. *J Magnetic Resonance Imaging* 1992; **2**: 143-153.
2. **R Frayne**, DW Holdsworth, LM Gowman, DW Rickey, M Drangova, A Fenster, BK Rutt. Computer-controlled flow simulator for MR flow experiments. *J Magnetic Resonance Imaging* 1992; **2**: 605-612.
3. **R Frayne**, LM Gowman, DW Rickey, DW Holdsworth, PA Picot, M Drangova, KC Chu, CB Caldwell, A Fenster, BK Rutt. A geometrically accurate vascular phantom for comparative studies of x-ray, ultrasound, and magnetic resonance vascular imaging: construction and geometrical verification. *Medical Physics* 1993; **20**: 415-425.
4. **R Frayne**, BK Rutt. Frequency response of retrospectively gated phase contrast MRI: Effect of interpolation. *J Magnetic Resonance Imaging* 1993; **3**: 907-917.
5. **R Frayne**, DW Holdsworth, RF Smith, R Kasrai, JPT. Larsen, BK Rutt. Turbine flow sensor for volume-flow rate verification in MR. *Magnetic Resonance in Medicine* 1994; **32**; 410-417.
6. ML Lauzon, DW Holdsworth, **R Frayne**, BK Rutt. Effects of physiological waveform variability in triggered MRI: A theoretical analysis. *J Magnetic Resonance Imaging* 1994; **4**: 853-867.
7. **R Frayne**, BK Rutt. Frequency response of prospectively gated phase contrast MR imaging. *J Magnetic Resonance Imaging* 1995; **5**: 65-73.
8. **R Frayne**, BK Rutt. Understanding acceleration-induced displacement artifacts in PC MR velocity measurements. *J Magnetic Resonance Imaging* 1995; **5**: 207-215.
9. **R Frayne**, DA Steinman, CR Ethier, BK Rutt. Accuracy of MR phase contrast velocity measurements for unsteady flow. *J Magnetic Resonance Imaging* 1995; **5**: 428-431.

10. **R Frayne**, BK Rutt. Measurement of fluid-shear rate using Fourier-encoded velocity imaging. *Magnetic Resonance in Medicine* 1995; **34**: 378-387.
11. DA Steinman, **R Frayne**, X Zhang, CR Ethier, BK Rutt. MR measurement and numerical simulation of flow in an end-to-side anastomosis model. *J Biomechanics* 1996; **29**: 537-542.
12. JA Polzin, FR Korosec, KL Wedding, TM Grist, **R Frayne**, DC Peters, CA Mistretta. Effects of through-plane myocardial motion on phase-difference and complex-difference estimates of absolute coronary artery flow. *J Magnetic Resonance Imaging* 1996; **6**: 113-123.
13. JA Polzin, **R Frayne**, TM Grist, CA Mistretta. Frequency Response of Multi-Phase Segmented ***k***-Space Phase Contrast. *Magnetic Resonance in Medicine* 1996*;* **35**: 755-762.
14. FR Korosec, **R Frayne**, TM Grist, CA Mistretta. Time-resolved contrast-enhanced 3D MR angiography. *Magnetic Resonance in Medicine* 1996; **36**: 345-351.
15. **R Frayne**, JA Polzin, Y Mazaheri, TM Grist, CA Mistretta. Effect of and correction for in-plane myocardial motion on estimates of coronary volume flow rates. *J Magnetic Resonance Imaging* 1997; **7**: 815-828.
16. **R Frayne**, TM Grist, FR Korosec, DS Willig, JS Swan, PA Turski, CA Mistretta. MR angiography with 3D MR DSA. *Topics in Magnetic Resonance Imaging* 1996; **8**: 366-388.
17. ER Niendorf, TM Grist, **R Frayne**, PC Brazy, GE Santyr. Rapid measurement of Gd-DPTA extraction fraction in a dialysis system using echo-planar imaging. *Medical Physics* 1997; **24**: 1907-1913.
18. MK Laudon, JG Webster, TM Grist, **R Frayne**, Minimizing interference from magnetic resonance imagers during electrocardiography. *IEEE Transactions Biomedical Engineering* 1998; **45**: 160-164.
19. DS Willig, PA Turski, **R Frayne**, VB Graves, FR Korosec, CA Mistretta, TM Grist. Contrast-enhanced 3D MR DSA of the carotid artery bifurcation: preliminary study of comparison with unenhanced 2D and 3D time-of-flight MR angiography. *Radiology* 1998; **208**: 447-451.
20. O Unal, FR Korosec, **R Frayne**, CM Strother, CA Mistretta. Rapid 2D time-resolved variable k-space sampling MR technique for passive catheter tracking and visualization during endovascular procedures. *Magnetic Resonance in Medicine* 1998; **40**: 356-362.
21. CA Mistretta, TM Grist, FR Korosec, **R Frayne**, DC Peters, Y Mazaheri, TJ Carroll. 3D time-resolved contrast-enhanced MR-DSA: Advantages and tradeoffs. *Magnetic Resonance in Medicine* 1998; **40**: 571-581.
22. AM Masaryk, **R Frayne**, O Unal, E Krupisnski, CM Strother. *In vitro* and *in vivo* comparison of three MR measurement methods for calculating vascular shear stress in the internal carotid artery. *American J Neuroradiology* 1999; **20**, 237-245.
23. DW Holdsworth, CJD Norley, **R Frayne**, DA Steinman, BK Rutt. Characterization of common carotid blood flow waveform in normal subjects. *Physiological Measurement* 1999; **20**: 219-240.
24. Y Zhou, TJ Carroll, TM Grist, **R Frayne**. Design and validation of a motion stage for *in vitro* MR experiments. *J Magnetic Resonance Imaging* 1999; **10**: 972-977.
25. RA Omary, **R Frayne**, O Unal, TM Grist, CM Strother. Intra-arterial Gadolinium-enhanced 2D and 3D magnetic resonance angiography: A preliminary study. *J Vascular & Interventional Radiology* 1999; **10**, 1315-1321.
26. RA Omary, **R Frayne**, O Unal, FR Korosec, T Warner, CA Mistretta, CM Strother, TM Grist, Magnetic resonance-guided angioplasty of renal artery stenosis in a pig model: A feasibility study *J Vascular & Interventional Radiology* 2000; **11**: 372-381.
27. CM Strother, O Unal, **R Frayne**, AS Turk, RA Omary, FR Korosec, CA Mistretta. Feasibility of the endovascular treatment of experimental canine aneurysms. *Radiology* 2000; **215**: 516-519.
28. **R Frayne**, TM Grist, JS Swan, DC Peters, FR Korosec, CA Mistretta. 3D MR DSA: effects of injection protocol and image masking. *J Magnetic Resonance Imaging* 2000; **12**: 476-487.
29. AM Masaryk, **R Frayne**, O Unal, AH Rappe, CM Strother. Utility of CTA and MRA for follow-up evaluation of experimental aneurysms treated with stents or Guglielmi detachable coils *American J Neuroradiology* 2000; **21**: 1523-1531.

30. RA Omary, O Unal, DS Koscielski, **R Frayne**, CM Strother, TM Grist. Real-time magnetic resonance -guided passive catheter tracking using gadolinium-filled catheters. *J Vascular & Interventional Radiology* 2000; **11**: 1079-1085.
31. TJ Carroll, FR Korosec, JS Swan, TM Grist, **R Frayne**, CA Mistretta. A method for rapid reconstruction the peak arterial frame from a time-resolved CE-MRA exam. *Magnetic Resonance in Medicine* 2000; **44**: 817-820.
32. **R Frayne**, RA Omary, O Unal, CM Strother. Determination of optimal injection parameters for intraarterial gadolinium-enhanced MR angiography. *J Vascular & Interventional Radiology* 2000; **11**: 1277-1284.
33. MD Hill, PA Barber, AM Demchuk, RJ Sevick, **R Frayne**, AM Buchan. Symptomatic hemorrhage after alteplase therapy not due to silent ischemia. *BMC Neurology* 2001; **1**: 1.
34. XQ Jiang, H Yu, **R Frayne**, O Unal, CM Strother. Novel magnetic resonance signal enhancing coating material. *Advanced Materials.* 2001; **13**: 490-493.
35. O Wieben, TJ Carroll, JS Swan, **R Frayne**. Rapid generation of preview images for 3D MR. *Physics in Medicine and Biol*ogy 2002; **47**: N17-N24.
36. MD Hill, PA Barber, AM Demchuk, NJ Newcommon, A Cole-Haskayne, K Ryckborst, L Sopher, W Hu, ME Hudon, W Morrish, **R Frayne**, AM Buchan. Acute IV-IA revascularization therapy for severe ischemic stroke. *Stroke*. 2002; **33**: 279-282.
37. RA Omary, KP Henseler, O Unal, RJ Smith, RK Ryu, SA Resnick, MB Saker, HB Chrisman, **R Frayne**, JP Finn, D Li, TM Grist. Validation of injection parameters for catheter-directed intraarterial gadolinium-enhanced MR angiography. *Academic Radiology* 2002; **9:** 172-185.
38. JJ Yang, MD Hill, WF Morrish, ME Hudon, PA Barber, AM Demchuk, RJ Sevick, **R Frayne**. Comparison of pre- and post-Contrast 3D TOF MR angiography for distal intra-cranial branch occlusions in acute ischemic stroke. *American J Neuroradiology* 2002; **23:** 557-567.
39. RS Pereira, AD Harris, RJ Sevick, **R Frayne**. Effect of *b*-value on contrast during diffusion-weighted magnetic resonance imaging assessment of acute ischemic stroke. *J Magnetic Resonance Imaging* 2002; **15**: 591-596.
40. X Jiang, H Yu, **R Frayne**, O Unal, CM Strother. Surface functionalization of polyethylene for magnetic resonance signal-enhancing materials. *Chemical Materials* 2002; **14**: 1914-1920.
41. SB Coutts, **R Frayne**, R Sevick, A Demchuk. Microbleeding on MRI as a marker for hemorrhage post stroke thrombolysis. *Stroke* 2002; **33**: 1457-1458.
42. JS Swan, TJ Carroll, TW Kennell, DM Heisey, FR Korosec, **R Frayne**, CA Mistretta, TM Grist. Time- resolved 3D contrast-enhanced MRA of the peripheral vessels. *Radiology* 2002; **225**: 43-52.
43. M Sabati, **R Frayne**. A new strategy for imaging blood vessels in the legs using magnetic resonance (MR) imaging. *Canadian Journal of Electrical and Computer Engineering.* 2002; **27**: 117-121.
44. MR Smith, H Lu, **R Frayne**. Signal-to-noise effects in quantitative cerebral perfusion using dynamic susceptibility contrast agents. *Magnetic Resonance in Medicine* 2003; **49**: 122-128.
45. **R Frayne**, BG Goodyear, P Dickoff, ML Lauzon, RJ Sevick. Magnetic resonance imaging at 3.0 T: Technical challenges and benefits in neurological imaging. *Investigative Radiology* 2003; **38**: 385-402.
46. SB Coutts, JE Simon, AI Tomanek, PA Barber, J Chan, ME Hudon, JR Mitchell, **R Frayne**, M Eliasziw, AM Buchan, AM Demchuk. Reliability of Assessing Percentage DWI-PWI Mismatch. *Stroke* 2003; **34**: 1681-1683.
47. M Sabati, ML Lauzon, **R Frayne**. Space-time relationship in continuously moving table method for extended FOV peripheral CE-MRA. *Physics in Medicine & Biology* 2003; **48**: 2739-2752.
48. C-H Sohn, RJ Sevick, **R Frayne**. Contrast enhanced MR angiography of the intracranial circulation. *Magnetic Resonance Imaging Clinics of North America* 2003; **11**: 599-613 (Invited Review).
49. MR Smith, H Lu, S Trochet, **R Frayne**. Removing the effect of SVD algorithmic artifacts present in quantitative MR perfusion studies. *Magnetic Resonance in Medicine* 2004; **51**: 631-634.

50. AD Harris, RS Pereira, JR Mitchell, MD Hill, RJ Sevick, **R Frayne**. A comparison of diffusion weighted and diffusion tensor image post-processing strategies in hyper-acute stroke. *J Magnetic Resonance Imaging* 2004; **20**: 193-200.
51. PA Barber, AM Demchuk, MD Hill, JHW Pexman, ME Hudon, **R Frayne**, AM Buchan. The probability of middle cerebral artery MRA flow signal abnormality with quantified CT ischemic change: Targets for future therapeutic studies. *J Neurology, Neurosurgery and Psychiatry* 2004; **75**: 1426-1430.
52. JE Simon, D Czechowsky, M Eliasziw, MD Hill, AD Harris, AM Buchan, **R Frayne**. Fluid-attenuated inversion recovery preparation: Not an improvement over conventional diffusion-weighted imaging at 3T in acute ischemic stroke. *American J Neuroradiology* 2004; **25**: 1653-1658.
53. JJ Chen, MR Smith, **R Frayne**, Advantages of frequency domain modeling in DSC-MR cerebral blood flow quantification, *Magnetic Resonance in Medicine* 2005; **53**: 700-707.
54. JJ Chen, MR Smith, **R Frayne**. Reassessing the clinical efficacy of two MR quantitative DSC PWI CBF algorithms following cross-calibration with PET images. *Physics in Medicine & Biology* 2005; **50**: 1251-1263.
55. M Salluzzi, **R Frayne**, MR Smith. An alternative view point of the similarities and differences of SVD and FT deconvolution algorithms used for quantitative MR perfusion studies. *Magnetic Resonance Imaging* 2005; **23**: 481-492.
56. JE Simon, MS Bristow, H Lu, ML Lauzon, R Brown, JV Manjón, M Eliasziw, **R Frayne**, AM Buchan, AM Demchuk, JR Mitchell for the Calgary Stroke Program. A novel method to derive separate gray and white matter cerebral blood flow measures from MR imaging of acute ischemic stroke patients. *J Cerebral Blood Flow & Metabolism* 2005; **25**: 1236-1243.
57. S Aalbersberg, I Kingma, JL Ronsky, **R Frayne**, JH van Dieën. *In vivo* orientation of tendons with active and passive knee muscles. *J Biomechanics* 2005; **38**: 1780-1788.
58. JJ Chen, MR Smith, **R Frayne**. The impact of partial-volume effects in DSC MR perfusion imaging, *J Magnetic Resonance Imaging* 2005; **22**: 390-399.
59. MS Bristow, JE Simon, RA Brown, M Eliasziw, MD Hill, AM Demchuk, **R Frayne**, JR Mitchell. Perfusion and diffusion in acute stroke: Gray and white matter have different thresholds. *J Cerebral Blood Flow & Metabolism* 2005; **25**: 1280-1287.
60. PA Barber, MD Hill, M Eliasziw, AM Demchuk, JHW Pexman, ME Hudon, AI Tomanek, **R Frayne,** AM Buchan for the ASPECTS Study Group. Imaging of the brain in acute ischaemic stroke: A comparison of computed tomography and magnetic resonance diffusion weighted imaging. *J Neurology, Neurosurgery and Psychiatry* 2005; **76**: 1528-1533.
61. D Oliphant, **R Frayne**, G Kawchuk. A new method of creating intervertebral disc disruption of various grades. *Clinical Biomechanics* 2006; **21**: 21-25.
62. AD Harris, K Ide, MJ Poulin, **R Frayne**. Control of end-tidal PCO2 reduces middle cerebral artery blood velocity variability: implications for physiological neuroimaging. *Neuroimage* 2006; **29**: 1272-1277.
63. M Salluzzi, **R Frayne**, MR Smith. Is correction necessary when clinically determining quantitative cerebral perfusion parameters from multi-slice DSC MR studies? *Physics in Medicine Biology* 2006; **51**: 407-24.
64. P Chen, JE Simon, MD Hill, C-H Sohn, P Dickoff, WF Morrish, RJ Sevick, **R Frayne**. Diffusion-weighted imaging strategies in acute ischemic stroke: Effects of *b*-value and CSF suppression. *Radiology* 2006; **238**: 232-9.
65. AI Tomanek, SB Coutts, AM Demchuk, ME Hudon, WF Morrish, RJ Sevick, JE Simon, **R Frayne**, AM Buchan, MD Hill. MR angiography compared to conventional selective angiography in acute stroke. *Canadian Journal of Neurological Sciences* 2006; **33**: 58-62.
66. M Sabati, ML Lauzon, N Nagarajappa, **R Frayne**. A real-time 3D large field-of-view MRI system with interactive table motion. *Concepts in Magnetic Resonance Part B: Magnetic Resonance Engineering* 2006; **29B**: 28-41.

67. A Habib, R Cheng, E-M Kim, E Mitishita, **R Frayne**, J Ronsky. Automatic surface matching for the registration of LIDAR data and MR imagery. *ETRI Journal* 2006; **28**: 162-174.
68. M Sabati, ML Lauzon, **R Frayne**. Interactive continuous moving table (iCMT) large field-of-view MR imaging. *Magnetic Resonance Medicine* 2006; **55**: 1202-1209.
69. A Kurji, CT Debert, WA Whitelaw, JM Rawling, **R Frayne**, MJ Poulin, Variability of middle cerebral artery blood velocity waveforms in young and postmenopausal women. *Menopause* 2006; **13**: 303-313.
70. ML Lauzon, RJ Sevick, AM Demchuk, **R Frayne**. Technical aspects of stroke imaging at 3.0 Tesla. *Neuroimaging Imaging Clinics of North America* 2006; **6**: 343-366. (Invited Review)
71. H Peng, M Sabati, ML Lauzon, **R Frayne**. Improved reconstruction of MR images from 3D sparsely sampled k-space data by projection-onto-convex sets (POCS). *Magnetic Resonance Imaging* 2006; **24**: 761-773.
72. JN Draper, ML Lauzon, **R Frayne**. Improved passive catheter visualization in magnetic resonance-guided endovascular therapy using multi-cycle projection dephasers *J Magnetic Resonance Imaging* 2006; **24**: 160-167.
73. ML Lauzon, H Mahallati, **R Frayne**. Time-efficient breath-hold abdominal MRI at 3.0 Tesla. *AJR American Roentgenol* 2006; **187**: 649-657.
74. L Ko, M Salluzzi, **R Frayne**, MR Smith. Re-examining the quantification of perfusion MRI data in the presence of bolus dispersion. *J Magnetic Resonance Imaging* 2007; **25:** 639-643.
75. JC Kosior, **R Frayne**. Perftool: A software platform for investigating bolus-tracking perfusion imaging quantification strategies.. *J Magnetic Resonance Imaging* 2007; **25**: 653-659.
76. RB Stafford, M Sabati, H Mahallati, **R Frayne**. Magnetization evolution in balanced steady-state free precession with continuously moving table. *Physics Medicine Biology* 2007; **52**: N173-N184.
77. JH Wong, AP Mitha, M Wilson, ME Hudon, RJ Sevick, **R Frayne**. Assessment of brain aneurysms after endovascular coiling using high resolution magnetic resonance angiography. *J Neurosurgery* 2007; **107**: 283-289.
78. RK Kosior, CJ Wright, JC Kosior, C Kenney, SD Warach, **R Frayne**, MD Hill. 3 T versus 1.5 T MR diffusion and perfusion imaging in hyper-acute ischemic stroke. *Cerebrovascular Disease*. 2007; **24**: 361-368.
79. RK Kosior, JC Kosior, **R Frayne**. Improved DSC-MR perfusion estimates by motion correction. *J Magnetic Resonance Imaging* 2007; **26**: 1167-1172.
80. AD Harris, JC Kosior, RC Ryder, LB Andersen, M Hudon, WY Hu, WF Morrish, RJ Sevick, JH Wong, **R Frayne**, Monitoring of ischemic stroke therapy in canines with magnetic resonance. *J Magnetic Resonance Imaging* 2007; **26**: 1421-1428.
81. JC Kosior, RK Kosior, **R Frayne**. Robust dynamic susceptibility contrast MR perfusion using 4D nonlinear noise filters. *J Magnetic Resonance Imaging* 2007; 2**6**: 1514-1522.
82. H Peng, JN Draper, **R Frayne**. Rapid passive MR catheter visualization for endovascular therapy using nonsymmetric truncated k-space sampling strategies. *Magnetic Resonance Imaging* 2008; **26**: 293-303.
83. RB Stafford, M Sabati, H Mahallati, **R Frayne**. 3D non-contrast enhanced MR angiography with balanced steady-state free precession Dixon method. *Magnetic Resonance in Medicine* 2008; **59**: 430-433.
84. JW Robertson, CT Debert, **R Frayne** MJ Poulin. Variability of middle cerebral artery blood flow with hypercapnia in women. *Ultrasound in Medicine and Biology* 2008; **34:** 730-740.
85. AD Harris, M Govindaraj, **R Frayne**. Minimum detectable difference of MR diffusion maps in acute ischemic stroke. *J Magnetic Resonance Imaging* 2008; **27**: 629-633.
86. RB Stafford, M Sabati, MJ Haakstad, H Mahallati, **R Frayne**. Unenhanced MR angiography of the renal arteries with balanced steady-state free precession Dixon method. *AJR American J Roentgenol* 2008; **191**: 243-246.

87. MS Bristow, BW Poulin, JE Simon, MD Hill, JC Kosior, SB Coutts, **R Frayne**, JR Mitchell, AM Demchuk. Distinguishing infarct growth with MR in acute ischemic stroke using regression modeling. *J Magnetic Resonance Imaging* 2008; **28**: 837– 846
88. RA Brown, **R Frayne**. A comparison of texture quantification techniques based on the Fourier and S transforms. *Medical Physics* 2008; **35**: 4998-5008.
89. JC Kosior, RK Kosior, MR Smith, **R Frayne**. Cerebral blood flow estimation *in vivo* using local tissue reference functions. *J Magnetic Resonance Imaging* 2009; **29**: 183-188.
90. AD Harris, SB Coutts, **R Frayne**. Diffusion and perfusion MR imaging of acute ischemic stroke. *MRI Clinics of North America* 2009; **17**: 291-313. (Invited Review)
91. ML Lauzon, **R Frayne**. A theoretical analysis and characterization of RF phase-cycled balanced SSFP. *Concepts in Magnetic Resonance Part A* 2009; 34A: 133-143. [Review/Tutorial]
92. AD Harris, RK Kosior, HS Chen, LB Andersen, **R Frayne**. Evolution of hyperacute stroke over 6 h using serial MR perfusion and diffusion maps. *J Magnetic Resonance Imaging* 2009; **29**: 1262-1270.
93. RK Kosior, ML Lauzon, **R Frayne**, P Federico. Single-subject voxel-based relaxometry for temporal lobe epilepsy. *Epilepsy Research* 2009; **86**: 23-31.
94. KD Connolly, JL Ronsky, LM Westover, JC Küpper, **R Frayne**. Analysis techniques for congruence of the patellofemoral joint. *J Biomech Eng* 2009; 131: 124503.
95. KD Connolly, JL Ronsky, LM Westover, JC Küpper, **R Frayne**, Differences in patellofemoral contact mechanics associated with patellofemoral pain syndrome. *J Biomechanics* 2009; **42**: 2802–2807.
96. RA Brown, ML Lauzon, **R Frayne**. A general description of linear time-frequency transforms and formulation of a fast, invertible transform that samples the continuous S-transform spectrum nonredundantly. *IEEE Trans Signal Processing* 2010; **58**: 281-290.
97. Sohn CH, Sevick RJ, **Frayne R**, Chang HW, Kim SP, Kim DK. Fluid attenuated inversion recovery (FLAIR) imaging of the normal brain: comparisons between under the conditions of 3.0 Tesla and 1.5 Tesla. *Korean J Radiol*. 2010; **11**: 19-24.
98. RK Kosior, ML Lauzon, N Steffanhagen, JC Kosior, AM Demchuk, **R Frayne**, Atlas-based topographical scoring for magnetic resonance imaging of acute stroke. *Stroke* 2010; **41**: 455-60.
99. J Yerly, ML Lauzon, HS Chen, **R Frayne**. Passive MR catheter visualization for endovascular therapy using compressive sampling. *Magnetic Resonance in Medicine* 2010; **63**: 473-483.
100. JC Kosior, **R Frayne**. Perfusion parameters derived from bolus-tracking perfusion imaging are immune to bolus re-circulation. *J Magnetic Resonance Imaging* 2010; **31**: 753-6.
101. RB Stafford, M Sabati, ML Lauzon, **R Frayne**, RI Thompson**.** Behaviour of hydrogen nuclei in nuclear magnetic resonance and magnetic resonance imaging. *Canadian Journal of Physics* 2010; **88**: 465-77.
102. N Arronte, RK Kosior, EE Smith, **R Frayne**. Magnetic resonance diffusion imaging in cerebral autonomic dominant areriopathy with subcortical infarcts and leukoencephalopathy (CADASIL) – improved quantification with cerebrospinal fluid suppression. *Canadian Undergraduate Physics Journal* 2010; **8**: 17-22.
103. RJ Sharkey, RK Kosior, P Federico, **R Frayne**. Age effects on voxel-based relaxometry used for epileptic patients. *Epiliepsy Research* 2010; **91:** 41-47.
104. JC Kosior, S Idris, D Dowlatshahi, M Alzawahmah, M Eesa, P Sharma, S Tymchuk, MD Hill, **R Frayne**, AM Demchuk for the PREDICT/Sunnybrook CTA ICH study investigators. Quantomo: validation of a computer-assisted methodology for the volumetric analysis of intracerebral haemorrhage. *International Journal of Stroke* 2011; **6**: 302-5.
105. A-L Aulanier, AL Doiron, RD Shepherd, KD Rinker, **R Frayne**, LB Andersen. A human cell model for dynamic testing of MR contrast agents. *BioTechniques* 2011; **50**: 120-123.
106. I Sumar, RK Kosior, **R Frayne**, P Federico. Hippocampal T2 abnormalities in healthy adults *Epilepsy Research* 2011; **95**: 273-6.

107. ME MacDonald, MR Smith, **R Frayne**. Deconvolution with simple extrapolation for improved cerebral blood flow measurement in dynamic susceptibility contrast magnetic resonance imaging during acute ischemic stroke. *Magnetic Resonance Imaging* 2011; **29**: 620-9.
108. RK Kosior, ML Lauzon, P Federico, **R Frayne**. Algebraic T2 estimation improves detection of right temporal lobe epilepsy by MR. *NeuroImage* 2011; **58**: 189-97.
109. NE Swailes, ME MacDonald, **R Frayne**. Dynamic phantom with heart, lung and blood motion for initial validation of MR imaging techniques. *J Magnetic Resonance Imaging* 2011; **34**: 941-6.
110. RK Kosior, RJ Sharkey, **R Frayne**, P Federico. Voxel-based relaxometry for cases of an unresolved epilepsy diagnosis. *Epilepsy Research* 2012; **99**: 46-54.
111. CF Curtis, **R Frayne**, EC Fear. Semi-automated multimodal breast image registration. *International Journal of Biomedical Imaging* **2012**; Article ID 890830. doi:10.1155/2012/890830.
112. CF Curtis, **R Frayne**, EC Fear. Using X-ray Mammograms to Assist in Microwave Breast Image Interpretation. *International Journal of Biomedical Imaging* 2012; **2012**: Article ID 235380. doi:10.1155/2012/235380.
113. F Moureau, S Patel, ML Lauzon, C McCreary, M Goyal, **R Frayne**, AM Demchuk, SB Coutts, EE Smith. Cavitation following acute symptomatic lacunar stroke depends on time, location and MRI sequence. *Stroke* 2012; **43**: 1837-42.
114. D Dowlatshahi, JC Kosior, S Idris, M Eesa, P Dickhoff, M Joshi, S Subramaniam, S Tymchuk, MD Hill, R Aviv, **R Frayne**, AM Demchuk for the PREDICT/Sunnybrook Investigators. Planimetric hematoma measurement in patients with intraventricular hemorrhage: is total volume a preferred target for reliable analysis? *Stroke* 2012; **43**: 1961-3.
115. ME MacDonald, RB Stafford, J Yerly, **R Frayne**. Comparison of acceleration methods for passive MR catheter tracking. *Magnetic Resonance Imaging* 2013; 31; 120-9.
116. J-C Tardif, JD Spence, TM Heinonen, A Moody, J Pressacco, **R Frayne**, P L'Allier, R Beanlands. New directives in cardiac imaging: Atherosclerosis imaging and the Canadian Atherosclerosis Imaging Network (CAIN). *Canadian Journal of Cardiology* 2013; **29**: 297-303. DOI: 10.1016/j.cjca.2012.09.017
117. J Küpper, I Robu, **R Frayne**, JL Ronsky. The knee loading apparatus: axial, anterior, and compressive loading with magnetic resonance imaging. *J Biomech Eng* 2013; **135**: 024501-1 http://dx.doi.org/10.1115/1.4023152
118. J Wardlaw, E Smith, G Biessels, C Cordonnier, F Fazekas, **R Frayne**, R Lindley, JT O'Brien, F Barkhof, O Benavente, S Black, C Brayne, M Breteler, H Chabriat, C DeCarli, FE de Leeuw, F Doubal, M Duering, N Fox, S Greenberg, V Hachinski, I Kilimann, V Mok, R van Oostenbrugge, L Pantoni, O Speck, CM Blossom, S Teipel, A Viswanathan, D Werring, C Chen, C Smith, M van Buchem, B Norrving, PB Gorelick, M Dichgans. Neuroimaging standards for research into small vessel disease and its contribution to ageing and neurodegeneration: A united approach standards for reporting vascular changes on neuroimaging (STRIVE) v1. *Lancet Neurology*. 2013; **12**: 822-838.
119. M Sabati, H Peng, ML Lauzon, **R Frayne**. A statistical method for characterizing the noise in non-linearly-reconstructed images from undersampled MR data: The POCS example. *Magnetic Resonance Imaging* 2013; **31**: 1587-98. DOI: 10.1016/j.mri.2013.06.011.
120. A-L Cheng, S Batool, CR McCreary, ML Lauzon, **R Frayne**, M Goyal, EE Smith. Susceptibility-weighted imaging is more reliable than T2*-weighted gradient-recalled echo MRI for detection of microbleeds. *Stroke* 2013; **44**: 2782-6. DOI: 10.1161/STROKEAHA.113.002267.
121. TD Cannon, F Sun, S McEwen, TGM van Erp, A Jacobson, CE Bearden, G He, E Walker, X Xu, L Zhou, LJ Seidman, HW Thermenos, B Cornblatt, DM Olvet, D Perkins, A Belger, K Cadenhead, M Tsuang, H Mirzakhanian, J Addington, **R Frayne**, SW Woods, TH McGlashan, RT Constable, M Qiu, DH Mathalon, P Thompson, AW Toga. Reliability of neuroanatomical measurements in a multi-site longitudinal study of youth at risk for psychosis. *Human Brain Mapping*. 2014; **35**: 2424-34, DOI: 10.1002/hbm.22338.
122. S Peca, CR McCreary, E Donaldson, G Kumarpillai, N Shobha, K Sanchez, A Charlton, C Steinbeck, A Beaudin, D Flueck, N Pillay, G Fick, MJ Poulin, **R Frayne**, BG Goodyear, EE Smith.

Neurovascular decoupling is associated with severity of cerebral amyloid angiopathy. *Neurology* 2013; **81**: 1659-65. DOI: 10.1212/01.wnl.0000435291.49598.54.

123. J Trufyn, MD Hill, JN Scott, J Modi, V Ciura, **R Frayne**, M Goyal, D Lautner, D Bhayana, J Davenport, J Mah, JM Burton, F Costello. The prevalence of incidental findings in multiple sclerosis patients. *Canadian Journal of Neurological Sciences* 2014; **41**: 49-52.

124. F Costello, J Modi, D Lautner, D Bhayana, J Scott, J Davenport, J Trufyn, **R Frayne**, VA Ciura, M Goyal, J Mah, MD Hill. Chronic cerebrospinal venous insufficiency and multiple sclerosis: the missing link. *CMAJ* 2014 **186**: E418-26. doi: 10.1503/cmaj.131431.

125. S Batool, M O'Donnell, M Sharma, S Islam, G Dagenais, P Poirier, S Lear, A Wielgosz, K Teo, G Stotts, C McCreary, **R Frayne**, J DeJesus, S Rangarajan, S Yusuf, E Smith. Incidental MRI DWI-positive lesions are rare in neurologically asymptomatic community-dwelling adults. *Stroke* 2014; **45**: 2115-7: 10.1161/STROKEAHA.114.005782.

126. ME Boesen, LASM Neto, A Pulwicki, J Yerly, RM Lebel, **R Frayne**. Fast spin echo imaging of carotid artery dynamics. *Magn Reson Med*. 2014; **74**: 1103-9. doi: 10.1002/mrm.25494.

127. M Krongold, M Almekhalfi, AM Demchuk, SB Coutts, **R Frayne**, A Eilaghi, Final infarct volume estimation on 1-week follow-up MR imaging is feasible and is dependent on recanalization status. *NeuroImage: Clinical* 2015; 7:1-6. doi: 10.1016/j.nicl.2014.10.010.

128. EE Smith, M O'Donnell, G Dagenais, S Lear, A Wielgosz, M Sharma, P Poirier, G Stotts, SE Black, S Strother, M Noseworthy, O Benavente, J Modi, M Goyal, S Batool, K Sanchez, V Hill, **R Frayne,** S Islam, J DeJesus, S Rangarajan, K Teo, S Yusuf. Early cerebral small vessel disease and brain volume, cognition, and gait. *Annals of Neurology* 2015; **77**: 251-61. doi: 10.1002/ana.24320.

129. ML Bernbaum, BK Menon, G Fick, EE Smith, M Goyal, **R Frayne**, SB Coutts. Reduced blood flow in normal white matter predicts development of leukoaraiosis. *J Cerebral Blood Flow and Metabolism*. 2015; **35**: 1610-5. doi:10.1038/jcbfm.2015.92.

130. ME MacDonald, **R Frayne**. Phase contrast MR imaging measurements of blood flow in healthy human cerebral vessel segments. *Physiological Measurement* 2015; **36**:1517 doi:10.1088/0967-3334/36/7/1517.

131. ME MacDonald, **R Frayne**. Cerebrovascular MRI: A review of state-of-the-art approaches, methods and techniques. *NMR in BioMedicine* 2015; **28**: 767-91. doi: 10.1002/nbm.3322.

132. ME MacDonald, P Dolati, AP Mitha, M Essa, JH Wong, **R Frayne**. Measurement of pressure and flow alterations in a giant cerebral aneurysm treated with a pipeline stent using MR imaging. *Radiology Case Reports* 2015; **10**: 1-7. doi: 10.2484/rcr.v10i2.1109

133. ME Boesen, D Singh, BK Menon, **R Frayne**. A systematic literature review of the effect of carotid atherosclerosis on local vessel stiffness and elasticity. *Atherosclerosis* 2015; **243**: 211-22. doi: 10.1016/j.atherosclerosis.2015.09.008

134. C d'Esterre, M Boesen, SH Ahn, M Najm, P Minhas, P Davari, E Fainardi, M Rubiera, A Khaw, A Zini, **R Frayne**, M Hill, A Demchuk, T Sajobi, ND Forkert, M Goyal, TY Lee, B Menon. Time-dependent CT perfusion thresholds for triage of patients with acute ischemic stroke. *Stroke* 2015; **46**: 3390-7. doi: 10.1161/STROKEAHA.115.009250

135. ML Lauzon, CR McCreary, DA McLean, M Salluzzi, **R Frayne**. Quantitative susceptibility mapping at 3 Tesla: Comparison of acquisition methodologies. *NMR in Biomedicine* 2016; 2016 Feb 17. doi: 10.1002/nbm.3492

136. ME MacDonald, ND Forkert, GB Pike, **R Frayne**. Correcting phase errors in phase contrast magnetic resonance imaging of the cerebral vasculature. *PLOS One* 2016; **11**: e0149930. doi: 10.1371/journal.pone.0149930

137. AR Switzer, CR McCreary, S Batool RB Stafford, **R Frayne**, BG Goodyear, EE Smith. Longitudinal decrease in blood oxygenation level dependent response in cerebral amyloid angiopathy. *NeuroImage Clinical* 2016; **11**: 461-7. doi:10.1016/j.nicl.2016.02.020.

138. A Eilaghi, T Yeung, CD d'Esterre, G Bauman, J Easaw, E Fainardi, TY Lee, **R Frayne**. Quantitative perfusion and permeability biomarkers in brain cancer from tomographic CT and MR images. *Biomarkers in Cancer*. 2016; **8(Suppl 2**): 47-59. doi: 10.4137/BIC.S31801.

139. N Case, A Charlton, A Zwiers, S Batool, C McCreary, D Hogan, Z Ismail, C Zerna, S Coutts, **R Frayne**, B Goodyear, A Haffenden, E Smith. Cerebral amyloid angiopathy is associated with executive dysfunction. *Stroke* 2016; **47**: 2010-6. doi: STROKEAHA.116.012999.

140. ML Lauzon, CR McCreary, **R Frayne**. Multislice T1 -prepared 2D single-shot EPI: analysis of a clinical T1 mapping method unbiased by B0 or B1 inhomogeneity. *NMR Biomed*. 2016; **29**: 1056-69. doi: 10.1002/nbm.3566.

141. ME MacDonald, **R Frayne**. Flow and pressure measurements in aneurysms and arteriovenous malformations with phase contrast MR imaging. *Magnetic Resonance Imaging* 2016; **34**: 1322-28. doi: 10.1016/j.mri.2016.07.007

142. METACOHORTS Consortium. M Dichgans, J Wardlaw, E Smith, V Zietemann, S Seshadri, P Sachdev, GJ Biessels, F Fazekas, O Benavente, L Pantoni, FE De Leeuw, B Norrving, P Matthews, C Chen, V Mok, M Düring, W Whiteley, K Shuler, A Alonso, SE Black, C Brayne, H Chabriat, C Cordonnier, F Doubal, E Duzel, M Ewers, **R Frayne**, V Hachinski, MA Ikram, F Jessen, E Jouvent, J Linn, J O'Brien, R van Oostenbrugge, R Malik, B Mazoyer, R Schmidt, LA Sposato, B Stephan, RH Swartz, M Vernooij, A Viswanathan, D Werring, K Abe, L Allan, F Arba; VISTA Collaboration, HC Diener, S Davis, G Hankey, KR Lees, B Ovbiagele, C Weir, HJ Bae, PM Bath, R Bordet, M Breteler, S Choi, I Deary, C DeCarli, K Ebmeier, L Feng, SM Greenberg, M Ihara, R Kalaria, S Kim, JS Lim, RI Lindle, G Mead, A Murray, T Quinn, C Ritchie, R Sacco, R Al-Shahi Salman, N Sprigg, C Sudlow, A Thomas, M van Boxtel, J van der Grond, A van der Lugt, YH Yang. METACOHORTS for the study of vascular disease and its contribution to cognitive decline and neurodegeneration. An initiative of the Joint Programme for Neurodegenerative Disease research. *Alzheimer's and Dementia* 2016; **12**: 1235-49. doi: 10.1016/j.jalz.2016.06.004.

143. JC Küpper, L Westover, **R Frayne**, JL Ronsky. Application of a novel measure of in-vivo knee joint laxity. *Journal of Biomechanical Engineering* 2016; **138**: 104501-1 - 104501-7. doi: 10.1115/1.4034169.

144. RJ Williams, BG Goodyear, S Peca, CR McCreary, **R Frayne**, EE Smith, GB Pike. Identification of neurovascular changes associated with cerebral amyloid angiopathy from subject-specific hemodynamic response functions. *J Cereb Blood Flow Metab*. 2017; **37**: 3433-3445. doi: 0.1177/0271678X17691056.

145. I Cheema, AR Switzer, CR McCreary, MD Hill, **R Frayne**, BG Goodyear, EE Smith. Functional magnetic imaging responses in CADASIL. *Journal of the Neurological Sciences* 2017; **375**: 248-254. doi.org/10.1016/j.jns.2017.02.004.

146. ME Boesen, EP Venkatesan, D Singh, A Mitha, M Goyal, **R Frayne**, BK Menon. MR imaging of carotid webs. *Neuroradiology* 2017; **59**: 361-365. doi: 10.1007/s00234-017-1797-z.

147. EE Smith, A Cieslak, P Barber, J Chen, Y-W Chen, I Donnini, JD Edwards, H Elbayoumi, **R Frayne**, TS. Field, J Hagedus, V Hanganu, Z Ismail, J Kanji, M Nakajima, R Noor, S Peca, D Sahlas, M Sharma, L Sposato, RH Swartz, C Zerna, S Black, V Hachinski. Therapeutic strategies and drug development for vascular cognitive impairment. *J Am Heart Assoc*. 2017; **6**. pii: e005568. doi: 10.1161/JAHA.117.005568.

148. A Tsang, CA Lebel, S Bray, BG Goodyear, CR McCreary, M Hafneez, **R Frayne**. White matter structural connectivity is not correlated to cortical resting-state functional connectivity over the healthy adult lifespan. *Frontiers of Aging Neuroscience* 2017; **9**: 144. doi: 10.3389/fnagi.2017.00144.

149. R Souza, O Lucena, J Garrafab, D Gobbi, M Saluzzi, S Appenzeller, L Rittner, **R Frayne**, R Lotufo. An open, multi-vendor, multi-field-strength brain MR dataset and analysis of publicly available skull stripping methods. *NeuroImage* 2018; **170**: 482-494. doi: 10.1016/j.neuroimage.2017.08.021

150. M Clough, S Mutimer, DK Wright, A Tsang, DM Costello, AJ Gardner, P Stanwell, R Mychasiuk, M Sun, RD Brady, SJ McDonald, KM Webster, MR Johnstone, BD Semple, DV Agoston, OB White, **R Frayne**, J Fielding, TJ O'Brien, SR Shultz. Oculomotor cognitive control abnormalities in Australian rules football players with a history of concussion. *J Neurotrauma* 2018; **35**: 730-738. doi: 10.1089/neu.2017.5204.

151. H van den Brink, A Zwiers, AR Switzer, A Charlton, CR McCreary, BG Goodyear, **R Frayne**, GJ Biessels, EE Smith. Cortical microinfarcts on 3T MRI in cerebral amyloid angiopathy: Relations

with other MRI markers of CAA and cognition. *Stroke* H van den Brink, A Zwiers, AR Switzer, A Charlton, CR McCreary, BG Goodyear, **R Frayne**, GJ Biessels, EE Smith. Cortical microinfarcts on 3T MRI in cerebral amyloid angiopathy: Relations with other MRI markers of CAA and cognition. *Stroke* 2018; **49**: 1899-1905. doi: 10.1161/STROKEAHA.118.020810.

152. S Tariq, CD d'Esterre, TT Sajobi, EE Smith, RS Longman, **R Frayne**, SB Coutts, ND Forkert, PA Barber. A longitudinal magnetic resonance imaging study of neurodegenerative and small vessel disease, and clinical cognitive trajectories in non demented patients with transient ischemic attack: the PREVENT study. *BMC Geriatrics* 2018; **18**: 163. doi: 10.1186/s12877-018-0858-4

153. ME MacDonald, RJ Williams, ND Forkert, AJL Berman, CR McCreary, **R Frayne**, GB Pike. Inter-database variability in cortical thickness measurements. *Cerebral Cortex* 2019; **29**: 3282-3293. doi: 10.1093/cercor/bhy197

154. RG Sah, CD d'Esterre, MD Hill, M Hafeez, S Tariq, ND Forkert, **R Frayne**, AM Demchuk, M Goyal, PA Barber PA. DWI lesion growth occurs despite recanalization in acute ischemic stroke: implications for future treatment trials. *International Journal of Stroke* 2019; **14**: 257-264. doi: 10.1177/1747493018798550

155. M Munir, J Ursenbach, M Wang, RG Sah, A Sitaram, A Aftab, S Tariq, G Zamboni, L Griffanti, E Smith, **R Frayne**, T Sajobi, S Coutts, P Barber. Longitudinal brain atrophy rates in transient ischemic attack and minor ischemic stroke patients and cognitive profiles. *Frontiers in Neurology* 2019; **10**: 18. doi: 10.3389/fneur.2019.00018.

156. EE Smith, GJ Biessels, F De Guio, F-E de Leeuw, S Duchesne, M Düring, **R Frayne**, MA Ikram, E Jouvent, B MacIntosh, MJ Thrippleton, MW Vernooij, H Adams, L Ballerini, S Black, C Chen, R Corriveau, C DeCarli, SM. Greenberg, ME Gurot, D Job, BYK Lam, L Launer, J Linn, CR McCreary, VCT Mok, L Pantoni, GB Pike, J Ramirez, YD Reijmer, JR Romero, NS Rost, PS Sachdev, CJM Scott, S Seshadri, M Sharma, S Sourbron, RME Steketee, RH Swartz, R van Oostenbrugge, M van Osch, S van Rooden, A Viswanathan, D Werring, M Dichgans, JM Wardlaw. Harmonizing brain magnetic resonance imaging methods for vascular contributions to neurodegeneration. *Alzheimer's & Dementia: Diagnosis, Assessment & Disease Monitoring*. 2019; **11**: 191-204. doi: 10.1016/j.dadm.2019.01.002

157. MJ Thrippleton, WH Backes, S Sourbron, M Ingrisch, MJP van Osch, M Dichgans, F Fazekas, S Ropele, **R Frayne**, RJ van Oostenbrugge, EE Smith, Joanna M Wardlaw. Quantifying BBB leakage in small vessel disease: Review and consensus recommendations. *Alzheimer's & Dementia* 2019; **15**: 840-858. doi: 10.1016/j.jalz.2019.01.013.

158. M Bento, R Souza, M Salluzzi, L Rittner, Y Zhang, **R Frayne**. Automatic identification of atherosclerosis patients in a multicenter MR brain imaging dataset. *Magnetic Resonance Imaging* 2019; **62**: 18-27. doi.org/10.1016/j.mri.2019.06.007.

159. O Lucena, R Souza, L Rittner, **R Frayne**, R Lotufo. Convolutional neural networks for skull-stripping in brain MR imaging using consensus-based silver standard masks. *Artificial Intelligence in Medicine* 2019; **98:** 48-58. doi.org/10.1016/j.artmed.2019.06.008.

160. K Zukotynski, V Gaudet, P Kuo, S Adamo, M Goubran, C Scott, C Bocti, M Borrie, H Chertkow, **R Frayne**, R Hsiung, R Laforce, MD Noseworthy, FS Prato, DJ Sahlas, EE Smith, V Sossi, A Thiel, J-P Soucy, J-C Tardif, SE Black. The use of random forests to classify amyloid brain PET. *Clinical Nuclear Medicine* 2019; **44**: 784-788. doi: 10.1097/RLU.0000000000002747.

161. O Srivastava, C Hanstock, S Chenji, D Mah, D Eurich, D Ta, P Seres, C Luk, L Zinman, A Abrahao, SJ Graham, A Genge, L Korngut, **R Frayne**, S Kalra. Cerebral degeneration in amyotrophic lateral sclerosis: A prospective multicenter magnetic resonance spectroscopy study. *Neurol Clin Pract* 2019; **9**: 400-407. doi: 10.1212/CPJ.0000000000000674

162. KJ Chung, R Souza, **R Frayne**. Restoration of lossy JPEG-compressed magnetic resonance brain images using cross-domain neural networks. *IEEE Signal Processing Letters* 2019; **127**: 141-5. doi: 10.1109/LSP.2019.2961072.

163. D Rajashekar, M Wilms, ME MacDonald, J Ehrhardt, P Mouches, **R Frayne**, MD Hill, ND Forkert. High-resolution T2-FLAIR and non-contrast CT brain atlas of the elderly. *Scientific Data* 2020; **7**: 56. doi: 10.1038/s41597-020-0379-9.

164. K Zukotynski, V Gaudet, P Kuo, S Adamo, M Goubran, C Scott, C Bocti, M Borrie, H Chertkow, **R Frayne**, R Hsiung, R Laforce, MD Noseworthy, FS Prato, DJ Sahlas, EE Smith, V Sossi, A Thiel, J-P Soucy, J-C Tardif, SE Black. The use of random forests to identify brain regions on amyloid and FDG PET associated with MoCA score. *Clinical Nuclear Medicine* 2020; **45**: 427-433. doi: 10.1097/RLU.0000000000003043.

165. CR McCreary, AE Beaudin, A Subotic, AM Zwiers, A Alvarez, AM Charlton, BG Goodyear, **R Frayne**, EE Smith. Longitudinal changes in white matter mean diffusivity in cerebral amyloid angiopathy, mild cognitive impairment, Alzheimer's disease and normal controls. *Neuroimage Clincial*. doi.org/10.1016/j.nicl.2020.102280.

166. R Souza, M Bento, N Nogovitsyn, K Chung, W Loos, RM Lebel, **R Frayne**. Dual-domain cascade of U-nets for multi-channel magnetic resonance image reconstruction. *Magnetic Resonance Imaging*. 2020; **71**: 140-153. doi: 10.1016/j.mri.2020.06.002.

167. R Souza, Y Beauferris, W Loos, RM Lebel, **R Frayne**. Enhanced deep-learning-based magnetic resonance image reconstruction by leveraging prior subject-specific brain imaging: proof-of-concept using a cohort of presumed normal subjects. *IEEE Journal of Selected Topics in Signal Processing*. doi: 10.1109/JSTSP.2020.3001525.

168. ME MacDonald, RJ Williams, D Rajashekar, RB Stafford, A Hanganu, H Sun, AJL Berman, CR McCreary, **R Frayne**, ND Forkert, GB Pike. The effect of aging on cerebral blood flow and cortical thickness with application to age prediction. *Neurobiology of Aging* 2020; **95**: 131-142. https://doi.org/10.1016/j.neurobiolaging.2020.06.019

169. K Bharti, M Khan, C Beaulieu, H Briemberg, **R Frayne**, A Genge, SJ Graham, L Korngut, L Zinman, S Kalra. The involvement of the dentate nucleus in the pathophysiology of ALS: A multimodal imaging study. *Neuroimage: Clinical*. 2020; 28:102385. https://doi.org/10.1016/j.nicl.2020.102385.

170. M Dadar, AL Manera, L Zinman, L Korngut, A Genge, SJ Graham, **R Frayne**, DL Collins, S Kalra. Cerebral atrophy in amyotrophic lateral sclerosis parallels the pathological distribution of TDP43. *Brain Communications* 2020; 2: fcaa061. doi: 10.1093/braincomms/fcaa061.

171. CR McCreary, M Salluzzi, LB Andersen, DG Gobbi, ML Lauzon, F Saad, EE Smith, **R Frayne**. Calgary normative study: Study design of a prospective longitudinal study to characterize potential quantitative MR biomarkers over the adult lifespan. *BMJ Open* 2020; **10**: e038120. doi: 10.1136/bmjopen-2020-038120

172. S Kalra, H-P Müller, A Ishaque, L Zinman, L Korngut, AL Genge, C Beaulieu, **R Frayne**, SJ Graham, J Kassubek. A prospective harmonized multicentre DTI study of cerebral white matter degeneration in ALS. *Neurology* 2020; 95: e943-e952. doi: 10.1212/WNL.0000000000010235.

173. AR Switzer, Ikreet Cheema, CR McCreary, A Zwiers, A Charlton, A Alvarez-Veronesi, R Sekhon, C Zerna, RB Stafford, **R Frayne**, BG Goodyear, EE Smith. Cerebral vascular reactivity is impaired in cerebral amyloid angiopathy but not Alzheimer's disease. *Neurology* 2020; 95: e1333-e1340. doi: 10.1212/WNL.0000000000010201.

174. S Chenji, A Ishaque, D Mah, E Fujiwara, C Beaulieu, P Seres, SJ Graham, **R Frayne**, L Zinman, A Genge, L Korngut, W Johnston, S Kalra. Neuroanatomical associations of the Edinburgh cognitive and behavioural ALS screen (ECAS). *Brain Imaging and Behavior* 2020. doi: 10.1007/s11682-020-00359-7.

175. S Tariq, A Tsang, M Wang, H Carlson, TT Sajobi, RS Longman, EE Smith, **R Frayne**, SB Coutts, PA Barber. White matter tract microstructure and cognitive performance after transient ischemic attack. *PLOS One* 2020; **15**: e0239116. doi: 10.1371/journal.pone.0239116

176. A Ganesh, PA Barber, SE Black, D Corbett, TS Field, **R Frayne**, VC Hachinski, M Hill, Z Ismail, CR McCreary, L Pantoni, DJ Sahlas, M Sharma, RH Swartz, EE Smith. Trial of remote ischaemic pre-conditioning in vascular cognitive impairment (TRIC-VCI): Protocol for a randomised controlled trial. *BMJ Open* 2020; **10**: e040466. doi: 10.1136/bmjopen-2020-040466.

177. EE Smith, S Duschesne, F Gao, F Saad, P Bellec, V Whitehead, CR McCreary, **R Frayne**, S Gauthier, R Camicioli, M Borrie, S Black. Vascular Contributions to Neurodegeneration: Protocol of

the COMPASS-ND Study. *Canadian Journal of Neurological Sciences* 2021; 1-8. doi: 10.1017/cjn.2021.19

178. Y Bliesener, RM Lebel, J Acharya, **R Frayne**, KS Nayak. Pseudo test-retest evaluation of millimeter-resolution whole-brain dynamic contrast-enhanced MRI in patients with high-grade glioma. *Radiology* 2021; **300**: 410-420. doi: 10.1148/radiol.2021203628.
179. Z Zhu, RM Lebel, Y Bliesener, J Acharya, **R Frayne**, KS Nayak. Sparse pre-contrast T1 mapping for high-resolution whole-brain DCE-MRI. *Magnetic Resonance in Medicine* 2021; **86**: 2234-2249. doi: 10.1002/mrm.28849 doi: 10.1002/mrm.28849.
180. D Ta, A Ishaque, O Srivastava, C Hanstock, P Seres, D Eurich, C Luk, H Briemberg, R Frayne, A Genge, SJ Graham, L Korngut, L Zinman, S Kalra, for the Canadian ALS Neuroimaging Consortium. Progressive neurochemical abnormalities in cognitive and motor subgroups of ALS: A multicenter study. *Neurology* 2021; 16: DOI: https://doi.org/10.1212/WNL.0000000000012367.

***Publications Accepted and In-press*:**

181. PA Barber, S Nestor, M Wang, P Wu, J Ursenbach, A Munir, R Gupta, S Tariq, EE Smith, **R Frayne**, SA Black, TT Sajobi, SB Coutts, Alzheimer's Disease Neuroimaging Initiative. Change in hippocampal volume and cognitive function in transient ischemic attack and minor stroke patients over three years. *Cerebral Circualtion – Congition and Behaviour* (accepted June 2021).
182. EE Smith, S Crites, M Wang, A Charlton, A Zwiers, T Sajobi, R Camicioli, CR McCreary, **R Frayne**, Z Ismail. Cerebral amyloid angiopathy is associated with emotional dysregulation, impulse dyscontrol, and apathy. *Journal of the American Heart Association* 2021 (accepted August 2021).

***Publications Submitted*:**

183. S Kalra, M Khan, L Barlow, C Beaulieu, M Benatar, H Briemberg, S Chenji, M Garrido Clua, A Cormier, S Das, A Dionne, N Dupré, D Emery, D Eurich, **R Frayne**, A Genge, S Gibson, S Graham, C Hanstock, A Ishaque, J Joseph, J Keith, L Korngut, D Krebs, C McCreary, F Pattany, P Seres, C Shoesmith, T Szekeres, F Tam, R Welsh, A Wilman, H Yang, Y Yunusova, L Zinman, for the Canadian ALS Neuroimaging Consortium. The Canadian ALS Neuroimaging Consortium (CALSNIC) - A multicentre platform for standardized imaging and clinical studies in ALS. *Human Brain Mapping* (submitted Aug 2020)
184. Y Beauferris, J Teuwen, D Kanoulas, N Moriakov, M Caan, L Rodrigues, A Lopes, H Pedrinie, L Rittner, M Dannecker, V Studenyak, F Gröger, D Vyas, S Faghih-Roohi, AK Jethig, JC Rajug, M Sivaprakasamg, W Loos, **R Frayne**, R Souza. Multi-channel MR reconstruction (MC-MRREC) challenge - Comparing accelerated MR reconstruction models and assessing their genereralizability to datasets collected with different coils. *Magnetic Resonance Imaging* (submitted Oct 2020).
185. AE Beaudin, CR McCreary, EL Mazerolle, M Gee, B Sharma, A Subotic, A Zwiers, E Cox, K Nelles, A Charlton, **R Frayne**, Z Ismail, C Beaulieu, GC Jickling, R Camicioli, GB Pike, EE Smith. Cerebrovascular reactivity across the entire brain in cerebral amyloid angiopathy. *Neurology* (submitted May 2021).K Bharti, SJ Graham, A Genge, A Dionne, H Briemberg, L Korngut, L Zinman, M Benatar, N Dupré, **R Frayne**, S Chenji, S Kalra, Canadian ALS Neuroimaging Consortium. Functional alterations in large-scale resting-state networks of Amyotrophic lateral sclerosis: A multi-site study across Canada and United States. *PLOS ONE* (submitted March 2021).
187. WS Loos, R Souza, LB Andersen, RM Lebel. Extraction of a vascular function for a fully automated dynamic contrast-enhanced magnetic resonance (DCE MR) brain image processing pipeline. *Magnetic Resonance in Medicine* (April 2021).
188. A Ishaque, D Ta, M Khan, L Zinman, L Korngut, A Genge, A Dionne, H Briemberg, H Yang, D Emery, D Eurich, **R Frayne**, S Graham, A Wilman, N Dupré, S Kalra. Distinct patterns of progressive gray and white matter degeneration in amyotrophic lateral sclerosis. *Human Brain Mapping* (submitted June 2021).

196. S Kalra, M Khan, L Barlow, C Beaulieu, M Benatar, H Briemberg, S Chenji, M Garrido Clua, A Cormier, S Das, A Dionne, N Dupré, D Emery, D Eurich, **R Frayne**, A Genge, S Gibson, S Graham, C Hanstock, A Ishaque, J Joseph, J Keith, L Korngut, D Krebs, C McCreary, F Pattany, P Seres, C Shoesmith, T Szekeres, F Tam, R Welsh, A Wilman, H Yang, Y Yunusova, L Zinman, for the Canadian ALS Neuroimaging Consortium. The Canadian ALS Neuroimaging Consortium (CALSNIC) - A multicentre platform for standardized imaging and clinical studies in ALS.

Peer-reviewed manuscripts – included as a listed group author

1. DeVetten G, Coutts SB, Hill MD, Goyal M, Eesa M, O'Brien B, Demchuk AM, Kirton A; **MONITOR and VISION study groups**. Acute corticospinal tract Wallerian degeneration is associated with stroke outcome. *Stroke* 2010; **41**: 751-6.
2. Coutts SB, Hill MD, Eliasziw M, Fischer K, Demchuk AM; **VISION study group**. Final 2 year results of the vascular imaging of acute stroke for identifying predictors of clinical outcome and recurrent ischemic eveNts (VISION) study. *BMC Cardiovasc Disor* 2011; **11**: 18.
3. Gee DG, Karlsgodt KH, van Erp TG, Bearden CE, Lieberman MD, Belger A, Perkins DO, Olvet DM, Cornblatt BA, Constable T, Woods SW, Addington J, Cadenhead KS, McGlashan TH, Seidman LJ, Tsuang MT, Walker EF, Cannon TD; **NAPLS Consortium**. Altered age-related trajectories of amygdala-prefrontal circuitry in adolescents at clinical high risk for psychosis: a preliminary study. *Schizophr Res* 2012; **134**: 1-9.
4. Kidwell CS, Jahan R, Gornbein J, Alger JR, Nenov V, Ajani Z, Feng L, Meyer BC, Olson S, Schwamm LH, Yoo AJ, Marshall RS, Meyers PM, Yavagal DR, Wintermark M, Guzy J, Starkman S, Saver JL; **MR RESCUE Investigators**. A trial of imaging selection and endovascular treatment for ischemic stroke. *N Engl J Med* 2013; **368**: 914-23. (see publication for full list of group authors; online indices omit Canadian authors!).
5. Kidwell CS, Jahan R, Alger JR, Schaewe TJ, Guzy J, Starkman S, Elashoff R, Gornbein J, Nenov V, Saver JL; **MR RESCUE Investigators**. Design and rationale of the mechanical retrieval and recanalization of stroke clots using embolectomy (MR RESCUE) Trial. *Int J Stroke* 2014; **9**: 110-6.
6. Zhao XQ, Hatsukami TS, Hippe DS, Sun J, Balu N, Isquith DA, Crouse JR, Anderson T, Huston J, Polissar N, O'Brien K, Yuan C; **AIM-HIGH Carotid MRI Sub-study Investigators**. Clinical factors associated with high-risk carotid plaque features as assessed by magnetic resonance imaging in patients with established vascular disease (from the AIM-HIGH Study). *Am J Cardiol* 2014; **114**: 1412-9. doi: 10.1016/j.amjcard.2014.08.001.
7. NA Weaver, L Zhao, JM Biesbroek, HJ Kuijf, HP Abena, H-J Bae, MÁA. Caballero, FM Chappell, CPLH Chen, M Dichgans, M Duering, MK Georgakis, RS van der Giessen, B Gyanwali, OKL Hamilton, S Hilaljk, EM vom Hofe, PLM de Kort, PJ Koudstaal, BYK Lam, J-S Lim, SDJ Makin, VCT Mok, L Shib, MC Valdés Hernández, N Venketasubramanian, JM Wardlaw, FA Wollenweber, A Wong, X Xin; **Meta VCI Map Consortium**. The Meta VCI Map consortium for meta-analyses on strategic lesion locations for vascular cognitive impairment using lesion-symptom mapping: Design and multicenter pilot study. *Alzheimer's & Dementia: Diagnosis, Assessment & Disease Monitoring* 2019; 11: 310-26. https://doi.org/10.1016/j.dadm.2019.02.007.
8. SS Anand, JV Tu, D Desai, P Awadalla, P Robson, S Jacquemont, T Dummer, N Le, L Parker, P Poirier, K Teo, SA Lear, S Yusuf, JC Tardif, F Marcotte, D Busseuil, JP Després, SE Black, A Kirpalani, G Parraga, MD Noseworthy, A Dick, J Leipsic, D Kelton, J Vena, M Thomas, KM Schulze, E Larose, AR Moody, EE Smith, MG Friedrich; **Canadian Alliance for Healthy Hearts and Minds Cohort**. Cardiovascular risk scoring and magnetic resonance imaging detected subclinical cerebrovascular disease. *Eur Heart J Cardiovasc Imaging* 2020; **21**: 692-700. doi: 10.1093/ehjci/jez226
9. Hill MD, Goyal M, Menon BK, Nogueira RG, McTaggart RA, Demchuk AM, Poppe AY, Buck BH, Field TS, Dowlatshahi D, van Adel BA, Swartz RH, Shah RA, Sauvageau E, Zerna C, Ospel JM, Joshi M, Almekhlafi MA, Ryckborst KJ, Lowerison MW, Heard K, Garman D, Haussen D, Cutting SM, Coutts SB, Roy D, Rempel JL, Rohr AC, Iancu D, Sahlas DJ, Yu AYX, Devlin TG, Hanel RA, Puetz V, Silver FL, Campbell BCV, Chapot R, Teitelbaum J, Mandzia JL, Kleinig TJ, Turkel-

Parrella D, Heck D, Kelly ME, Bharatha A, Bang OY, Jadhav A, Gupta R, Frei DF, Tarpley JW, McDougall CG, Holmin S, Rha JH, Puri AS, Camden MC, Thomalla G, Choe H, Phillips SJ, Schindler JL, Thornton J, Nagel S, Heo JH, Sohn SI, Psychogios MN, Budzik RF, Starkman S, Martin CO, Burns PA, Murphy S, Lopez GA, English J, Tymianski M; **ESCAPE-NA1 Investigators**. Efficacy and safety of nerinetide for the treatment of acute ischaemic stroke (ESCAPE-NA1): A multicentre, double-blind, randomised controlled trial. *Lancet* 2020; **395**: 878-887. doi: 10.1016/S0140-6736(20)30258-0.

Manuscripts on Open-access Archival Services

1. O Lucena, R Souza, L Rittner, **R Frayne**, R Lotufo. Silver standard masks for data augmentation applied to deep-learning-based skull-stripping. arXiv e-prints [Internet]. 2017 Oct 01, 2017. Available from: https://ui.adsabs.harvard.edu/abs/2017arXiv171008354L.
2. O Lucena, R Souza, L Rittner, **R Frayne**, R Lotufo. Convolutional neural networks for skull-stripping in brain MR imaging using consensus-based silver standard masks. arXiv e-prints [Internet]. 2018 April 01, 2018. Available from: https://ui.adsabs.harvard.edu/abs/2018arXiv180404988L.
3. R Souza, **R Frayne**. A hybrid frequency-domain/image-domain deep network for magnetic resonance image reconstruction. arXiv e-prints [Internet]. 2018 Oct 01, 2018. Available from: https://ui.adsabs.harvard.edu/abs/2018arXiv181012473S.
4. R Souza, M Bento, N Nogovitsyn, KJ Chung, RM Lebel, **R Frayne**. Dual-domain cascade of U-nets for multi-channel magnetic resonance image reconstruction. arXiv e-prints [Internet]. 2019 Nov 01, 2019. Available from: https://ui.adsabs.harvard.edu/abs/2019arXiv191101458S.
5. M Dadar, AL Manera, L Zinman, L Korngut, A Genge, SJ Graham, **R Frayne**, DL Collins, S Kalra. Cerebral atrophy in amyotrophic lateral sclerosis parallels the pathological distribution of TDP43. bioXir e-prints [Internet]. 2020 Febrarury 19, 2020, Available from https://www.biorxiv.org/content/10.1101/2020.02.18.954883v1.full.pdf
6. CR McCreary, M Salluzzi, LB Andersen, D Gobbi, ML Lauzon, F Saad, EE Smith, **R Frayne**. Calgary normative study: Study design of a prospective longitudinal study to characterize potential quantitative mr biomarkers over the adult lifespan. medRxiv e-prints [Internet]. 2020 March 03, 2020, Available from https://www.medrxiv.org/content/medrxiv/early/2020/03/03/2020.02.28.20028894.full.pdf.
7. KJ Chung, R Souza, **R Frayne**, TY Lee. Low-dose CT enhancement network with a perceptual loss function in the spatial frequency and image domains. arXiv e-prints [Internet]. 2020 May 24, 2020. Avaiable at https://arxiv.org/abs/2005.11852
8. S Kalra, M Khan, L Barlow, C Beaulieu, M Benatar, H Briemberg, S Chenji, M Garrido Clua, A Cormier, S Das, A Dionne, N Dupré, D Emery, D Eurich, **R Frayne**, A Genge, S Gibson, S Graham, C Hanstock, A Ishaque, J Joseph, J Keith, L Korngut, D Krebs, C McCreary, F Pattany, P Seres, C Shoesmith, T Szekeres, F Tam, R Welsh, A Wilman, H Yang, Y Yunusova, L Zinman, for the Canadian ALS Neuroimaging Consortium. The Canadian ALS Neuroimaging Consortium (CALSNIC) - a multicentre platform for standardized imaging and clinical studies in ALS. medRxiv e-prints [Internet]. 2020 July 15, 2020. Avaialble at: https://www.medrxiv.org/content/10.1101/2020.07.10.20142679v2
9. Y Beauferris, J Teuwen, D Kanoulas, N Moriakov, M Caan, L Rodrigues, A Lopes, H Pedrinie, L Rittner, M Dannecker, V Studenyak, F Gröger, D Vyas, S Faghih-Roohi, AK Jethig, JC Rajug, M Sivaprakasamg, W Loos, **R Frayne**, R Souza. Multi-channel MR reconstruction (MC-MRREC) challenge - Comparing accelerated MR reconstruction models and assessing their genereralizability to datasets collected with different coils. arXiv e-prints [Internet], 2020 Nov 10, 2020. Available at: https://arxiv.org/pdf/2011.07952

ii. Non-peer reviewed manuscripts, letters and editorials

1. KS Butcher, MW Parsons, S Davis, G Donnan, SB Coutts, JE. Simon, AM Demchuk, **R Frayne**, JR Mitchell - PWI/DWI mismatch: Better definition required. Letter to Editor - Response. *Stroke* 2003 **34**: e215 - e216.
2. MD Hill, AM Demchuk, **R Frayne**. Non-invasive imaging is improving but digital subtraction angiography remains the gold standard. Editorial. *Neurology* 2007; **68**: 2057-2058.
3. RK Kosior, MD Hill, **R Frayne**. Less could be more when it comes to diffusion imaging of acute stroke. Editorial. *Neurology* 2010; **74**: 1936-7.
4. MD Hill, **R Frayne**. Stroke on awakening and the tissue window for thrombolysis. *Lancet Neurol.* 2011; **10**: 951-2.

iii. Theses, books, chapters and other contributions

1. **R Frayne**. Estimation of haemodynamic parameters using MRI. PhD Thesis. Department of Medical Biophysics, The University of Western Ontario, London, Ontario, Canada, 1994.
2. **R Frayne**, FR Korosec, TM Grist, CA Mistretta. Time-resolved MR volume angiography with contrast material. IN RSNA 1996 Scientific Exhibit Sampler, Radiological Society of North America, 1997. (on compact disk).
3. JT Dobbins, SM Hames, BH Hasegawa, TR DeGrado, JA Zagaebski, **R Frayne**. "Medical imaging" IN The measurement, instrumentation and sensors handbook. JG Webster, Editor, CRC Press, Boca Raton, Florida, 1998.
4. R Mitchell, **R Frayne**, G Sutherland. Medical physics research in the acute care setting. *Physics in Canada* 2002; **58**: 127-134.
5. M Sabati, ML Lauzon, N Nagarajappa, **R Frayne**. Interactive large field-of-view real-time magnetic resonance imaging of the peripheral arterial tree: A work-in-progress, *InterACTIONS (the Canadian Organization of Medical Physicists (COMP) and the Canadian College of Physicists in Medicine (CCPM) Professional Newsletter)* 2003; **49**: 126-131.
6. H Peng, M Sabati, MR Smith, ML Lauzon, **R Frayne**. Advanced MR image reconstruction using non-Fourier methods. *InterACTIONS (the Canadian Organization of Medical Physicists (COMP) and the Canadian College of Physicists in Medicine (CCPM) Professional Newsletter)* 2007; **53**: 87-94.
7. LB Andersen, **R Frayne**. "Applications of molecular imaging with MR" IN Advanced Imaging in Biology and Medicine. C Sensen and B Halgríimsson, Editors, Springer, Heidelberg, Germany, 2009, 363-393.
8. RA Brown, ML Lauzon, **R Frayne**. "Developments in time-frequency analysis of biomedical signals and images using a generalized Fourier synthesis" IN Recent Advances in Biomedical Engineering. GR Naik, Editor, In Tech, Vukovar, Croatia, 2010, 191-200.

iv. Published proceedings and abstracts (all peer-reviewed)
Conference proceedings (multi-page):

1. RF Smith, **R Frayne**, M Moreau, BK Rutt, A Fenster, DW Holdsworth. Stenosed anthropomorphic vascular phantoms for digital subtraction angiography, magnetic resonance and Doppler ultrasound investigations. 1994 SPIE Meeting. Medical Imaging 1994: Physics of Medical Imaging. Rodney Shaw; Ed., *Proc International Society for Optical Engineering (SPIE)* 1994; **2163**, 235-242.
2. **R Frayne**, BK Rutt. Estimation of fluid shear-rate using Fourier-encoded velocity imaging. *Proc VI International Workshop on Magnetic Resonance Angiography* 1994; 6.19. [invited presentation]
3. FR Korosec, TJ Carroll, **R Frayne**, TM Grist, CA Mistretta. Contrast-enhanced MRA using a low-resolution subtraction mask. *Book of Abstracts: IX International Workshop on Magnetic Resonance Angiography* 1997; 158-161. [invited presentation]

4. TM Grist, FR Korosec, **R Frayne**, JS Swan, PA Turski, CA Mistretta. Clinical applications of 3D MR DSA. *Book of Abstracts: IX International Workshop on Magnetic Resonance Angiography* 1997; 166. [invited presentation]
5. CA Mistretta, TM Grist, FR Korosec, **R Frayne**, DC Peters, Y Mazaheri, TJ Carroll. Comparison of methods for contrast-enhanced 3D MR DSA. *Book of Abstracts: IX International Workshop on Magnetic Resonance Angiography* 1997; 172-175. [invited presentation]
6. **R Frayne**, TM Grist, JS Swan, FR Korosec, CA Mistretta. Dose volume and injection rate effects in 3D MR DSA. *Book of Abstracts: IX International Workshop on Magnetic Resonance Angiography* 1997; 342-345. [invited presentation]
7. DS Willig, PA Turski, **R Frayne**, VB Graves, TM Grist, FR Korosec, JS Swan, CA Mistretta, Contrast-enhanced three dimensional magnetic resonance digital subtraction angiography of the carotid bifurcation: Comparison to non-contrast-enhanced 2D and 3D time of flight techniques. . *Book of Abstracts: IX International Workshop on Magnetic Resonance Angiography* 1997; 357-358. [invited presentation].
8. **R Frayne**, A Wehlie, Z Yang, O Unal, CM Strother, H Yu. Endovascular MR using gadolinium-coated catheters. *Book of Abstracts: X International Workshop on Magnetic Resonance Angiography* 1998; 117-122. [invited presentation].
9. O Unal, **R Frayne**, CM Strother, FR Korosec, CA Mistretta. 2D time-resolved MR technique for catheter visualization during endovascular procedures at 1.5 T. *Rivista di Neuroradiologia*, 1998; **11**: 113-116.
10. PA Turski, **R Frayne**, TJ Carroll, FR Korosec, SG Mckinnon, TM Grist, CA Mistretta. Cerebrovascular imaging with 3D MR DSA. *Rivista di Neuroradiologia*. 1998; **11**: 117-120.
11. TM Grist, O Unal, RA Omary, D Koscielski, ER Niendorf, **R Frayne**, FR Korosec. Observations of renal perfusion and function using MRI technology. *Book of Abstracts: XI International Workshop on Magnetic Resonance Angiography*. 1999. [invited presentation].
12. AD Harris, RS Pereira, RJ Sevick, **R Frayne**. Diffusion MR imaging strategies in acute stroke. *Proc Canadian Organization of Medical Physicists Conf* 2001; 39-40.
13. RS Pereira, AD Harris, RJ Sevick, **R Frayne**. Effect of b-value on contrast for diffusion-weighted magnetic resonance imaging assessment of acute stroke. *Proc Canadian Organization of Medical Physicists Conf* 2001; 48-50.
14. A Tomanek, R Ryder, J Simon, M Hill, **R Frayne**, A Buchan, R Mitchell. Computer assisted quantification of stroke lesion volumes. *Proc Canadian Organization of Medical Physicists Conf* 2001; 210-212.
15. RC Ryder, A Cole-Haskayne, RJ Sevick, AM Demchuk, MD Hill, PA Barber, AM Buchan, **R Frayne**, Relative cerebral blood volume changes in acute stroke. *Proc of the Canadian Organization of Medical Physicists Conf* 2001; 216-218.
16. H Lu, MR Smith, **R Frayne**. Quantitative MR cerebral blood flow using ARMA-based deconvolution. *Proc 2002 IEEE Canadian Conf on Electrical and Computer Engineering* 2002; 1171-1176.
17. M Sabati, **R Frayne**. A new strategy for imaging blood vessels in the legs using magnetic resonance (MR) imaging. *Proc 2002 IEEE Canadian Conf on Electrical and Computer Engineering*. 2002; 1159-1165.
18. M Sabati, M Sabati, SAH Ravandi, **R Frayne**. Impulse noise reduction in MR images using one rule-base merging method of fuzzy weighted mean filters. 2003 SPIE Meeting. Medical Imaging 2003: Image Processing, M Sonka, JM Fitzpatrick, Editors, *Proc International Society for Optical Engineering (SPIE)* 2003; **5032**: 1006-1016.
19. N Nagarajappa, **R Frayne**. Endovascular MR: Measurements of relaxation parameters for visualization of contrast-enhanced catheters at 3.0 T. *Proc Canadian Organization of Medical Physicists Conf* 2003; 62-64.

20. M Sabati, ML Lauzon, N Nagarajappa, **R Frayne**. Interactive large field-of-view real-time peripheral magnetic resonance angiography. *Proc Canadian Organization of Medical Physicists Conf* 2003; 108-110. (2nd place Young Investigator Competition)
21. H Lu, MR Smith, R Frayne. A user-assisted arterial input function identification and validation algorithm, *Proc Canadian Organization of Medical Physicists Conf* 2003; 175-177.
22. RJ Sevick, ML Lauzon, BG Goodyear, **R Frayne**. Applications of high-field-strength MR imaging in stroke. *ASNR* 2004; 139-142.
23. **R Frayne**, AM Demchuk. MR for clinical neurosciences: Physics and applications. Course Notes. Canadian Congress of Neurological Societies Neurobiology Review Course, 2004, 1-26.
24. M Sallazzui, MR Smith, **R Frayne**. Applying the transient error reconstruction algorithm in the assessment of the cerebral blood flow. *Conf Proc IEEE Eng Med Biol Soc* 2004; **2**: 1092-5.
25. J Chen, MR Smith, **R Frayne**. Partial volume effect in quantitative magnetic resonance perfusion imaging. *Conf Proc IEEE Eng Med Biol Soc* 2004; **2**: 1132-5.
26. MR Smith, H Lu, **R Frayne.** Correcting systematic biases in quantitative cerebral blood flow estimates from dynamic susceptibility contrast MR perfusion studies. *Proc 2nd International Conference on Advances in Medical Signal and Information Processing* 2004; 214-8.
27. M Sabati, N Nagarajappa, ML Lauzon, **R Frayne**. Single-station whole-body real-time magnetic resonance imaging. *Proc 28th CMBES Conference* 2004. (on compact disk).
28. N Nagarajappa, M Sabati, H Zhu, **R Frayne**. Realistic heterogeneous tissue model for evaluating background suppression techniques in endovascular magnetic resonance. *Proc 28th CMBES Conference* 2004. (on compact disk).
29. A Habib, R Cheng, **R Frayne**, J Ronsky. Surface matching for automated registration of Lidar and MR imagery *Proceeding Workshop Italy-Canada 2005 "3D Digital Imaging and Modelling: Applications of Heritage, Industry, Medicine and Land"* 2005. (on compact disk)
30. RB Stafford, M Sabati, ML Lauzon, H Mahallati, **R Frayne**. A comparative study between multi-station and moving-table methods with steady-state free precession *Proc Canadian Organization of Medical Physicists Conf* 2005, 12-14.
31. JN Draper, ML Lauzon, **R Frayne**. Improving Background Suppression in Magnetic Resonance-guided Endovascular Therapy *Proc Canadian Organization of Medical Physicists Conf* 2005, 15-17.
32. C Igna, D Spencer, I Kay, A Chan, Z Kiss, **R Frayne**. Regional change in brain perfusion after fractionated stereotactic radiotherapy (FSRT) at 4 months and 3 years follow-up. *Proc Canadian Organization of Medical Physicists Conf* 2005, 160-162.
33. RWT Cheng, **R Frayne**, JL Ronsky, AF Habib. Matching strategy for co-registration of surfaces acquired by magnetic resonance imaging. *Proc International Geoscience and Remote Sensing Symposium* 2005, **5**: 3545-3548.
34. R Cheng, A Habib, **R Frayne**, J Ronsky. Registration of knee joint surfaces for the *in vivo* study of joint injuries based on magnetic resonance imaging. 2006 SPIE Meeting. Medical Imaging 2006: Image Processing, M. Reinhardt, JP Pluim, Editors, *Progress in Biomedical Optics and Imaging*: *Proc International Society for Optical Engineering (SPIE)* 2006; **6144**: 935-946.
35. JN Draper, M Sabati, ML Lauzon, **R Frayne**. Image fusion for catheter tracking in MR-guided endovascular therapy. *Proc Canadian Organization of Medical Physicists Conf* 2006, 182-184. (3rd place Young Investigator Competition)
36. H Peng, M Sabati, ML Lauzon, **R Frayne**. Comparison of image reconstruction algorithms for reconstruction of 3D sparsely sampled k-space data. *Proc Canadian Organization of Medical Physicists Conf* 2006, 193-195.
37. RK Kosior, JC Kosior, **R Frayne**. Motion correction in DSC-MR perfusion-weighted imaging for ischemic stroke. *Proc Canadian Organization of Medical Physicists Conf* 2006, 219-221.
38. MR Smith, J Miller, L Ko, J Chen, A Geras, **R Frayne.** Approaches to validating the "quantity" in quantitative MR cerebral perfusion studies. *Proc IET Third International Conference on Advances in Medical and Signal Processing (MEDSIP 2006)*, IET Conf. Pub. 2006: 16.

39. IR Fjeld, JC Küpper. JL Ronsky, **R Frayne**. Knee joint motion quantified using the finite helical axis method. *Proc ASME Summer Bioengineering Conference* 2007; 2.
40. JC Küpper, JL Ronsky, **R Frayne**, I Robu, B Loitz-Ramage, DA Hart. A novel measure of in-vivo knee joint laxity. *Proc ASME Summer Bioengineering Conference* 2007; 21.
41. I Robu, JL Ronsky, **R Frayne**, AH Habib. Assesment of a novel technique for in-vivo investigation of joint cartilage deformation characteristics. *Proc ASME Summer Bioengineering Conference* 2007; 22.
42. JM Sill, TC Williams, EC Fear, **R Frayne**, M Okoniewski. Realistic breast models for second generation tissue sensing adaptive radar system. *Proc European Conference on Antennas and Propagation* 2007; 1-4.
43. MR Smith, M Salluzzi, R Frayne. Obtaining DSC MRI cerebral blood flow estimates without tissue specific errors. *Proc IET 4th International Conference on Advances in Medical and Signal Processing (MEDSIP 2008)*, 2008, 315.
44. HS Chen, JN Draper, LB Andersen, M Sabati, **R Frayne**. Roadmap images for endovascular MR. *Proc Canadian Organization of Medical Physicists* 2008, 321-324.
45. RA Brown, **R Frayne**. A fast discrete S-transform for biomedical signal processing. *Proc IEEE Engineering in Medicine and Biology Society* 2008, 2586-2589.
46. M Salluzzi, MR Smith, **R Frayne**. Investigating absolute quantification in MR perfusion studies: the role of partial−volume errors. *Proc Canadian Medical and Biomedical Engineering Conference* 2009. (on CD)
47. ME McDonald, **R Frayne**, MR Smith. Extrapolation methods for improving MR perfusion measurements. *Proc Canadian Medical and Biomedical Engineering Conference* 2009 (on CD)
48. ME McDonald, RB Stafford, **R Frayne**. Real-time MR imaging for angioplasty. *Proc Canadian Organization of Medical Physicists* 2009; 84-86.
49. CF Curtis, **R Frayne**, EC Fear. Automated registration of x-ray mammograms and magnetic resonance breast images. *Proc Canadian Organization of Medical Physicists* 2010; 280-283.
50. CF Curtis, **R Frayne**, EC Fear. Automated multimodal breast image registration. *Proc. Nuclear Science Symposium (NSS) and Medical Imaging Conference (MIC)*, 2011; **MIC12**: M-185.
51. X Dai, G Sharma, G Kuntze, **R Frayne**, JL Ronsky. An application of algebraic method on MR T2 imaging of knee articular cartilage. *Proc. IEEE International Conference on Imaging Systems and Techniques* 2013; 174.
52. M Leite (Bento), D Gobbi, M Salluzi, **R Frayne**, R Lotufo, L Rittner. 3D texture-based classification applied on brain white matter lesions on MR images. *Proc. SPIE 9785, Medical Imaging 2016: Computer-Aided Diagnosis*. 2016; **97852N**; doi:10.1117/12.2216285.
53. M Bento, Y Sym, **R Frayne**, R Lotufo, L Rittner. Probabilistic segmentation of brain white matter lesions using texture-based classification. *Lecture Notes in Computer Science* 2017; **10317**: 71–78. doi: 10.1007/978-3-319-59876-5 9
54. M Bento, R Souza, R Lotufo, **R Frayne**, L Rittner. WMH segmentation challenge: A texture-based classification approach. In: Brain Lesion (BrainLes) Workshop. Brainlesion: Glioma, Multiple Sclerosis, Stroke and Traumatic Brain Injuries A Crimi, S Bakas, H Kuijf, B Menze, M Reyes, Eds. (Springer, Cham: 2018) 489-500.
55. LAMD Rodrigues, RMD Souza, L Rittner, **R Frayne**, RDA Lotufo. Common carotid artery lumen segmentation from cardiac cycle-resolved cine fast spin echo magnetic resonance imaging. 30th Brazilian Conference on Graphics, Patterns and Images (SIBGRAPI), 2017; 442-9.
56. O Lucena, R Souza, L Rittner, **R Frayne**, R Lotufo. Silver standard masks for data augmentation applied to deep-learning-based skull-stripping. IEEE International Symposium on Biomedical Imaging (ISBI), 2018; 1114-7.
57. R Souza, O Lucena, M Bento, J Garrafa, S Appenzeler, L Rittner, R Lotufo, **R Frayne**. Reliability of using single specialist annotation for designing and evaluating automatic data-driven segmentation methods: skull stripping study case. IEEE International Symposium on Biomedical Imaging (ISBI). 2018; 1344-7.
58. M Bento, R Souza, M Salluzzi, **R Frayne**. Normal brain aging: Prediction of age, sex and white

matter hyperintensities using a MR image-based ML technique. Proc. 15th International Conference Image Analysis and Recognition (Springer, Cham: 2018) 538-545.

59. L Rodrigues, R Souza, L Rittner, **R Frayne**, R Lotufo. Common carotid artery lumen automatic segmentation from cine fast spin echo magnetic resonance imaging. International Symposium on Medical Information Processing and Analysis (SIPAIM), MICCAI-SIPAIM, 20 Sep 2018, Granada, Spain.
60. M Bento, R Souza, **R Frayne**. Multicenter imaging studies: automated approach to evaluating data variability and the role of outliers. In: Costa-Felix R., Machado J., Alvarenga A. (eds) XXVI Brazilian Congress on Biomedical Engineering. IFMBE Proceedings Springer, Singapore: 2019; **70/2**: 387-391.
61. R Souza, M Bento, **R Frayne**. Investigation of fully connected neural networks for reconstruction of MR images. In: Costa-Felix R., Machado J., Alvarenga A. (eds) XXVI Brazilian Congress on Biomedical Engineering. IFMBE Proceedings, Springer, Singapore: 2019; **70/2**: 293-298.
62. M Bento, R Souza, M Salluzzi, **R Frayne**. Reliability of computer-aided diagnosis tools with multi-center MR data-sets: impact of training protocol. *Proc. SPIE 10950, Medical Imaging 2019: Computer-Aided Diagnosis*, 1095008; doi: 10.1117/12.2512819.
63. K Zukotynski, V Gaudet, P Kuo, S Adamo, M Goubran, C Scott, C Bocti, M Borrie, H Chertkow, **R Frayne**, R Hsiung, R Laforce, MD Noseworthy, FS Prato, DJ Sahlas, EE Smith, V Sossi, A Thiel, J-P Soucy, J-C Tardif, SE Black. Non-Binary Approaches for Classification of Amyloid Brain PET. IEEE 49th International Symposium on Multiple-Valued Logic (ISMVL) 2019; 206-211. doi: 10.1109/ISMVL.2019.00043
64. RM Souza, RM Lebel, **R Frayne**. Hybrid, dual domain, cascade of convolutional neural networks for magnetic resonance image reconstruction. RM Souza, RM Lebel, R Frayne. Hybrid, dual domain, cascade of convolutional neural networks for magnetic resonance image reconstruction. *Proc Machine Learning Research* 2019; 102: 437-446.
65. RM Souza, **R Frayne**. A hybrid frequency-domain/image-domain deep network for magnetic resonance image reconstruction. 2019 32nd SIBGRAPI Conference on Graphics, Patterns and Images (SIBGRAPI), Rio de Janeiro, Brazil, 2019, pp. 257-264, doi: 10.1109/SIBGRAPI.2019.00042.
66. RM Souza, O Lucena, M Bento, J Garrafa, L Rittner, S Appenzeller, R Lotufo, **R Frayne**. Brain extraction network trained with "silver standard" data and fine-tuned with manual annotation for improved segmentation. 2019 32nd SIBGRAPI Conference on Graphics, Patterns and Images (SIBGRAPI), Rio de Janeiro, Brazil, 2019, 234-240, doi: 10.1109/SIBGRAPI.2019.00039.
67. KJ Chung, R Souza, **R Frayne**, T-Y Lee. Low-dose CT enhancement network with a perceptual loss function in the spatial frequency and image domains. *Proc Machine Learning Research* 2020.
68. KTN Duarte, DG Gobbi, **R Frayne**, MAG de Carvalho. Detecting Alzheimer's disease based on structural region analysis using a 3D shape descriptor. 2020 33rd SIBGRAPI Conference on Graphics, Patterns and Images (SIBGRAPI), Porto de Galinhas, Brazil, 2020, pp. 180-187, doi: 10.1109/SIBGRAPI51738.2020.00032.
69. J Park, **R Frayne**, M Bento. Supervised domain adaptation applied to heterogeneous, multi-center MR imaging datasets. International Symposium on Medical Information Processing and Analysis (SIPAIM), Campinas, Brazil. (accepted)

Published abstracts (single page or less):

1. **R Frayne**, LM Gowman, DW Holdsworth, DW Rickey, M Drangova, DJM. Miller, A Fenster, BK Rutt. A novel flow simulator for MR flow experiments. *Proc SMRM* 1990; **1**, 474.
2. LM Gowman, DW Rickey, DW Holdsworth, CB Caldwell, **R Frayne**, A Fenster, BK Rutt. Construction of a geometrically accurate phantom for *in vitro* MRI flow studies. *Proc SMRM* 1990; **1**, 473.
3. DW Holdsworth, DW Rickey, M Drangova, **R Frayne**, DJM Miller, A Fenster. A computer-controlled pump for Doppler flow calibration. *J Ultrasound Medicine* 1991; **10**, S13.
4. S Napel, **R Frayne**, BK Rutt. Computation and display of 3-D flow streamlines from 3-D phase contrast MRI. *Proc SMRM* 1991; 88.

5. BK Rutt, DH Lee, AD Vellet, **R Frayne**, S. Napel. Quantitative comparison of velocity measurements in the extracranial carotid arteries by 2D and 3D phase-contrast MRI versus colour-flow Doppler ultrasound, *Proc SMRM* 1991; 91.
6. **R Frayne**, KC Chu, BK Rutt. Verification of magnetic resonance velocity measurements of steady flow through a carotid bifurcation phantom. *Proc SMRM* 1991; 365.
7. **R Frayne**, S Napel, BK Rutt. Quantitative MR acceleration imaging. *Proc SMRM* 1991; 805.
8. BK Rutt, S Napel, **R Frayne**, DH Lee. Evaluation of complex flow in the extracranial carotid arteries with phase-contrast MR imaging and simulated streamlines. *Radiology* 1991; **181(P)**: 189.
9. BK Rutt, DH Lee, S Napel, **R Frayne**. Quantitative comparison of velocity measurements in the extracranial carotid arteries with two- and three-dimensional phase contrast MR imaging versus Doppler US. *Radiology* 1991; **181(P)**: 263.
10. **R Frayne**, LM Gowman, DW Rickey, DW Holdsworth, PA Picot, M Drangova, KC Chu, A Fenster, BK Rutt. An *in vitro* multi-modality vascular phantom. *Proc Canadian Medical and Biological Engineering Society Conf*, 1992; 180.
11. **R Frayne**, BK Rutt. Frequency response of cine phase contrast. *Proc SMRM* 1992; 2904.
12. **R Frayne**, BK Rutt. Acceleration-induced errors in phase contrast velocity measurements. *Proc SMRM* 1992; 2907.
13. **R Frayne**, LM Gowman, DW Rickey, DW Holdsworth, PA Picot, M Drangova, KC Chu, A Fenster, BK Rutt. A multi-modality phantom for the assessment of vascular imaging systems. *Medical Physics* 1992; **19**, 798.
14. **R Frayne**, DW Holdsworth, BK Rutt. MR velocity measurements of pulsatile waveforms using cine phase-contrast. *Radiology 1992;* **185(P)**, 395.
15. **R Frayne**, DW Holdsworth, BK Rutt. Accuracy of gated phase contrast magnetic resonance velocity measurements: *in vivo* comparison with Doppler ultrasound. *Proc Canadian Medical and Biological Engineering Society, and the Canadian Organization of Medical Physicists Joint Conf*, 1993; 300.
16. DW Holdsworth, ML Lauzon, **R Frayne**, BK Rutt. Effects of cardiac variability on cine phase-contrast MRI. *Proc SMRM* 1993; 146.
17. **R Frayne**, BK Rutt. Frequency response of interleaved prospectively gated phase contrast MRI. *Proc SMRM* 1993; 549.
18. **R Frayne**, BK Rutt. Fluid shear stress measurement using Fourier velocity encoded MRI. *Proc SMRM* 1993; 556.
19. **R Frayne**, DW Holdsworth, BK Rutt. Accuracy of gated PC magnetic resonance measurements: *in vivo* comparison with Doppler ultrasound. *Medical Physics* 1993; **20**, 1597.
20. DW Holdsworth, **R Frayne**, BK Rutt. Comparison of phase-contrast MRI and pulsed Doppler measurements of carotid volume-flow rate. *Radiology* 1993; **189(P)**, 170.
21. DW Holdsworth, **R Frayne**, BK Rutt. *In vitro* investigation of MR phase contrast and Doppler ultrasound volume flow rate measurements. *Radiology* 1993; **189(P)**, 410.
22. DW Holdsworth, R Kasrai, RF Smith, **R Frayne**, BK Rutt. Pulsed Doppler spectral analysis in a stenosed carotid-bifurcation phantom. *J Ultrasound Med* 1994; **13**, S14.
23. **R Frayne**, BK Rutt. Shear rate estimation using magnetic resonance imaging. *Proc 2nd World Congress on Biomechanics* 1994; II-256a.
24. **R Frayne**, DA Steinman, KC Chu, BK Rutt. Velocity measurement of steady flow in an *in vitro* carotid artery bifurcation phantom using phase contrast magnetic resonance imaging. *Proc 2nd World Congress on Biomechanics* 1994; II-257b.
25. DA Steinman, **R Frayne**, RF Smith, XD Zhang, BK Rutt, CR Ethier. Steady flow in an end-to-side anastomosis: numerical simulations vs. MR measurements. *Proc 2nd World Congress on Biomechanics* 1994; II-265b.
26. **R Frayne**, BK Rutt. Pulse sequences for fluid shear measurement using Fourier-encoded velocity imaging. *Proc SMR* 1994; 152.

27. DA Steinman, **R Frayne**, X Zhang, RF Smith, CR Either, BK Rutt. A comparison of MR velocity measurements and numerical simulation of sinusoidal flow in a model end-to-side anastomosis. *Proc SMR* 1994; 978.
28. DW Holdsworth, R Kasrai, RF Smith, **R Frayne**, BK Rutt. MRA signal loss near stenoses: *In vitro* measurements in a carotid bifurcation model. *Proc SMR* 1994; 981.
29. DW Holdsworth, R Kasrai, RF Smith, **R Frayne**, BK Rutt. Turbulence distal to stenoses: *In vitro* measurements in a carotid bifurcation model. *Medical Physics* 1994; **21**: 1355.
30. BK Rutt, R Kasrai, RF Smith, **R Frayne**, DW Holdsworth. Comparison of MR and ultrasound in the presence of turbulent flows. *Proc Quantitative Magnetic Flow Imaging Syllabus, Society of Magnetic Resonance Workshop*, 1995; 47.
31. TM Grist, JA Polzin, **R Frayne**, FR Korosec, TK Foo, MA Bernstein, KL Wedding, Y Mazaheri, JA Bianco, CA Mistretta. Flow measurement of coronary arteries II. *Proc Quantitative Magnetic Flow Imaging Syllabus, Society of Magnetic Resonance Workshop*, 1995; 61-62.
32. TM Grist, JA Polzin, JA Bianco, FR Korosec, TK Foo, MA Bernstein, KL Wedding, **R Frayne**, Y Mazaheri, CA Mistretta. Measurement of absolute coronary flow and flow reserve using phase-contrast MRI techniques. *Proc SMR* 1995; 19.
33. **R Frayne**, JA Polzin, Y Mazaheri, TM Grist, CA Mistretta. Effect of and correction for in-plane motion on coronary flow measurements. *Proc SMR* 1995; 563.
34. JA Polzin, **R Frayne**, TM Grist, CA Mistretta. Phase contrast measurements with variable rate *k*-space sampling. *Proc SMR* 1995; 593.
35. DW Holdsworth, CJD. Norley, **R Frayne**, DA Steinman, BK Rutt. Variability in common carotid blood-flow waveforms. *Radiology* 1995; **197(P)**: 451.
36. **R Frayne**, AM Masaryk, CM Strother, CA Mistretta. Accurate wall shear rate measurements from MR phase contrast data. *Proc ISMRM* 1996; 82.
37. FR Korosec, TM Grist, **R Frayne**, JA Polzin, CA Mistretta. Time-resolved contrast-enhanced 3D MR angiography. *Proc ISMRM* 1996; 238.
38. DC Peters, **R Frayne**, FR Korosec, JA Polzin, TM Grist, CA Mistretta. Simulation of contrast enhanced single breath-hold multiphase 3D coronary artery imaging. *Proc ISMRM* 1996; 670.
39. CA Mistretta, TM Grist, **R Frayne**, FR Korosec, JA Polzin. Simulation of a breath-hold method for time resolved 3D contrast imaging. *Proc ISMRM* 1996; 1498.
40. ER Niendorf, GE Santyr, **R Frayne**, TM Grist. Measurement of Gd-DPTA filtration in a dialysis filter system using an EPI Look-Locker technique. *Proc ISMRM* 1996; 1576.
41. AM Masaryk, **R Frayne**, CM Strother. MR measurement of wall shear rate within the cervical carotid artery. *Proc ASNR* 1996; 126.
42. PA Turski, **R Frayne**. Noninvasive imaging and acute cerebral ischemia. Syllabus of "A multi disciplinary approach to the diagnosis and management of stoke" Symposium, 1996.
43. FR Korosec, **R Frayne**, TM Grist, CA Mistretta. Time-resolved contrast-enhanced 3D MR angiography. *Radiology* 1996*,* **201(P)**: 328.
44. CA Mistretta, TM Grist, **R Frayne**, FR Korosec. Contrast and motion artifacts in 4D MRA. *Radiology* 1996; **201(P)**: 328.
45. DS Willig, **R Frayne**, FR Korosec, TM Grist, JS Swan, CA Mistretta, PA Turski. Rapid sequential (arterial, capillary and venous) MRA of carotid stenosis using a technique that is independent of inflow effects termed time resolved imaging of contrast kinetics. *Radiology* 1996; **201(P)**: 413.
46. **R Frayne**, FR Korosec, TM Grist, CA Mistretta. Time-resolved MR volume angiography using contrast. *Radiology* 1996; **201(P)**: 527.
47. JS Swan, TM Grist, **R Frayne**, FR Korosec, CA Mistretta, DM Heisey, ME Hagenauer. Time-resolved MR angiography of the peripheral vasculature. *Proc ISMRM* 1997; 126.
48. Y Mazaheri, FR Korosec, **R Frayne**, TM Grist, CA Mistretta. Reduction of artifacts and reconstruction time in 3D MR DSA. *Proc ISMRM* 1997; 205.

49. **R Frayne**, FR Korosec, TM Grist, CA Mistretta. Improved data acquisition strategies for 3D MR DSA. *Proc ISMRM* 1997; 253.
50. DC Peters, FR Korosec, **R Frayne**, TM Grist, CA Mistretta. Cardiac-gated contrast-enhanced time-resolved 3D imaging of the pulmonary arteries. *Proc ISMRM* 1997; 1859.
51. **R Frayne**, DS Willig, PA Turski, FR Korosec, TM Grist, CA Mistretta. 3D MR DSA: A new technique for imaging of the neurovascular. *Proc ASNR* 1997; 128.
52. DS Willig, **R Frayne**, FR Korosec, VB Graves, T Grist, PA Turski. Forced choice ranking of 2D and 3D time of flight MRA versus contrast enhanced 3D MR DSA of the carotid bifurcation. *Proc ASNR* 1997; 154.
53. AM Masaryk, **R Frayne**, O Unal, AH Rappe, CM Strother. Utility of CTA and MRA for follow-up evaluation of experimental aneurysms treated with stents or Guglielmi detachable coils. *Proc American Society of Neuroradiology* 1997; 185.
54. FR Korosec, **R Frayne**, TM Grist, CA Mistretta. Low spatial-frequency mask subtraction for breath hold contrast-enhanced MRA. *Radiology* 1997; **205(P)**: 300.
55. KK Vigen, CA Mistretta, FR Korosec, **R Frayne**, TM Grist. Multi-echo technique for time-resolved contrast-enhanced 3D MR angiography. *Radiology* 1997; **205(P)**: 300.
56. KK Vigen, FR Korosec, **R Frayne**, TM Grist, CA Mistretta. A multi-echo technique for time-resolved contrast-enhanced 3D MR angiography. *Proc ISMRM* 1998; 105.
57. O Unal, FR Korosec, **R Frayne**, CM Strother, CA Mistretta. Rapid 2D time-resolved MR technique for passive catheter tracking. *Proc ISMRM* 1998; 346.
58. **R Frayne**, TM Grist, JS Swan, D.C. Peters, FR Korosec, CA Mistretta. Contrast agent injection protocols for 3D MR DSA: Effect of injection order, volume and rate. *Proc ISMRM* 1998; 770.
59. TJ Carroll, KK Vigen, **R Frayne**. *In vitro* evaluation of dynamic contrast-enhanced MRA. *Proc ISMRM* 1998; 769.
60. SG McKinnon, PA Turski, **R Frayne**, TJ Carroll, FR Korosec, TM Grist, CA Mistretta. Cerebrovascular imaging with time-resolved contrast-enhanced MRA. *Proc Symposium Neuroradiologicum XVI* 1998; 164.
61. O Unal, **R Frayne**, CM Strother, FR Korosec, CA Mistretta. 2D time resolved MR technique for catheter visualization during endovascular procedures at 1.5 T. *Proc Symposium Neuroradiologicum XVI* 1998; 165.
62. SG McKinnon, PA Turski, **R Frayne**, TJ Carroll, FR Korosec, TM Grist, CA Mistretta. Cerebrovascular imaging with time-resolved contrast-enhanced MRA. *Proc ASNR* 1998; 289.
63. O Unal, **R Frayne**, CM Strother, FR Korosec, CA Mistretta. 2D time resolved MR technique for catheter visualization during endovascular procedures at 1.5 T. *Proc ASNR*, 1998; 289.
64. O Unal, AM Masaryk, **R Frayne**, CA Mistretta, CM Strother. MRA versus CTA: Impact of different post-processing techniques in characterization of cerebral aneurysms. *Radiology* 1998; **209(P)**: 155.
65. O Unal, FR Korosec, **R Frayne**, CM Strother, CA Mistretta. A time-resolved fast 2D MR technique for passive catheter tracking. *Radiology* 1998*;* **209(P)**: 245.
66. **R Frayne**, CM Strother, O Unal, H Yu, Z Yang, A Wehelie. Signal-emitting coatings for interventional MR. *Radiology* 1998; **209(P)**: 281.
67. CM Strother, O Unal, **R Frayne**, FR Korosec, CA Mistretta. Feasibility study of the endovascular treatment of experimental canine aneurysms using MR guidance *Radiology* 1998; **209(P)**: 319.
68. RA Omary, **R Frayne**, O Unal, A Turk, TM Grist, CM Strother. Intra-arterial Gd-DTPA-enhanced 2D and 3D magnetic resonance angiography. Society of Cardiovascular and Interventional Radiology 24th Annual Meeting, 20-25 March 1999, Orlando, Florida, USA.
69. RA Omary, **R Frayne**, O Unal, FR Korosec, CA Mistretta, CM Strother, TM Grist. Magnetic resonance-guided angioplasty of renal artery stenosis in a pig model: A feasibility study. *Proc ISMRM* 1999; 576.

70. **R Frayne**, RA Omary, O Unal, TM Grist, CM Strother. MRA with intra-arterial administration of contrast. *Proc ISMRM* 1999; 1884.
71. **R Frayne**, A Wehelie, Z Yang, RW Hergenrother, O Unal, CM Strother, H Yu, MR evaluation of signal-emitting coatings. *Proc ISMRM* 1999; 580.
72. Y Zhou, DH Skuldt, **R Frayne**. Rapid reconstruction of 3D TRICKS images. *Proc. ISMRM* 1999; 1655.
73. TJ Carroll, FR Korosec, JS Swan, TM Grist, **R Frayne**, CA Mistretta. A method for rapid reconstruction of a single image volume from a time-resolved CE-MRA exam. *Proc ISMRM* 1999; 1885.
74. O Wieben, TJ Carroll, **R Frayne**. Rapid generation of preview images for 3D MR DSA. *Proc ISMRM* 1999; 1903.
75. Y Zhou, **R Frayne**. Contrast-enhanced MR thermometry. *Proc ISMRM* 1999; 1933.
76. O Unal, DC Peters, FR Korosec, **R Frayne**, WF Block, TM Grist, CA Mistretta, CM Strother. Angular projection MR technique for passive catheter tracking. *Proc ISMRM* 1999; 1946.
77. DH Skuldt, O Unal, **R Frayne**. Catheter visualization with projection dephaser gradients. *Proc ISMRM* 1999; 1949.
78. O Wieben, TJ Carroll, JS Swan, **R Frayne**. Observer evaluation of 3D MR DSA preview images. *Radiology* 1999; **213(P)**, 286.
79. RA Omary, O Unal, DS Koscielski, **R Frayne**, CM Strother, TM Grist, FR Korosec, CA Mistretta. Real-time MR-guided passive catheter tracking using gadolinium-filled catheters. Society of Cardiovascular and Interventional Radiology 25th Annual Scientific Meeting, March 2000, San Diego, CA, USA. (accepted as a Featured Abstract, Top 5%).
80. TM Grist, O Unal, RA Omary, D Koscilski, ER Niendorf, **R Frayne**, FR Korosec. MR clearance measurements predict hemodynamically significant renal artery stenosis following angiotensin converting enzyme (ACE) inhibition. *Proc ISMRM* 2000; 461.
81. **R Frayne**, RJ Sevick, AM Demchuk, PA Barber, MD Hill, A Cole-Haskayne, S Curtis, AM Buchan. Clinical stroke imaging at 3 T. *Proc ISMRM*, 2000; 1253.
82. RA Omary, O Unal, DS Koscielski, **R Frayne**, FR Korosec, CA Mistretta, CM Strother, TM Grist. Real-time MRI-guided passive catheter tracking using gadolinium-filled catheters. *Proc ISMRM* 2000; 1309.
83. RW Hergenrother, RF Ofstead, DG Swan, **R Frayne**, CM Strother, X Jiang, H Yu, Signal-emitting coatings for use with interventional MRI. Transactions of Sixth World Biomaterials Congress, 15-20 May 2000, Kamuela, Hawaii, USA.
84. **R Frayne**, RJ Sevick, M Hudon, W Morrish, AM Demchuk, PA Barber, MD Hill, AM Buchan. Intracranial TOF in hyper-acute stroke. *Proc of XII International Workshop on Magnetic Resonance Angiography* 2000; 53. [invited talk]
85. RA Omary, R Smith, O Unal, D Koscielski, K Henseler, **R Frayne**, C Strother, T Grist. Intraarterial gadolinium-enhanced MRA: *In vitro* injection protocol validation. *Proc of XII International Workshop on Magnetic Resonance Angiography* 2000; 111.
86. RJ Sevick, **R Frayne**, AM Demchuk, P Barber, MD Hill, AM Buchan. Evaluation of acute stroke with high field MR. *Radiology* 2000; **217(P)**: 417.
87. AM Demchuk, D Beaupre, PA Barber, MD Hill, A Button, W Morrish, M Hudon, **R Frayne**. A stroke neurologist/nurse operated acute stroke TCD service can reliably identify MCA occlusion when compared to MRA. *Stroke* 2001; **32**: P39.
88. PA Barber, AM Demchuk, MD Hill, W Pexman, ME Hudon, A Tomanek, D Beaupre, **R Frayne**, AM Buchan. A comparison of CT versus MR imaging in acute stroke using ASPECTS: Will the "new" replace the "old" as the preferred imaging modality? *Stroke* 2001; **32**: P49.
89. RC Ryder, A Cole-Haskayne, RJ Sevick, AM Demchuk, MD Hill, PA Barber, AM Buchan, **R Frayne**. Cerebral blood volume: Possible predictor of clinical deficit in acute stroke. *Proc ISMRM* 2001, 313.

90. JJ Yang, MD Hill, WF Morrish, ME Hudon, PA Barber, AM Demchuk, RJ Sevick, **R Frayne**. Post-contrast 3D TOF MRA: Possible role in acute stroke? *Proc ISMRM* 2001, 1390.
91. JW Chan, WF Morrish, ME Hudon, **R Frayne**, AD Harris, AM Demchuk, PA Barber, MD Hill, AM Buchan, RJ Sevick. Demonstration of reversible acute ischemic injury by diffusion-weighted magnetic resonance imaging. *Proc ASNR* 2001, .
92. RS Pereira, AD Harris, RJ Sevick, **R Frayne**. Effect of b-value on contrast for diffusion-weighted magnetic resonance imaging assessment of acute stroke. *Medical Physics* 2001; **28**; 1975.
93. AD Harris, RS Pereira, RJ Sevick, **R Frayne**. Diffusion MR imaging strategies in acute stroke. *Medical Physics* 2001; **28**; 1976.
94. A Tomanek, R Ryder, J Simon, M Hill, **R Frayne**, A Buchan, R Mitchell. Computer assisted quantification of stroke lesion volumes. *Medical Physics* 2001; **28**; 1989.
95. RC Ryder, A Cole-Haskayne, RJ Sevick, AM Demchuk, MD Hill, PA Barber, AM Buchan, **R Frayne**, Relative cerebral blood volume changes in acute stroke. *Medical Physics* 2001; **28**; 1989.
96. **R Frayne**, RJ Sevick, AM Demchuk, MD Hill, AM Buchan and the Calgary Stroke Program. High-field MR and MRA in Acute Stroke. *Proc of XIII International Workshop on Magnetic Resonance Angiography*, 2001; 120. [Invited talk]
97. MD Hill, PA Barber, AM Demchuk, NJ Newcommon, A Cole-Haskayne, KJ Ryckborst, L Sopher, A Button, W Hu, ME Hudon, WF Morrish, **R Frayne**, AM Buchan. Acute IV-IA revascularization therapy for severe ischemic stroke. *Can J Neurological Science* 2001; **28 Suppl 2**: S15.
98. AD Harris, RS Pereira, RJ Sevick, **R Frayne**. Diffusion MR imaging strategies in acute stroke. *Proc Canadian Organization of Medical Physicists Conf* 2001; 39-40.
99. RS Pereira, AD Harris, RJ Sevick, **R Frayne**. Effect of b-value on contrast for diffusion-weighted magnetic resonance imaging assessment of acute stroke. *Proc of the Canadian Organization of Medical Physicists Conf* 2001; 48-50.
100. A Tomanek, R Ryder, J Simon, M Hill, **R Frayne**, A Buchan, R Mitchell. Computer assisted quantification of stroke lesion volumes. *Proc of the Canadian Organization of Medical Physicists Conf* 2001; 210-212.
101. RC Ryder, A Cole-Haskayne, RJ Sevick, AM Demchuk, MD Hill, PA Barber, AM Buchan, **R Frayne**, Relative cerebral blood volume changes in acute stroke. *Proc of the Canadian Organization of Medical Physicists Conf* 2001; 216-218.
102. R Mitchell, A Tomanek, J Simon, R Ryder, **R Fray**ne, R Sevick, P Barber, A Demchuk, A Buchan. Reliable Computer Assisted Measurement of Stroke Lesion Volumes. *Stroke* 2002; **33**: P8.
103. AM Demchuk, M Schebel, D Beaupre, A Button, PA Barber, MD Hill, W Pexman, M Hudon, W Morrish, **R Frayne**. A Novel Magnetic Resonance Angiographic Scale (MAGNIFY) Is Reliable in Detecting ICA/MCA Flow Abnormalities in Acute Stroke. *Stroke* 2002; **33**: P13.
104. PA Barber, AM Demchuk, MD Hill, JHW Pexman, ME Hudon, **R Frayne**, AM Buchan for the ASPECTS Study Group. The significance of the hyperdense middle cerebral artery and MCA "dot" sign in acute stroke: A CT study with magnetic resonance angiography correlation. *Stroke* 2002; **33**: P37.
105. M Sabati, ML Lauzon, **R Frayne**. Interactive large field-of-view peripheral MRA. *Proc ISMRM* 2002; 213.
106. MR Smith, H Lu, **R Frayne**. SNR characteristics on quantitative cerebral perfusion. *Proc ISMRM* 2002; 655.
107. AD Harris, RS Pereira, JR Mitchell, MD Hill, RJ Sevick, **R Frayne**. Diffusion post-processing strategy for hyper-acute stroke. *Proc ISMRM* 2002; 1040.
108. H Lu, MR Smith, **R Frayne**. An automated cerebral blood flow perfusion analysis system using a novel deconvolution technique. *Proc ISMRM* 2002; 1079.
109. J Simon, AD Harris, MD Hill, RJ Sevick, **R Frayne**. Fluid-inversion prepared diffusion-weighted (FLIPD) imaging from in acute human stroke. *Proc ISMRM* 2002; 1103.

110. BG Goodyear, H Zhu, **R Frayne**, JR Mitchell. Filtering noise from fMRI data using the Stockwell transform. *Proc ISMRM* 2002; 1419.
111. PA Barber, AM Demchuk, MD Hill, JHW Pexman, ME Hudon, **R Frayne**, AM Buchan. The probability of middle cerebral artery MRA flow signal abnormality with quantified CT ischemic change: Targets for future therapeutic studies. *Neurology* 2002; **58 (Suppl 3)**: A426.
112. PA Barber, AM Demchuk, MD Hill, JHW Pexman, ME Hudon, **R Frayne**, AM Buchan. The presence of middle cerebral artery occlusion increases with quantified CT ischemic change: therapeutic targets for future acute stroke studies. *Can J Neurological Science* 2002; **29 (Suppl 1)**: S31.
113. JL Ronsky, N Baker, R Moss, **R Frayne**. Insights Into In-Vivo Knee Mechanics with Magnetic Resonance Imaging. IV World Congress of Biomechanics, 4-9 Aug 2002, Calgary, Alberta, Canada.
114. A Khan, RJ Sevick, **R Frayne**. Hyperacute time course of apparent diffusion coefficient in stroke. *Proc CAR Annual Meeting*. 2002.
115. W Utz, J Hubacek, N Filipchuk, **R Frayne**, H Banijamali, T Anderson, MG Friedrich. Regional findings of endothelial function in the forearm as assessed by high-field BOLD-MRI. *Eur Heart J* 2002; **23 (Suppl)**: 466.
116. A Khan, RJ Sevick, **R Frayne**. Evolution of ADC in the first six hours post infarction. *Radiology* 2002; **225(P)**: 278.
117. Barber PA, Hill MD, Demchuk AM, Pexman JHW, Hudon ME, Tomanek A, **Frayne R**, Buchan AM. A comparison of CT versus diffusion weighted imaging in hyper-acute stroke using a systematic quantitative score (ASPECTS). *Neuroradiology* 2003; **45**: 119.
118. AI Tomanek, MD Hudon, RJ Sevick, JE Simon, M Schebel, **R Frayne**, AM Buchan, AM Demchuk, accuracy and reliability of MR angiography compared to conventional selective angiography in acute stroke. *Stroke* 2003; **34**: 259.
119. JE Simon, JR Mitchell, **R Frayne**, M Eliasziw, AL Cole-Haskayne, MD Hill, AI Tomanek, PA Barber, SB Coutts, RJ Sevick, AM Buchan, AM Demchuk. Recanalization, regardless of tPA use, improves clinical outcome and reduces infarct growth on MRI in stroke patients. *Stroke* 2003; **34**: 259-260.
120. SB Coutts, JE Simon, AI Tomanek, PA Barber, ME Hudon, J Chan, **R Frayne**, JR Mitchell, M Eliasziw, AM Buchan, AM Demchuk reliability in assessment of DWI/PWI mismatch. *Stroke* 2003; **34**: 260.
121. RJ Sevick, **R Frayne**, J Simon, AM Demchuk. Comprehensive neurovascular evaluation using high field MR in patients with acute stroke and transient ischemic attacks *Proc ASNR* 2003; 147-148.
122. N Nagarajappa, R Frayne. Endovascular MR: Measurements of relaxation parameters for visualization of contrast-enhanced catheters at 3.0 T. *Medical Physics* 2003; **30**: 1942.
123. M Sabati, ML Lauzon, N Nagarajappa, **R Frayne**. Interactive large field-of-view real-time peripheral magnetic resonance angiography. *Medical Physics* 2003; **30**: 1945.
124. H Lu, MR Smith, **R Frayne**. A user-assisted arterial input function identification and validation algorithm, *Medical Physics* 2003; **30**: 1950.
125. MR Smith, H Lu, **R Frayne**. Improving SNR in DSC perfusion studies reduces noise related biases in CBF estimates, but reveals other artefacts associated with the experimental sampling rate, TR. *J Cerebral Blood Flow & Metabolism* 2003; **23(S1)**: 199.
126. J Chen, MR Smith, **R Frayne**. Characteristics of Frequency Domain Modeling in DSC-MR Perfusion *J Cerebral Blood Flow & Metabolism* 2003; **23(S1)**: 174.
127. MS Bristow, RA Brown, JE Simon, ML Lauzon, H Lu, **R Frayne**, JR Mitchell. A Novel Method of Deriving Grey and White Matter CBF using MR Imaging in Acute Ischemic Stroke. *J Cerebral Blood Flow & Metabolism* 2003; **23(S1)**: 545.
128. H Lu, MR Smith, JE Simon, **R Frayne**, Comparison of deconvolution methods for quantitative MR cerebral blood flow. *J Cerebral Blood Flow & Metabolism* 2003; **23(S1)**: 546.

129. AI Tomanek, ME Hudon, R Sevick, JE Simon, M Schebel, **R Frayne**, A Buchan, AM Demchuk. Accuracy and Reliability of MR angiography compared to conventional angiography in acute stroke. *J Cerebral Blood Flow & Metabolism* 2003; **23(S1)**: 578.
130. RC Ryder, RJ Sevick, WF Morrish, JH Wong, WY Hu, M Hudon, **R Frayne**. Development and evaluation of a reversible embolic stroke model for MR endovascular thrombolysis. *Proc ISMRM* 2003; 1225.
131. RA Brown, JE Simon, H Lu, ML Lauzon, **R Frayne**, JR Mitchell. A novel method for deriving grey and white matter CBF using multi-spectral MR. *Proc ISMRM* 2003; 614.
132. BG Goodyear, AM Demchuk, **R Frayne**. T2* heterogeneity in cerebral ischemia: Implication for fMRI interpretation. *Proc ISMRM* 2003; 1905.
133. CJ Tobolowski, JJ Eggermont, **R Frayne**, BG Goodyear. MR scanner effects on auditory cortex tonotopy using fMRI. *Proc ISMRM* 2003; 1824.
134. NC Sharma, RJ Sevick, **R Frayne**. Effect of earlier contrast-enhanced MRA (CE MRA) on dynamics susceptibility contrast (DSC) perfusion-weighted imaging (PWI). *Proc ISMRM* 2003; 95.
135. M Sabati, RW Lau, N Nagarajappa, ML Lauzon, **R Frayne**. Implementation issues associated with continuously moving table methods for peripheral contrast-enhanced MRA. *Proc ISMRM* 2003; 1014
136. MR Smith, H Lu, S Trochet, **R Frayne**. Removing CBF artifacts introduced during SVD deconvolution. *Proc ISMRM* 2003; 2345.
137. ML Lauzon, **R Frayne**. Reducing Nyquist ghosts in gradient recalled echo echo-planar perfusion-weighted imaging. *Proc ISMRM* 2003; 2273.
138. J Chen, MR Smith, S Trochet, **R Frayne**. Advantages of frequency domain modeling in magnetic resonance CBF quantification. *Proc ISMRM* 2003; 2342.
139. M Sabati, ML Lauzon, **R Frayne** Novel Undersampled Acquisition Schemes for Continuously Moving Table Peripheral Contrast-Enhanced MRA . *Proc ISMRM* 2003; 252.
140. J Chen, MR Smith, **R Frayne**. Further advantages of frequency domain modeling in magnetic resonance CBF quantification. *Proc Alberta Biomedical Engineering Meeting*, 2003.
141. M Sabati, ML Lauzon N Nagarajappa, **R Frayne**. Interactive large field-of-view real-time peripheral magnetic resonance arteriography. *Proc Alberta Biomedical Engineering Meeting*, 2003.
142. M Salluzzi, MR Smith, **R Frayne**. A different viewpoint of SVD deconvolution used for cerebral blood flow estimation. *Proc Alberta Biomedical Engineering Meeting*, 2003.
143. JC Kosior, JE Simon, MS Bristow, JR Mitchell, **R Frayne**. A Software engineering approach for investigating quantitative perfusion. *Proc Alberta Biomedical Engineering Meeting*, 2003.
144. AD Harris, R Pereira, JR Mitchell, MD Hill, RJ Sevick, **R Frayne**. Diffusion post-processing strategy for hyper-acute stroke. *Proc Alberta Biomedical Engineering Meeting*, 2003.
145. MS Bristow, JE Simon, DM Stepien, H Lu, RA Brown, JV Manjón, ML Lauzon, **R Frayne**, JR Mitchell, Perfusion and diffusion values in penumbral gray and white matter. *Proc Alberta Biomedical Engineering Meeting*, 2003.
146. C-H Sohn, JE Simon, SB Coutts, AL Krol, **R Frayne**, AM Demchuk, RJ Sevick for the Vision Study Group. Prediction of hemorrhagic transformation in acute stroke using T1-weighted gradient-echo time-of-flight MR angiography images. *Stroke* 2004; **35**: 332.
147. JE Simon, MS Bristow, DM Stepien, H Lu, JV Majon, ML Lauzon, SB Coutts, R **Frayne**, AM Demchuk, JR Mitchell. A Novel Method Demonstrates that Gray and White Matter have Measurable Differences in Cerebral Perfusion and Apparent Diffusion Coefficient Values in Stroke Penumbra. *Stroke* 2004; **35**: 263.
148. AL Krol, SB Coutts, JE Simon, C-H Sohn, L Anderson-Armitage, **R Frayne**, RJ Sevick, M Eliasziw, AM Buchan, AM Demchuk. Acute MRI in speech or motor TIA reveals ongoing ischemia and active disease in a high proportion of patients. *Stroke* 2004; **35**: 261-262.

149. BG Goodyear, **R Frayne**, AM Demchuk. Cerebral ischemia contributes to T2* heterogeneity: Implications for functional magnetic resonance imaging. *Stroke* 2004; **35**: 286.
150. RK Zabad, X Wei, ML Lauzon, LM Metz, **R Frayne**, Y Zhang, JR Mitchell. Iron deposits in multiple sclerosis brains: a fortuitous or real finding? *Neurology* 2004; **62 Suppl 5**: A94-A95.
151. AD Harris, K Ide, MJ Poulin, **R Frayne**. Reducing blood flow variability in imaging studies with dynamic end-tidal forcing. *Can Respiratory J* 2004; **11**: 2378.
152. C-H Sohn, X Wei, **R Frayne**, K Byun, M Bristow, ML Lauzon, RJ Sevick. Fast FLAIR imaging of the normal brain: Comparison of 3.0 T vs 1.5 T. *Proc ISMRM* 2004; 75.
153. M Sabati, ML Lauzon, N Nagarajappa, H Mahallati, **R Frayne**. Real-time peripheral magnetic resonance angiography: An interactive single-station/single injection method. *Proc ISMRM* 2004; 230.
154. P Chen, JE Simon, MD Hill, P Dickhof, WF Morrish, C-H Sohn, RJ Sevick, **R Frayne**. Comparison of diffusion-weighted imaging strategies in acute ischemic stroke. *Proc ISMRM* 2004; 406.
155. MS Bristow, JE Simon, RA Brown, JV Manjon, ML Lauzon, **R Frayne**, AM Demchuk, JR Mitchell. Determining ischemic thresholds for gray and white matter in stroke penumbra. *Proc ISMRM* 2004; 408.
156. H Mahallati, ML Lauzon, **R Frayne**. 3D Breath-hold fat-suppressed T1-weighted abdominal MRI at 3.0 Tesla. *Proc ISMRM* 2004; 903.
157. ML Lauzon, H Mahallati, **R Frayne**. Optimized dual-echo T1-weighted abdominal MRI at 3.0 Tesla. *Proc ISMRM* 2004; 905.
158. ML Lauzon, H Mahallati, **R Frayne**. SAR-efficient Breath-hold T2-weighted abdominal MRI at 3.0 Tesla. *Proc ISMRM* 2004; 906.
159. N Nagarajappa, M Sabati, ML Lauzon, **R Frayne**. A novel background suppression method for endovascular therapy. *Proc ISMRM* 2004; 959.
160. MR Smith, **R Frayne**. Use of adaptive deconvolution algorithms reveals new variation of cerebral blood flow estimates with arterial-tissue-delay in dynamic susceptibility contrast MR perfusion studies. *Proc ISMRM* 2004; 1379.
161. JJ Chen, MR Smith, **R Frayne**. DSC MR contrast recirculation effects in CBF quantification based on frequency-domain modeling. *Proc ISMRM* 2004; 1384.
162. X Wei, R Zabad, ML Lauzon, Y Zhang, **R Frayne**, LM Metz, JR Mitchell. T2 hypointensity in the deep gray matter of patients with multiple sclerosis: Different characteristics on 3.0 Tesla MRI. *Proc ISMRM* 2004; 1501.
163. X Wei, B O'Brien, R Zabad, ML Lauzon, H Zhu, **R Frayne**, LM Metz, JR Mitchell. Brain MR imaging of patients with multiple sclerosis at 3.0 Tesla: Dielectric effects artifact and its correction. *Proc ISMRM* 2004; 1504.
164. M Sabati, N Nagarajappa, ML Lauzon, **R Frayne**. Fast correction of the gradient field non-uniformity for large FOV continuously moving table techniques. *Proc ISMRM* 2004; 2188.
165. A Kurji, C Debert, **R Frayne**, MJ Poulin. Variability of middle cerebral artery blood velocity waveforms in young and postmenopausal women. *Canadian Journal of Neurological Sciences* 2004; **31 (Suppl 1)**: S35.
166. D Oliphant, **R Frayne**, ML Lauzon, R Fauvel, GN Kawchuk. An injury model of progressively increasing disc derangement. *Proc of the International Society for the Study of the Lumbar Spine* 2004; 271.
167. D Oliphant, GN Kawchuk, **R Frayne**, ML Lauzon, R Fauvel. An induced internal disc disruption verified by MRI in porcine lumbar discs. *Journal of Bone and Joint Surgery - British Volume* 2008; **90-B**: 72.
168. MB Bristow, JE Simon, RA Brown, JV Majon, ML Lauzon, **R Frayne**, AM Demchuk, JR Mitchell. Predictive value of diffusion and perfusion imaging in identifying acute ischemic stroke lesions. *Proc of the World Stroke Congress* 2004; 144-145.

169. S Aalbersberg-van Berkel, I Kingma, JL Ronsky, **R Frayne**, JH van Dieën. Muscle tendon line-of-action changes between 0 and 30 degrees of knee flexion. *Proc of the Congress European Society of Biomechanics*, 2004.
170. N Nagarajappa, M Sabati, J Draper, ML Lauzon, **R Frayne**. Hadamard and projection dephaser methods in endovascular magnetic resonance. *Proc Alberta Biomedical Engineering Meeting*, 2004, 11.
171. JC Kosior, **R Frayne**. Improving the precision of MR perfusion using enclosing arterial input function regions. *Proc Alberta Biomedical Engineering Meeting*, 2004, 14.
172. H Peng, **R Frayne**. Reconstruction of MR images from incompletely sampled k-space. *Proc Alberta Biomedical Engineering Meeting*, 2004, 15.
173. Y Zhang, X Wei, R Zabad, ML Lauzon, **R Frayne**, LM Metz, JR Mitchell. 3.0 T vs. 1.5 T quantification of T2 hypointesity in the GM of MS patients. *Proc Alberta Biomedical Engineering Meeting*, 2004, 16.
174. J Draper, N Nagarajappa, ML Lauzon, **R Frayne**. MR Projection dephaser method: Theoretical and experimental comparison. *Proc Alberta Biomedical Engineering Meeting*, 2004, 27.
175. L Lee, AD Harris, **R Frayne**. Isotropic and anisotropic diffusion in a dog model of hyperacute ischemic stroke. *Proc Alberta Biomedical Engineering Meeting*, 2004, 30.
176. AD Harris, K Ide, MJ Poulin, **R Frayne**. Reducing cerebral blood flow velocity variability. *Proc Alberta Biomedical Engineering Meeting*, 2004, 32.
177. MS Bristow, JE Simon, RA Brown, M Eliasziw, MD Hill, SB Coutts, **R Frayne**, AM Demchuk, JR Mitchell. Perfusion and diffusion in acute ischemic stroke: Gray and white matter have different thresholds for infarction. *Proc Alberta Biomedical Engineering Meeting*, 2004, 34.
178. R Stafford, M Sabati, ML Lauzon, H Mahallati, **R Frayne**. MR Angiography of peripheral vessels using SSFP with multi-station method. *Proc Alberta Biomedical Engineering Meeting*, 2004, 35.
179. AD Harris, LJ Lee, RJ Sevick, **R Frayne**. Fractional anisotropy in hyper-acute stroke. *Proc ISMRM Workshop on Methods for Quantitative Diffusion MRI of Human Brain* 2005 (on CD).
180. M Sabati, L Lauzon, R Stafford, **R Frayne**. Interactive approach for imaging peripheral vascular disease using magnetic resonance technique. *Exp Clin Caridiol* 2005; **10**: 20.
181. AD Harris, K Ide, MJ Poulin, **R Frayne**. Reducing CBF variability with end-tidal carbon dioxide. *Proc ISMRM* 2005; 183.
182. LJ Lee, AD Harris, **R Frayne**. Diffusion anisotropy evolution in early hyper-acute stroke. *Proc ISMRM* 2005; 656.
183. Y Zhang, LM Metz, R Zabad, ML Lauzon X Wei, **R Frayne**, JR Mitchell. T2 hypointensity at 3 T correlates with expanded disability status scale in multiple sclerosis. *Proc ISMRM* 2005; 1052.
184. JC Kosior, **R Frayne**. PerfTool: A software platform for quantification of dynamic susceptibility contrast perfusion imaging *Proc ISMRM* 2005; 1122.
185. M Salluzzi, **R Frayne**, MR Smith. Reducing the tissue specific MTT-biases in quantitative cerebral blood flow measurements. *Proc ISMRM* 2005; 1123.
186. M Sabati, RB Stafford, ML Lauzon, H Mahallati, **R Frayne**. Interactive real-time large field-of-view peripheral MR digital subtraction angiography *Proc ISMRM* 2005; 1765.
187. H Peng, M Sabati, ML Lauzon, R **Frayne**. Reconstruction of MR imagines from sparsely-sampled 3-D k-space data. International *Proc ISMRM* 2005; 2301.
188. DP Spencer, CD Igna, I Kay, A Chan, Z Kiss, R Frayne. Regional change in brain perfusion, in irradiated normal tissue: Correlation study between perfusion MRI and spatial distribution of radiation dose delivered. *Medical Physics* 2005; **32**: 1901.
189. K McLaughlin, J Ronsky, **R Frayne**. *In vivo* assessment of congruence in the patellofemoral joint of healthy subjects. *Proc of the International Society of Biomechanics* 2005; 775.

190. M Wilson, RJ Sevick, M Hudon, **R Frayne**, JH Wong. Use of MR angiography in treatment planning and follow-up of aneurysms treated by endovascular techniques. *Proc XVII International Workshop on Magnetic Resonance Angiography*, 2005; 37.
191. H Peng, M Sabati, ML Lauzon, **R Frayne**. Image reconstruction for interactive continuous moving table (iCMT) contrast-enhanced MR angiography. *Proc XVII International Workshop on Magnetic Resonance Angiography*, 2005; 77.
192. JN Draper, ML Lauzon, **R Frayne**. Catheter visualization in endovascular MR using multi-cycle projection dephasers. *Proc Alberta Biomedical Engineering Meeting*, 2005, 1.
193. RB Stafford, **M Sabati**, ML Lauzon, H Mahallati, **R Frayne**. The effect of table motion on balanced steady-state free precession. *Proc Alberta Biomedical Engineering Meeting*, 2005, 5.
194. RK Kosior, MD Hill, JC Kosior, **R Frayne**. 3 T vs 1.5 T MR diffusion and perfusion imaging in hyper-acute ischemic stroke. *Proc Alberta Biomedical Engineering Meeting*, 2005, 14.
195. M Govindaraj, AD Harris, **R Frayne**. Variability in diffusion-tensor measurements in patients with acute ischemic stroke. *Proc Alberta Biomedical Engineering Meeting*, 2005, 23.
196. M Salluzzi, **R Frayne**, MR Smith. Improved quantitative CBF estimates from the distribution of transit times. *Proc Alberta Biomedical Engineering Meeting*, 2005, 34.
197. AD Harris, **R Frayne**. Characterizing the evolution of ADC changes in early hyper-acute ischemic stroke. *Proc Alberta Biomedical Engineering Meeting*, 2005, 1.
198. L Ko, J Miller **R Frayne**, MR Smith. Advantages of Test Driven Development for MATLAB Simulation and Code Transfer. *Proc Alberta Biomedical Engineering Meeting*, 2005, 1-19.
199. **R Frayne**. Basics of diffusion and stroke. *Proc ASNR* 2006; 67.
200. JC Kosior, **R Frayne**. PerfTool: A software platform for investigating CT and MR perfusion. *Proc ASNR* 2006; 278-279.
201. AD Harris, RC Ryder, M Hudon, WY Hu, WF Morrish, RJ Sevick, JH Wong, **R Frayne.** A canine model of ischemic stroke for MR guided endovascular therapy. *Proc ASNR* 2006; 279.
202. JN Draper, M Sabati, ML Lauzon, **R Frayne**. Real-time endovascular magnetic resonance system for interventional therapy. *Proc ASNR* 2006; 356.
203. L Ko, M Salluzzi, **R Frayne**, M Smith. A re-examination of the impact of dispersion on quantitative cerebral blood flow measurements. *Proc ISMRM* 2006; 1532.
204. JC Kosior, **R Frayne**. Accurate dynamic susceptibility contrast MR perfusion quantification using spatiotemporal noise filtering algorithms. *Proc ISMRM* 2006; 1540.
205. M Smith, M Salluzzi, **R Frayne**. Adaptive SVD thresholding is shown to be more appropriate for partial brain scans (TR = 1 s) rather than full brain scans (TR = 2 s) . *Proc ISMRM* 2006; 1541.
206. DJ Niven, JC Kosior, PJ Dickoff, I Dzialowski, A Subramaniam, AM Demchuk, **R Frayne**. Variability in qCBF obtained from deconvolution-based perfusion-weighted MR techniques. *Proc ISMRM* 2006; 1548.
207. JC Kosior, **R Frayne**. Digital anthropomorphic perfusion phantom for the evaluation of DSC-MR perfusion algorithms. *Proc ISMRM* 2006; 1550.
208. RB Stafford, M Sabati, M. L. Lauzon, H Mahallati, **R Frayne**. Comparison between variable rate k-space sampling and sequential k-space acquisition with bSSFP and CMT. *Proc ISMRM* 2006; 1939.
209. ML Lauzon, M Breitling, **R Frayne**, H Mahallati. 3D multi-phase contrast-enhanced MR imaging of cirrhosis: 3.0. T versus 1.5 T. *Proc ISMRM* 2006; 2282.
210. RK Kosior, MD Hill, JC Kosior, **R Frayne**. 3 T vs 1.5 T MR diffusion and perfusion imaging in hyper-acute Ischemic stroke. *Proc ISMRM* 2006; 2678.
211. M Salluzzi, MR Smith, **R Frayne**. A new approach using the distribution of transit times (DTT) to determine improved absolute CBF values in patients with ischemic stroke. *Proc ISMRM* 2006; 2680.
212. M Govindaraj, AD Harris, **R Frayne**. Variability in ADC and FA Measurements in acute ischemic stroke. *Proc ISMRM* 2006; 2709.

213. M Sabati, H Peng, **R Frayne**. Noise characteristics in POCS (projection onto convex sets)-reconstructed MR images. *Proc ISMRM* 2006; 2940.
214. H Peng, M Sabati, ML Lauzon, **R Frayne**. Sparse k-space sampling strategies and projection-onto-convex sets image reconstruction for improved fast 3D imaging. *Proc ISMRM* 2006; 2960.
215. H Peng, MR Smith, **R Frayne**. Autoregressive moving average (ARMA) method for the reconstruction of MR images from sparsely sampled 3D K-Space. *Proc ISMRM* 2006; 2961.
216. JN Draper, M Sabati, ML Lauzon, **R Frayne**. Image fusion for catheter tracking in MR-guided endovascular therapy. *Proc Canadian Organization of Medical Physicists Annual Meeting* 2006; 182-184.
217. H Peng, M Sabati, ML Lauzon, **R Frayne**. Comparison of image reconstruction algorithms for reconstruction of 3D sparsely sampled k-space data. *Proc Canadian Organization of Medical Physicists Annual Meeting* 2006; 193-195.
218. RK Kosior, JC Kosior, **R Frayne**. Motion correction in DSC-MR perfusion-weighted imaging for ischemic stroke. *Proc Canadian Organization of Medical Physicists Annual Meeting* 2006; 219-221.
219. I Fjeld, J Johnson, J Ronsky, **R Frayne**. Integration of finite helical axis location with magnetic resonance images of the knee. *J Biomechanics* 2006; **39 Suppl 1**: S500.
220. JN Draper, M Sabati, ML Lauzon, **R Frayne**. Image fusion for catheter tracking in MR-guided endovascular therapy. *Med Phys* 2006; **33**: 2669.
221. H Peng, M Sabati, ML Lauzon, **R Frayne**. Comparison of image reconstruction algorithms for reconstruction of 3D sparsely sampled k-space data. *Med Phys* 2006; **33**: 2670.
222. RK Kosior, JC Kosior, **R Frayne**. Motion correction in DSC-MR perfusion-weighted imaging for ischemic stroke. *Med Phys* 2006; **33**: 2671.
223. AD Harris, JN Draper, LB Andersen, ML Lauzon. **R Frayne**. Models and techniques for MR-guided IA stroke therapy. *Proc XVIII International Workshop on Magnetic Resonance Angiography* 2006; 53.
224. RK Kosior, ML Lauzon, P Federico, **R Frayne**. T2 relaxometry and voxel-based statistics for MR imaging of epilepsy. *Proc Alberta Biomedical Engineering Meeting*, 2006, 40. [Winner Poster Competition]
225. JC Kosior, RK Kosior, **R Frayne**. Robust dynamic susceptibility contrast MR perfusion techniques: correcting for motion and noise artifacts. *Proc Radiological Society of North America* 2006; 874.
226. JC Kupper, JL Ronsky**, R Frayne**, I Robu, D Hart. A novel measure of knee joint laxity. Book of Abstracts Canadian Arthritis Network Meeting Annual Scientific Conference, 2006; 90.
227. MD Hill, C Wright, R Martin, JR Mitchell, **R Frayne**, AM Demchuk, KJ Ryckborst, D Tamariz, MD Ginsberg, YY Palesch. MR evidence of reduced lesion volume after human albumin therapy for acute ischemic stroke. The ALIAS pilot trial. *Neurology* 2007; **68**: A186-A186 Suppl. 1.
228. M Salluzzi, MR Smith, **R Frayne**. Investigating absolute quantification in MR perfusion studies. *Proc ISMRM* 2007; 594.
229. AD Harris, JC Kosior, LB Andersen, **R Frayne**. Intraarterial perfusion to monitor endovascular procedures in MR. International *Proc ISMRM* 2007; 1115.
230. JC Kosior, **R Frayne**. Cerebral blood flow estimation using local tissue reference functions. *Proc ISMRM* 2007; 1446.
231. MR Smith, M Salluzzi, **R Frayne**. A novel approach to remove the effect of recirculation in arterial input functions. *Proc ISMRM* 2007; 1447
232. RK Kosior, JC Kosior, **R Frayne**. Robust DSC MR perfusion using a patient motion correction scheme. *Proc ISMRM* 2007; 1448.
233. JC Kosior, RK Kosior, **R Frayne**. The potential sensitivity of cerebral blood flow to cross-calibration. *Proc ISMRM* 2007; 1449.
234. AD Harris, **R Frayne**. Early changes in the apparent diffusion coefficient following ischemic stroke in canines. *Proc ISMRM* 2007; 1615.

235. M Sabati, C Hahn, MA Bates, MJ Verano, MJ Haakstad, **R Frayne**. A real-time system for interactive large FOV MR imaging. *Proc ISMRM* 2007; 1655.
236. M Sabati, **R Frayne**. Is sub-pixel registration necessary for continuously moving table MRI. *Proc ISMRM* 2007; 2527.
237. RK Kosior, ML Lauzon, **R Frayne**, P Federico. T2 relaxometry and voxel-based statistics for MR imaging of epilepsy. *Canadian Journal of Neurological Sciences* 2007; **34 (Suppl 2)**, 36.
238. RB Stafford, M Sabati, H Mahallati, **R Frayne**.* Non-contrast enhanced MRA with a novel bSSFP Dixon approach. *Proc XIX International Workshop on Magnetic Resonance Angiography* 2007.
239. RK Kosior, N Steffenhagen, JC Kosior, C O'Reilly, AM Demchuk, **R Frayne**. Semi-automated topographical scoring for MR imaging of ischemic stroke. *Proc Alberta Biomedical Engineering Meeting*, 2007, 16.
240. RS Stafford, M Sabati, MJ Haakstad, H Mahallati, **R Frayne**. Non-contrast-enhanced MR angiography of the peripheral vasculature with the balanced steady-state free precession Dixon method. *Proc Alberta Biomedical Engineering Meeting*, 2007, 22.
241. HS Chen, JN Draper, LB Andersen, **R Frayne**. Selection and integration of roadmap images for MR-guided catheter tracking. *Proc Alberta Biomedical Engineering Meeting*, 2007, 33.
242. MJ Haakstad, RB Stafford, M Sabati, H Mahallati, **R Frayne**. Non-contrast enhanced MR angiography of the carotid arteries with balanced steady-state free precession Dixon method. *Proc Alberta Biomedical Engineering Meeting*, 2007, P14.
243. RB Stafford, M Sabati, MJ Haakstad, H Mahallati, **R Frayne**. Applying the bSSFP Dixon Method for fat-water separation to non-contrast-enhanced MRA in the legs *Proc ISMRM* 2008; 924.
244. M Sabati, H Peng, **R Frayne**. Phase-constrained reconstruction of GRAPPA for accelerated acquisitions. *Proc ISMRM* 2008; 1275.
245. RB Stafford, M Sabati, MJ Haakstad, H Mahallati, **R Frayne**. Non-contrast enhanced MRA of the renal vasculature with the bSSFP Dixon method. *Proc ISMRM* 2008; 1379.
246. MS Bristow, BW Poulin, JE Simon, MD Hill, JC Kosior, SB Coutts, **R Frayne**, JR Mitchell, AM Demchuk. Predicting infarct growth with multi-parametric modeling in acute ischemic stroke. *Proc ISMRM* 2008; 1957.
247. RK Kosior, N Steffenhagen, JC Kosior, AM Demchuk, **R Frayne**. Semi-automated topographical scoring for MR imaging of ischemic stroke. *Proc ISMRM* 2008; 1958.
248. RK Kosior, ML Lauzon, **R Frayne**, P Federico. Single subject voxel-based relaxometry for clinical assessment of temporal lobe epilepsy. *Proc Human Brain Mapping*, 2008; 157.
249. J Yerly, ML Lauzon, HS Chen, **R Frayne.** Catheter visualization for endovascular MR using compressive sampling. Rapid-Imaging: Beyond the Nyquist Limit Workshop, 12-13 Oct 2008, Freiburg, Germany.
250. ML Lauzon, RA Brown, M Sabati, J Yerly, **R Frayne**. Understanding parallel imaging reconstruction using the STFT formalism. Rapid-Imaging: Beyond the Nyquist Limit Workshop, 12-13 Oct 2008, Freiburg, Germany.
251. M Sabati, RB Stafford, MJ Haakstad, ML Lauzon, **R Frayne**. Accelerated non-contrast enhanced bSSFP MR angiography with the Dixon method. Rapid-Imaging: Beyond the Nyquist Limit Workshop, 12-13 Oct 2008, Freiburg, Germany.
252. H Peng, M Sabati, **R Frayne**. Accelerating MR using SENSE and POCS. Rapid-imaging: Beyond the Nyquist limit workshop, 12-13 Oct 2008, Freiburg, Germany.
253. H Mahllati, RB Stafford, ML Lauzon, **R Frayne**. Renal artery stenosis: Evaluation without contrast agent or radiation. *Proc XX International Workshop on Magnetic Resonance Angiography* 2008.
254. ME MacDonald, **R Frayne**, MR Smith. Fourier Domain Extrapolation to Improve MR Perfusion. *Proc Alberta Biomedical Engineering Meeting*, 2008;

255. A-L Aulanier, LB Andersen, H Mahallati **R Frayne**. Targeted Molecular Contrast Agents To Detect Early Atherosclerosis. *Proc Alberta Biomedical Engineering Meeting*, 2008
256. J Yerly, ML Lauzon, HS Chen, **R Frayne**. Rapid MR Catheter Visualization for Endovascular Therapy Using Compressive Sampling. *Proc Alberta Biomedical Engineering Meeting*, 2008
257. J Yerly, ML Lauzon, HS Chen, **R Frayne**. Catheter Visualization for endovascular MR: compressive sampling versus POCS for different sampling schemes. International Society for Magnetic Resonance in Medicine Workshop on Data Acquisition, 31 Jan 2009, Sedona, Arizona, USA.
258. JC Kosior, S Idris, D Dowlatshahi, M Alzawahmah, S Tymchuk, MD Hill, **R Frayne**, AD Demchuk for the PREDICT/Sunnybrook CTA ICH Study Investigators. Quantomo: Validation of a computer-assisted method used in the predict trial for volumetric analysis of hematoma in intracerebral hemorrhage. *Stroke* 2009; **40**: E226.
259. JC Kosior, **R Frayne**. DSC-MR perfusion: Leave tracer recirculation alone. *Proc ISMRM* 2009; 1464.
260. H Mahallati, ML Lauzon, L Andersen, **R Frayne**. Non-contrast-enhanced MR identification of deep vein thrombosis: A feasibility study. *Proc ISMRM* 2009; 1832.
261. ML Lauzon, RB Stafford, M Sabati, **R Frayne**. Dixon bSSFP in the presence of Bo inhomogeneities. *Proc ISMRM* 2009; 2702.
262. RK Kosior, R Sharkey, P Federico, **R Frayne**. Voxel-based relaxometry for cases of an unresolved epilepsy diagnosis *Proc ISMRM* 2009; 2744.
263. J Yerly, ML Lauzon, HS Chen, **R Frayne**. Catheter visualization for endovascular MR using compressive sampling: Comparison against POCS. *Proc ISMRM* 2009; 2826.
264. RA Brown, **R Frayne**. Design of an MR phantom for comparison of frequency based texture analysis techniques. *Proc ISMRM* 2009; 4688.
265. RA Brown, AD Harris, **R Frayne**. Demonstration of a novel edge analysis technique using a purpose built MR phantom. *Proc ISMRM* 2009; 4689.
266. AD Harris, HMS Chen, LB Andersen, RK Kosior, **R Frayne**. Diffusion lesion reversal in a canine ischemic stroke model. *Proc ASNR* 2009; 340.
267. JC Kosior, D Dowlatshahi, S Idris , M Alzawahmah, S Tymchuk, MD Hill, **R Frayne**, AM Demchuk for the PREDICT/Sunnybrook CTA ICH Study Investigators. Quantomo: validation of a computer-assisted method used in the PREDICT trial for volumetric analysis of hematoma in intracerebral hemorrhage. *Proc ASNR* 2009; 104-105.
268. JC Kosior, S Idris , D Dowlatshahi, M Alzawahmah, S Tymchuk, MD Hill, P Dickoff, M Joshi, **R Frayne**, AM Demchuk for the PREDICT/Sunnybrook CTA ICH Study Investigators. Quantomo: validation of a computer-assisted method used in the PREDICT trial for volumetric analysis of hematoma in intracerebral and intraventricular hemorrhage. *Cerebrovasc Dis* 2009; **27(suppl 6)**: 182.
269. RK Kosior, R Sharkey, **R Frayne**, P Federico. Single-subject voxel-based T2 relaxometry in focal epilepsy of uncertain origin. *Proceedings of the Canadian Neurological Sciences Federation* 2009; 50.
270. AL Aulanier, LB Andersen, KD Rinker, R Shepherd, **R Frayne**. A sophisticated flow system to investigate early atherosclerosis using molecular contrast agent. Book of Abstracts World Molecular Imaging Conference 2009, 350.
271. RB Stafford, M Sabati, H Mahallati, **R Frayne**. Towards continuously moving table NCE peripheral MRA. *Proc XXI International Workshop on Magnetic Resonance Angiography* 2009.
272. ML Lauzon, H Mahallti, LB Andersen, **R Frayne**. Non-contrast-enhanced MR identification of DVT. *Proc XXI International Workshop on Magnetic Resonance Angiography* 2009.
273. C Curtis, **R Frayne**, E Fear. Automatic detection of skin outline and anatomical landmarks on breast MR images. *Proc Alberta Biomedical Engineering Meeting*, 2009, P23.
274. R Brown, K Schnackenburg, H Macdonald, D Hanley, **R Frayne**, S Boyd. Texture analysis for fracture prediction in osteoporosis based on HR-pQCT and the fast S-Transform. J Bone Miner Res

24 (Suppl 1). Available at http://www.asbmr.org/Meetings/AnnualMeeting/AbstractDetail.aspx?aid=f0d61ae0-2d7f-4f73-9086-aad7350d8b62

275. AD Harris, LB Andersen, HS Chen, P Sharma, **R Frayne**. Fractional anisotropy changes following blood brain barrier disruption. *Proc ISMRM* 2010, 1705.
276. RJ Sharkey, RK Kosior, P Federico, **R Frayne**. Assessing the effect of age on voxel-based relaxometry of epileptic patients. *Proc ISMRM* 2010, 1997.
277. AD Harris, LB Andersen, RK Kosior, HS Chen, M Salluzzi, RB Stafford, BG Goodyear, **R Frayne**. Evolution of fractional anisotropy in hyperacute ischemic stroke. *Proc ISMRM* 2010, 2118.
278. MM Hirji, CR McCreary, AD Harris, RK Kosior, **R Frayne**. Early FA change in acute ischemic stroke. *Proc ISMRM* 2010, 2221.
279. ME MacDonald, RB Stafford, ML Lauzon, **R Frayne**. Gradient warp and UnderSampled Transform Operation (GUSTO). *Proc ISMRM* 2010, 3109.
280. RB Stafford, ME MacDonald, **R Frayne**. Real-time gradient war correction with OpenGL NURBS surfaces. *Proc ISMRM* 2010, 3110.
281. MR Smith, M Salluzzi, J Qiao, **R Frayne**. Reducing tissue-specific errors when estimating cerebral blood flow using DSC MRI. *Proc ISMRM* 2010, 4119.
282. J Yerly, ML Lauzon, **R Frayne**. Feasibility Study of Combining CS with SENSE for Catheter Visualization in MR Endovascular Intervention. *Proc ISMRM* 2010, 4891.
283. J Yerly, ML Lauzon, RJ Sevick, **R Frayne**. Accelerating 3D TOF with compressed sensing *Proc XXII International Workshop on Magnetic Resonance Angiography* 2010, 75.
284. **R Frayne**. The Canadian Atherosclerosis Imaging Network – A Framework for pan-Canadian, multi-modality vascular imaging studies. *Proc XXII International Workshop on Magnetic Resonance Angiography* 2010, 38.
285. NE Swailes, ME MacDonald, **R Frayne**. Closed-Loop Circulation Phantom with Heart and Lung Motion for Validating Passive Catheter Tracking. *Proc Alberta Biomedical Engineering Meeting*, 2010, 25.
286. ME MacDonald, NE Swailes, RB Stafford, LB Anderson, CR McCreary, **R Frayne**. Catheter Tracking using Passive Magnetic Resonance Imaging into the Ascending Aorta. *Proc Alberta Biomedical Engineering Meeting*, 2010, 45.
287. P Gauderon, M Salluzi, CR McCreary, MR Smith, **R Frayne**. Investigating contrast agent concentration in DCE-MR using a SPGR pulse sequence. *Proc Alberta Biomedical Engineering Meeting*, 2010, 55.
288. CF Curtis, **R Frayne**, EC Fear. Estimation of three-dimensional breast features from two-view mammograms. *Proc Alberta Biomedical Engineering Meeting*, 2010, 60.
289. WE Misik, AM Demchuk, **R Frayne**, B Menon. Modeling the Ischemic Penumbra in Acute Stroke: a Novel "Balloon" Volume Approach. *Proc Alberta Biomedical Engineering Meeting*, 2010, 64.
290. D Dowlatshai, J Kosior, S Irdis, M Essa, P Dickhoff, M Joshi, S Subramanian, S Tymchuk, MD Hill, R Aviv, **R Frayne**, AM Demchuk for the PREDCIT Sunnybrook Study. Validation of a computerized planimetric tool for quantifying intraventricular hemorrhage volumes. *Stroke* 2011; **42**: E304-5.
291. J Yerly, ML Lauzon, **R Frayne**. Visualizing small intra-cranial arteries using TOF with compressed sensing. *Proc ISMRM* 2011, 362.
292. RB Stafford, ML Lauzon, M Sabati, LB Andersen, H Mahallati, **R Frayne**. Diagnostic quality assessment of the bSSFP Dixon method for NCE MRA. *Proc ISMRM* 2011, 1279.
293. ME MacDonald, MR Smith, **R Frayne**. Improving CBF Image Contrast with Frequency Extrapolation for DSC-MRI during Acute Stroke. *Proc ISMRM* 2011, 1976.
294. WE Missik, **R Frayne**, B Menon. A New Model For Characterizing the Temporal Progression of the Ischemic Penumbra in Acute Ischemic Stroke. *Proc ISMRM* 2011, 2084.

295. ME MacDonald, ML Lauzon, J Nielsen, **R Frayne**. Determining the Cramer-Rao lower bound in magnetic resonance imaging. American Association of Medical Physicists/Canadian Organization of Medical Physicists Joint Meeting, 31 July -4 Aug 2011, Vancouver, BC.
296. P Gauderon, ML Lauzon, M Salluzzi, MR Smith, **R Frayne**. Whole-brain DCE quantitative perfusion imaging, American Association of Medical Physicists/Canadian Organization of Medical Physicists Joint Meeting, 31 July -4 Aug 2011, Vancouver, BC.
297. AD Harris, MM Hirji, CR McCreary, **R Frayne**. Early diffusion tensor changes in ischemic white matter. Book of Abstracts - White Matter Study Group 2011 Workshop: Advanced White Matter Imaging, P17.
298. CR McCreary, KG Sanchez, G Kumarpillai, **R Frayne**, EE Smith. Severity of white matter hyperintensities evaluated using diffusion tensor imaging. Book of Abstracts - White Matter Study Group 2011 Workshop: Advanced White Matter Imaging, P28.
299. D Adair, ME MacDonald, **R Frayne**. A 3D real-time magnetic resonance imaging application to visualize contrast inflow. *Proc Alberta Biomedical Engineering Meeting*, 2011.
300. E Lee, J Yerly, **RFrayne**. The application of prime number-sampling in compressed sensing reconstruction. *Proc Alberta Biomedical Engineering Meeting*, 2011.
301. A-L Cheng, CR McCreary, ML Lauzon, **R Frayne**, M Goyal, EE Smith. Sensitivity and reliability of SWI compared to T2* GRE MRI for detection of microbleeds in cerebral amyloid angiopathy. *Stroke* 2012; **43**: A3208.
302. CR McCreary, E Donaldson, KG Sanchez, **R Frayne**, EE Smith. Severity of White Matter Hyperintensities Evaluated using Diffusion Tensor Imaging. *Proc ISMRM* 2012, 976.
303. ME MacDonald, D Adair, P Dolati, J Yerly, **R Frayne**. Real-time 3D MRI with random undersampling trajectories to visualize endovascular catheters and contrast inflow. *Proc ISMRM* 2012, 1026.
304. S Beladi, CR McCreary, EE Smith, ML Lauzon, ME MacDonald, **R Frayne**. Quantitative susceptibility mapping as an improved biomarker for cerebral microbleeeds in small vessel disease. *Proc ISMRM* 2012, 1027.
305. ME MacDonald, P Dolati, LB Anderson, CR McCreary, J Wong, **R Frayne**. Measurement of perfusion during transient carotid occlusion. *Proc ISMRM* 2012, 2274.
306. LY Li, CR McCreary, F Costello, **R Frayne**. Comparison of susceptibility-weighted imaging methods for detection of differences in deep grey matter in MS. *Proc ISMRM* 2012, 2325.
307. J Yerly, ML Lauzon, **R Frayne.** Reconstruction of TOF images from undersampled k-space data using SENSE, GRAPPA, CS, CS-SENSE, SPIRiT, and L1-SPIRiT. *Proc ISMRM* 2012, 3348.
308. P Gauderon, M Salluzzi, ML Lauzon, MR Smith, **R Frayne** High SNR DCE imaging for whole-brain perfusion assessment. *Proc ISMRM* 2012, 3530.
309. ML Lauzon, F Sayani, K Valentine, **R Frayne**, H Mahallati. Liver iron content quantification via single breath-hold MR imaging at 3.0 Tesla. *Proc ISMRM* 2012, 4038.
310. W Misik, AM Demchuk, **R Frayne**, B Menon. Assessing the Characteristics of Acute Ischemic Stroke Using Quantitative Cerebral Blood Flow Gradient Mapping. *Congress Program Canadian Association of Physics Congress* 2012, T-POS-58.
311. ME Boesen, J Yerly, ML Lauzon, RM Lebel, **R Frayne**. Dynamic Fast Spin Echo MR Imaging for Distensibility Measurement in Human Carotid Arteries. *Congress Program Canadian Association of Physics Congress* 2012, R1-1-5. (*Winner 1st Prize Medical and Biological Physics Division Student Oral Competition*).
312. AL. Doiron, SXY Jiang, RRM Steele, LB Andersen, RD Shepherd, SJ Childs, DT Cramb, **R Frayne**, KD Rinker. Experimental In Vitro and In Vivo Testing Systems for Evaluation of Novel Contrast Agent Nanoparticles. *Cardiovascular Pathology* 2013; **22**: e35.
313. RJ Sevick, J Yerly, ML Lauzon, **R Frayne**. Accelerating an MR Stroke Protocol with State-of-the-Art Acquisition and Reconstruction Techniques. *Proc XXIV International Workshop on Magnetic Resonance Angiography* 2012, 1.6.

314. J Yerly, RJ Sevick, ML Lauzon, **R Frayne**. Acquisition and Reconstruction Techniques to Accelerate Acute MR Cerebrovascular Imaging. *Proc XXIV International Workshop on Magnetic Resonance Angiography* 2012, P1.11.
315. ME Boesen, J Yerly, RM Lebel RM, ML Lauzon, **R Frayne**. Dynamic Fast Spin Echo Imaging for Time Resolved Carotid Assessment. *Proc XXIV International Workshop on Magnetic Resonance Angiography* 2012, 2.5.
316. ME MacDonald, P Dolati, A Mitha, JH Wong, T Leung, J Nielsen, **R Frayne**. Sensitivity of Phase Contrast Derived Wall Shear Stress Fields to Receiver Bandwidth in the Circle of Willis. *Proc XXIV International Workshop on Magnetic Resonance Angiography* 2012, 4.4.
317. RM Lebel, J Jones, M Law, KS Nayak, **R Frayne**, A Shankaranarayanan. Time resolved contrast enhanced angiography with parallel imaging and compressed sensing. *Proc XXIV International Workshop on Magnetic Resonance Angiography* 2012, 12.6.
318. A-L Cheng, CR McCreary, ML Lauzon, **R Frayne**; M Goyal, EE Smith, SWI Is More Reliable than T2* GRE MRI for Detection of Microbleeds in Cerebral Amyloid Angiopathy. *Stroke* 2012; **43**: e117.
319. J Yerly, ML Lauzo, RJ Sevick, **R Frayne**, Accelerating MR stroke protocol using SENSE, GRAPPA, CS, CS-SENSE, SPIRiT, and L1-SPIRiT. *Stroke* 2012; **43**: e126.
320. AL Doiron, RD Shepherd, KD Rinker, **R Frayne**, LB Andersen. In vitro and in vivo investigation of a magnetic resonance molecular imaging agent for detection of atherosclerotic plaques. *Stroke* 2012; **43**: e127.
321. ME Boesen, J Yerly, ML Lauzon, RM Lebel, **R Frayne**. Dynamic MRI to Reduce Motion Artifacts in Carotid Imaging. *Stroke* 2012; **43**: e127.
322. DG Gobbi, Q Lu, **R Frayne**, M Salluzzi. Cerebra-WML: A Rapid Workflow for Quantification of White Matter Hyperintensities. *Stroke* 2012; **43**: e128-9.
323. ME MacDonald, B Menon, P Dolati, M Goyal, **R Frayne**. Arterial Spin Labeling Applications of Ischemic Stroke. *Stroke* 2012; **43**: e130.
324. CR McCreary, E Donaldson, G Kumarpillai, MJ Poulin, **R Frayne**, EE Smith. Diffusion Tensor (DT) Characterization of Cerebral Amyloid Angiopathy (CAA). *Stroke* 2012; **43**: e130.
325. W Misik, CR McCreary, EE Smith, **R Frayne**. Evaluation of MR Image Normalization Methods for Cerebral Small Vessel Disease. *Stroke* 2012; **43**: e130.
326. EE Donaldson, CR McCreary, A Charlton, G Kumarpillai, N Shobha, MJ Poulin, BG Goodyear, **R Frayne,** EE Smith. The neuropsychological profile of patients with cerebral amyloid angiopathy. *Stroke* 2012; **43**: e143.
327. YL Li, **R Frayne**, CR McCreary. Quantitative comparison of susceptibility-weighted magnetic resonance imaging methods for detection of differences in deep grey matter in multiple sclerosis. *Proc Alberta Biomedical Engineering Meeting*, 2012, 48.
328. A Pulwicki, WE Misik, **R Frayne**, Evaluation of MR image normalization methods for cerebral small vessel disease. *Proc Alberta Biomedical Engineering Meeting*, 2012, 92.
329. E Lee, ME MacDonald, **R Frayne**. Optimal repetition time ranges for dynamic contrast enhanced T1-weighted magnetic resonance imaging. *Proc Alberta Biomedical Engineering Meeting*, 2012, 60.
330. D Adair, DG Gobbi, **R Frayne**. M Salluzzi. An image processing application for use in clinical trials for atherosclerosis disease. *Proc Alberta Biomedical Engineering Meeting*, 2012, 87.
331. AL Doiron, RD Shepherd, KD Rinker, **R Frayne**, LB Andersen. *In Vitro* and *In Vivo* Uptake of an MR Molecular Imaging Agent for Detection of Inflammatory Cells. Biomedical Engineering Society 2012 Annual Meeting, 24-27 Oct 2012, Atlanta, Georgia, USA.
332. S Peca, CR McCreary, E Donaldson, K Garcias, A Charlton, N Pillay, MJ Poulin, **R Frayne**, BG Goodyear, EE. Smith Neurovascular Coupling is Impaired in Cerebral Amyloid Angiopathy. *Stroke* 2013; **44**: ATP441.
333. J Yerly, ML Lauzon, **R Frayne**, RM Lebel. The 30-second Time-of-Flight Exam: Improving Image Quality with Modern Acceleration Methods *Proc ISMRM* 2013, 192.

334. ME MacDonald, RM Lebel, **R Frayne**. Passive Magnetic Resonance Catheter Tracking with Spatial Wavelet and Temporal Constraints. *Proc ISMRM* 2013, 1834.
335. LY Li, R Frayne, F Costello, **R Frayne**. Quantitative Comparison of Susceptibility-weighted Magnetic Resonance Imaging Methods for Detection of Differences in Deep Grey Matter in Multiple Sclerosis. *Proc ISMRM* 2013, 2351.
336. J Yerly, ME Boesen, ML Lauzon, **R Frayne**. Investigating Spatiotemporal Sparse SENSE Reconstruction to Preserve Geometric and Temporal Fidelity. *Proc ISMRM* 2013, 3807.
337. ME Boesen, J Yerly, ML Lauzon, RM Lebel, **R Frayne** Dynamic Fast Spin Echo Imaging of the Carotid Arteries. *Proc ISMRM* 2013, 4534.
338. ML Bernbaum, B Menon, EE Smith, M Goyal, **R Frayne**, SB Coutts. Predicting longitudinal white matter hyperintensity development in patients with TIA and minor stroke. *Cerevrovascular Diseases* 2013: **35:** 238 (suppl 3).
339. S Mishra, R Kosior, V Nambiar, S Bal, **R Frayne**, ML Lauzon, U Tuor, PA Barber. Quantitiated T1 and T2 MRI in acute stroke: A step towards a "tissue window" therapeutic paradigm. *Cerebrovascular Diseases* 2013: **35:** 409 (suppl 3).
340. A Eilaghi, ME MacDonald, CR McCreary, ML Lauzon, EE Smith, DG Gobbi, M Salluzzi, **R Frayne**. Characterization of Cerebral Microbleeds using MR Quantitative Susceptibility Mapping: Role in Imaging Clinical Trials of Dementia and Small Vessel Disease. Book of Abstracts - Molecular Function and Imaging (MFI) Symposium, 2013, 21.
341. ME MacDonald, P Dolati, A Mitha JH Wong, **R Frayne**. Phase contrast magnetic resonance imaging in cerebrovascular malformations: Towards pressure estimation. *Proc XXV International Workshop on Magnetic Resonance Angiography* 2013, 45.
342. J Yerly, ML Lauzon, RM Lebel, RJ Sevick, **R Frayne**. Accelerating time-of-flight: A patient study. *Proc XXV International Workshop on Magnetic Resonance Angiography* 2013, 110.
343. ME Boesen, J Yerly, RM Lebel, **R Frayne**. Black blood and bright blood time-resolved carotid area measurements. *Proc XXV International Workshop on Magnetic Resonance Angiography* 2013, 111.
344. E Lee, ME MacDonald, **R Frayne**. Improving dynamic contrast enhanced (DCE) MR perfusion measurements by appropriate selection of image acquisition parameters. *Proc XXV International Workshop on Magnetic Resonance Angiography* 2013, 154.
345. F Costello, J Modi, M Goyal, J Scott, D Lautner, D Bhayana, J Trufyn, **R Frayne**, J Davenport, J Mah, Hill, M. Determining the relationship between chronic cerebrospinal venous insufficiency (CCSVI) and multiple sclerosis (MS). *Multiple Scleorsis Journal* 2013; **19**: S301-302.
346. T-Y Lee, B Menon, M Goyal, A Demchuk, M Essa, **R Frayne**. Quantitative CBF measurement with CT perfusion: Is it correct to correct the partial volume averaged arterial input curve with venous output curve? *Stroke* 2013; 44: e176.
347. E Lee, ME MacDonald, **R Frayne**. Enhanced dynamic contrast enhanced (DCE) MR for brain perfusion imaging. *Stroke* 2013; 44: e186.
348. ME Boesen, J Yerly, RM Lebel, **R Frayne**. Carotid artery distensibility evaluation with dynamic MR imaging. *Stroke* 2013; 44: e184.
349. J Yerly, ML Lauzon, RM Lebel, RJ Sevick, PA Barber, **R Frayne**. New approaches to fast stroke imaging with magnetic resonance. *Stroke* 2013; 44: e174.
350. S Batool, M O'Donnell, K Teo, Gilles Dagenais, Paul Poirier, Scott Lear, A Wielgosz, M Sharma, G Stotts, CR McCreary, **R Frayne**, S Rangarajan, S Islam, S Yusuf, EE Smith. Incidental small acute brain infarcts are rare in neurologically asymptomatic community-dwelling older adults. *Stroke* 2013; 44: e182.
351. C Sarsons, A Doiron, RD Shepherd, **R Frayne**, L Andersen, KD Rinker. Optimizing the delivery of gadolinium-loaded, targeted nanoparticles: The effect of steric hindrance on folate receptor-mediated cellular uptake in vitro. *Proc Alberta Biomedical Engineering Meeting*, 2013, 27.
352. X Wang, I Gaxolia, **R Frayne**, **P Federico**. Voxel-based relaxometry of focal epilepsy. *Proc Alberta Biomedical Engineering Meeting*, 2013, 43.

353. ME Boesen, J Yerly, RM Lebel, **R Frayne**. Dynamic MR imaging of the carotid arteries. *Proc Alberta Biomedical Engineering Meeting*, 2013, 52.
354. M Krongold, A Eilaghi, M Almekhalfi, A Demchuk, **R Frayne**. Cerebral infarct volume change over time in ischemic stroke. *Proc Alberta Biomedical Engineering Meeting*, 2013, 56.
355. R Wang, CR McCreary, **R Frayne**. Building a quantitative MR database of the healthy population. *Proc Alberta Biomedical Engineering Meeting*, 2013, 95.
356. AR Switzer, CR McCreary, **R Frayne**, BG Goodyear, EE Smith. Longitudinal change in fMRI blood oxygen level dependent signal in cerebral amyloid angiopathy. *Stroke* 2014; **45**: AWP368.
357. A Eilaghi, S Batool, DA McLean, CR McCreary, ML Lauzon, EE Smith, DG Gobbi, M Salluzzi, **R Frayne**. Characterizing magnetic susceptibility changes of human brain in normal aging using quantititiative susceptibility mapping. Proceedings of Imaging Network Ontario 12th Imaging Symposium, 2014, 19.
358. Q Lu, DG Gobbi, **R Frayne** M Salluzzi. Cerebra-WML: A stand-alone application for quantification of white matter lesion. Proceedings of Imaging Network Ontario 12th Imaging Symposium, 2014, 21.
359. Medical imaging trials network of Canada (MITNEC) – Project C6 – Amyoid and glucose PET imaging in Alzhiemer's and vascular cognitive impairment patients with significant white matter disease. SE Black, A Ganda, CJM Scott, G Wang, EE Smith, **R Frayne**, FS Prato, SC Strother, DJ Sahlas, G-Y R Hsiung, CE Caldwell, J-C Tardif. Proceedings of Imaging Network Ontario 12th Imaging Symposium, 2014, 55.
360. ME Boesen, A Pulwicki, LA Souto Maior, J Yerly, RM Lebel, **R Frayne**. Dynamic carotid MR imaging for distensibility assessment. Proceedings of Imaging Network Ontario 12th Imaging Symposium, 2014, 56.
361. EL Bishop, G Kuntze, **R Frayne**, C Frank, JL Ronsky. Relationships between passive knee laxity and finite helical axis measures in healthy individuals. Program Book: Orthopeadic Research Society 2014, 1670.
362. EL Bishop, G Kuntze, **R Frayne**, C Frank, JL Ronsky. Quantifying differences in passive knee laxity and finite helical axis measures between healthy and anterior cruciate ligament deficient individuals. *Osteoarthritis and Cartilage* 2014; **22 Suppl:** S120-S120.
363. RK Kosior, A Trivedi, A Mahajan, ML Lauzon, **R Frayne**, PA Barber. Quantitative T2 imaging is an important addition to diffusion MRI in acute ischaemic stroke. Book of Abstacts European Stroke Conference, 2014; 82.
364. ML Lauzon **R Frayne**. Characterizing the inherent and noise-induced errors in actual flip angle imaging. *Proc ISMRM* 2014; 1462.
365. ME MacDonald, ML Lauzon **R Frayne**. Imaging battery for brain quantification. *Proc ISMRM* 2014; 1513.
366. ME MacDonald, P Dolati, JH Wong, **R Frayne**. Blood volume flow rates of cerebral vessels in healthy human cerebral vasculature. *Proc ISMRM* 2014; 1829.
367. M Krongold, M Almekhlafi, A Demchuk, **R Frayne**, A Eilaghi. Predicting final infarct volume at one week post ischemic stroke: Recanalization and baseline infarct volume are important parameters for early infarct estimation. *Proc ISMRM* 2014; 2042.
368. ME Boesen, A Pulwicki, LA Souto Maior, J Yerly, RM Lebel, **R Frayne**. Inter-rater and intra-rater reliability of cinefse carotid measurements. *Proc ISMRM* 2014; 3922.
369. ME MacDonald, E Lee, TY Lee, J Woehr, C d'Esterre, MR Smith, **R Frayne**, Dual compartmental fitting of dynamic susceptibility contrast MRI in early ischemic stroke. *Proc ISMRM* 2014; 4601.
370. ME Boesen, J Yerly, RM Lebel, **R Frayne**. Pulsatile motion suppression using cine fast spin echo and non-linear image reconstruction. *Proc ISMRM* 2014; 4348.
371. RK Kosior, A Trivedi, A Mahajan, ML Lauzon, **R Frayne** PA Barber. Quantitative T2 imaging is an important complement to diffusion MRI for acute ischemic stroke. *Canadian Journal of Neurological Sciences* 2014; **41 Suppl 1**: 7.

372. C D'Esterre, E Qazi, P Shivanand, T-Y Lee, M Almekhlafi, **R Frayne**, AM Demchuk, M Goyal, BK Menon. CT perfusion thresholds to separate acute infarct core from penumbra using optimized imaging and advanced post-processing: an acute ischemic stroke study. Program Book Molecular and Functional Imaging Symposium, 2014, 17.
373. A Eilaghi, DA McLean, DG Gobbi, ME MacDonald, ML Lauzon, M Salluzzi, **R Frayne**. Quantitative susceptibility mapping in human brain with normal aging. Program Book Molecular and Functional Imaging Symposium, 2014, 24.
374. C d'Esterre, R Frayne. Predicting forward flow through large cerebrovascular clots: an under-recognized but crucial predictor of early recanalization with IV tPA. Book of Abstract 11th International Symposium on Resistance Arteries. 2014; 28.
375. ME Boesen, J Yerly, RM Lebel, **R Frayne**. Free breathing cine fast spin echo of the thoracic aorta. Book of Poster Abstracts XXVI International Workshop on Magnetic Resonance Angiography, 2014, 11.
376. ME MacDonald, **R Frayne**. Comparing blood flow between brain hemispheres. Book of Abstracts XXVI International Workshop on Magnetic Resonance Angiography, 2014, 59.
377. N Case, A Charlton, E Donaldson, A Zwiers, A Peterson, **R Frayne**, B Goodyear, A Haffenden, EE Smith. Cognitive impairment in cerebral amyloid angiopathy. Procedings of the 4th International CAA Conference, 23.
378. RB Stafford, S Peters, S Ly, S Batool, CR McCreary, BG Goodyear, **R Frayne**, EE Smith. Occipital resting CBF is unaltered in CAA compared to healthy controls. Procedings of the 4th International CAA Conference, 54
379. A Eilaghi, S Batool, DA McLean, CR McCreary, ML Lauzon, EE Smith, DG Gobbi, M Salluzzi, **R Frayne**. Characterization of cerebral microbleeds using MR quantitative susceptibility mapping. Procedings of the 4th International CAA Conference, 60.
380. S Batool, Q Lu, CR McCreary, DG Gobbi, M Salluzzi, **R Frayne**, EE Smith. Cerebra-CMB: An application for detection and quantification of cerebral microbleeds in cerebral amyloid angiopathy. Procedings of the 4th International CAA Conference, 72.
381. A Eilaghi, DA McLean, DG Gobbi, ME MacDonald, ML Lauzon, M Salluzzi, **R Frayne**. Quantitative susceptibility mapping in human brain with normal aging. Book of Abstracts 3rd International Workshop on MRI Phase Contrast & Quantitative Susceptibility Mapping, 2014, 52.
382. CD Sarsons, A Doiron, HI Labouta, RD Shepherd, L Andersen, **R Frayne**, KD Rinker. Optimizing the delivery of gadolinium-loaded, targeted nanoparticles: the effect of steric hindrance on folate receptor-mediated cellular uptake in vitro. *Canadian Journal of Cardiology* 2014; **30**: S217.
383. S Batool, S Patil, MD Noseworthy, M O'Donnell, M Sharma, S Islam, K Teo, S Black, ML Lauzon, CR McCreary, **R Frayne**, J DeJesus, S Rangarajan, S Yusuf, EE Smith. Sensitivity and reliability of MRI SWI compared with GRE sequences for detecting microbleeds in a community population. *Stroke*. 2015; **46**: AWMP119.
384. I Cheema, A Switzer, CR McCreary, R Frayne, BG Goodyear, EE Smith. Functional MRI-measured vascular reactivity is preserved in CADASIL, but not cerebral amyloid angiopathy. *Stroke.* 2015; **46**: ATP407.
385. C d'Esterre, E Qazi, S Patil, E Fainardi, A Ospedaliero, M Rubiera, V d'Hebron, A Khaw, T-Y Lee, M Almekhlafi, **R Frayne**, AM Demchuk, M Goyal, B Menon. Separating acute infarct core from penumbra using optimized imaging and standardized post-processing in the setting of ischemic stroke: a CT perfusion study. *Stroke.* 2015; **46**: ATP33.
386. A Trivedi, R Kosior, A Mahajan, C d'Esterre, L Lauzon, **R Frayne**, PA Barber. Combining conventional MRI-DWI with advanced quantitative T2 imaging for characterizing extent of infarction in ischemic stroke: the heterogeneity of the evolving ischemic lesion *Stroke.* 2015 **46**: ATP41.
387. GB Sharma, G Kuntze, JE Beveridge, C Bhatla, **R Frayne**, JL Ronsky. Subject-Specific 3D T2 relaxation mapping of the tibiofemoral cartilage contact regions during walking: a dual fluoroscopy

and magnetic resonance imaging approach. Othopeadic Research Society Annual Meeting, 28-31 March 2015, Las Vegas, Nevada, USA. 0355.

388. D Adair, DG Gobbi, **R Frayne**, YP Starreveld. Integrated image guidance for endoscopic sinus and skull-base surgery. Proceedings of Imaging Network Ontario 12th Imaging Symposium, 2015, 18.
389. C d'Esterre, BK Menon, EM Qazi, M Almekhlafi, AM Demchuk, **R Frayne**, M Goyal. Precise and rapid assessment of collaterals using multi- phase cta in the triage of patients with acute ischemic stroke for intra-arterial therapy (PROVE-IT). Proceedings of Imaging Network Ontario 12th Imaging Symposium, 2015, 22.
390. A Eilaghi, A Rahmani, DA McLean, CR McCreary, D Gobbi, ML Lauzon, M Salluzzi, **R Frayne**. Reproducibility of quantitative susceptibility mapping in healthy brains. Proceedings of Imaging Network Ontario 12th Imaging Symposium, 2015, 24.
391. M Leite (Bento), L Rittner, D Gobbi, M Salluzi, **R Frayne**, R Lotufo. Influence of MR image intensity normalization on texture-based classification of brain white matter. *Journal of Epilepsy and Clinical Neurophysiology* 2015; **21**: 70.
392. RB Stafford, CR McCreary, A Charlton, A Zwiers, XR Wang, I Cheema, S Batool, Z Ismail, BG Goodyear, **R Frayne**, EE Smith. Cerebral amyloid angiopathy patients exhibit cortical gray matter atrophy but not hypoperfusion. *Proc ISMRM* 2015; 3589
393. A Eilaghi, DA McLean, CR McCreary, D Gobbi, ML Lauzon, M Salluzzi, EE Smith, **R Frayne**. Brain magnetic susceptibility is increased with cognitive impairment in a community population. *Proc ISMRM* 2015; 399.
394. RJ Williams, B Goodyear, S Peca, CR McCreary, **R Frayne**, EE Smith, GB Pike. Identification of neurovascular changes in cerebral amyloid angiopathy by modeling subject-specific hemodynamic response functions. *Proc ISMRM* 2015; 2177
395. CR McCreary, ML Lauzon, S Batool, EE Smith, **R Frayne**. Evaluation of two susceptibility-weighted sequences for detection of cerebral microbleeds. *Proc ISMRM* 2015; 2219
396. RM Lebel, A Shankaranarayanan, EE Smith, C McCreary, **R Frayne**, W Dai, D Alsop. The many advantages of arterial spin labeling with long label duration. *Proc ISMRM* 2015; 2333
397. RM Lebel, Y Guo, Y Zhu, SG Langal, **R Frayne**, LB Andersen, J Easaw, KS Nayak. The comprehensive contrast-enhanced neurovascular exam. *Proc ISMRM* 2015; 3705
398. ME MacDonald, ND Forkert, GB Pike, **R Frayne**. The impact of phase errors on mapping the flow of the cerebral vasculature with phase contrast MRI. *Proceedings Organization of Human Brain Mapping* 2015; 2431
399. MA Munir, G Zamboni, L Griffanti, Y Zhang, S Tariq, E Smith, **R Frayne**, T Sajobi, S Coutts, P Barber. TIA and minor stroke patients experience higher brain atrophy rates than healthy controls. VASCOG 2015, Toyko, Japan.
400. MA Munir, G Zamboni, L Griffanti, Y Zhang, S Tariq, E Smith, **R Frayne**, T Sajobi, S Coutts, P Barber. Cognitive decline at 3 years in TIA and minor stroke patients. VASCOG 2015, Toyko, Japan.
401. CM O'Neill, CR McCreary, EE Smith**, R Frayne**. Diffuse grey matter susceptibility changes for detecting smaller microbleeds in cerebral amyloid angiopathy. *Proc Alberta Biomedical Engineering Meeting* 2015; 27.
402. R Souza, L Rittner, **R Frayne**, R Lotufo. Analysis of the watershed tie-zone influence on skull-stripping. *Proc Alberta Biomedical Engineering Meeting* 2015; 86.
403. A Tsang, C Lebel, S Bray, B Goodyear, R Sotero Diaz, CR McCreary, **R Frayne**. Changes in white matter structural connectivity and cortical functional connectivity over the healthy adult lifespan. *Proc 2016 Imaging Network of Ontario*, 58.
404. D Adair, **R Frayne**. Functional medical imaging software. *Proc 2016 Imaging Network of Ontario*, 103.
405. R Souza, L Rittner, **R Frayne**, R Lotufo. Max-tree\watershed combination for medical image segmentation. *Proc 2016 Imaging Network of Ontario*. 216.
406. A Tsang, C Lebel, S Bray, B Goodyear, R Sotero Diaz, CR McCreary, **R Frayne**. Changes in white matter structural connectivity and cortical functional connectivity over the healthy adult lifespan. *Proc ISMRM* 2016, 60. {*Magna cum Laude*]
407. ML Lauzon, CR McCreary, DA McLean, M Salluzzi, **R Frayne**. QSM at 3T: Comparison of acquisition methodologies. *Proc ISMRM* 2016, 1558.
408. A Tsang, C Lebel, S Bray, B Goodyear, R Sotero Diaz, CR McCreary, **R Frayne**. White matter connectivity and cortical functional connectivity changes over the adult lifespan. OHBM Annual

Meeting, 1810. [*Abstract on-line*]

409. S Shultz, S Mutimer, D Wright, M Clough, D Costello, A Tsang, S McDonald, J Fields, P Desmond, **R Frayne**, T O'Brien. Neurological outcomes in Australian-rules footballers with a history of sports-related concussion. *Brain Injury* **31**: 790-791.
410. A Cieslak, P Barber, S Black, J Chen, J Edwards, H Elbayoumi , **R Frayne**, T Field, V Hachinski, J Hagedus , V Hanganu, Z Ismail, J Kanji, M Nakajima, R Noor, S Peca, L Sposato, R Swartz, C Zerna, EE Smith. Systematic review of RCTs of interventions for vascular cognitive impairment. *Alzheimer's & Dementia* 2016; 12; P619.
411. RM Lebel, N Nallapareddy, S Lingala, LB Andersen, **R Frayne**, KS Nayak. Automatic bolus detection for dynamic contrast enhanced imaging with sparse sampling. *Proc SMRA* 2016; 76.
412. E Meikleham, ML Lauzon, **R Frayne**. Quantitative analysis of sparse MR techniques using spline-based phantoms. *Proc Alberta Biomedical Engineering Meeting* 2016; 21.
413. MER Jones, **R Frayne**, RM Lebel. Image quality impact of randomized sampling trajectories in MRI: Implications for compressed sensing. *Proc Alberta Biomedical Engineering Meeting* 2016; 35
414. CM O'Neill, CR McCreary, **R Frayne**. Variability of MR R2* and quantitative susceptibility mapping. *Proc Alberta Biomedical Engineering Meeting* 2016; 55.
415. S Tariq, A Tsang, J Ursenbach, N-R Dutta, LB Andersen, RS Longman, **R Frayne**, PA Barber. Diffusion tensor imaging of white matter tracts in transient ischemic attack patients. *Stroke* 2017; **48**: AWP442.
416. YF Ribeiro, **R Frayne**, A Tsang. Comparison of two tractography approaches in healthy adults. *J Epilepsy and Clinical Neurophysiology* 2017; **23**: 58.
417. RM Lebel, Y Guo, SG Lingala, **R Frayne**, KS Nayak. Highly accelerated DCE imaging with integrated T1 mapping. *Proc ISMRM* 2017; 138.
418. ME MacDonald, RJ Williams, ND Forkert, A Berman, CR McCreary, **R Frayne**, GB Pike. Consistency of intra-database cortical thinning with age. *Proc ISMRM* 2017; 188.
419. MER Jones, **R Frayne**, RM Lebel. Image quality impact of randomized sampling trajectories: implications for compressed sensing and a correction strategy. *Proc ISMRM* 2017; 1424.
420. ML Lauzon, N Balu, C Yuan, **R Frayne**. Comparison of two different implementations for the simultaneous non-contrast angiography and intraplaque hemorrhage (SNAP) sequences. *Proc ISMRM* 2017; 2789.
421. M Salluzzi, DA McLean, DG Gobbi, CR McCreary, ML Lauzon, **R Frayne**. Cerebra-QSM: An Application for Exploring Quantitative Susceptibility Mapping Algorithms. *Proc ISMRM* 2017; 3822.
422. M Salluzzi, N Blenkin, **R Frayne**. The adaptive learning processing of establishing a research imaging core lab. *Proc ISMRM* 2017; 4197.
423. CM O'Neill, CR McCreary, ML Lauzon, **R Frayne**. MR R2* and quantitative susceptibility mapping: Variability in normal subjects across the adult lifespan. *Proc ISMRM* 2017; 4261.
424. A Tsang, CR McCreary, L Andersen, BG Goodyear, **R Frayne**. Comparison of structural and functional connectivity between older adults with impaired and normal cognition. Organization for Human Brain Mapping Annual Meeting, https://ww5.aievolution.com/hbm1701/index.cfm?do=abs.pubSearchAbstracts, 1628.
425. M Bento, S Appenzeller, **R Frayne**, R Lotufo, L Rittner. White matter lesion segmentation using texture-based classification on MR imaging. Organization for Human Brain Mapping Annual Meeting, https://ww5.aievolution.com/hbm1701/index.cfm?do=abs.pubSearchAbstracts 3073.
426. CR McCreary, LB Andersen, EE Smith, **R Frayne**. Evaluation of mean diffusivity along skeletonized white matter tracks over the adult lifespan. Organization for Human Brain Mapping Annual Meeting, https://ww5.aievolution.com/hbm1701/index.cfm?do=abs.pubSearchAbstracts 3817.
427. A Beaudin, A Cieslak, C Zerna, P Barber, S Black, **R Frayne**, TS Field, V Hachinski, Z Ismail, D Sahlas, M Sharma, RH Swartz, EE. Smith. Outcomes in vascular dementia trial patients: A meta-analysis of placebo data from prior randomized controlled trials. *Alzheimer's & Dementia* 2017; **13**: a17601.
428. M Salluzzi, N Blenkin, R Frayne. Utility of an imaging core lab for conduct of research trials: Calgary image processing and analysis centre. *International Journal of Stroke* 2017; **12** (Suppl 4): 35.
429. M Bento, M Saluzzi, D Gobbi, R Frayne, L Rittner. Characterizing white matter hyperintensities for longitudinal atherosclerosis studies. *International Journal of Stroke* 2017; **12** (Suppl 4): 40.
430. DG Gobbi, Q Lu, R Frayne, M Salluzzi. The Cerebra software environment for quantitative lesion assessment. *International Journal of Stroke* 2017; **12** (Suppl 4): 42.

431. S Schmid, ML Lauzon, R Frayne. Cerebral spinal fluid suppression in small vessel MR angiography using IR-bSSFP. *International Journal of Stroke* 2017; **12** (Suppl 4): 44.
432. L Rodrigues, R Souza, M Boesen, L Rittner, R Frayne, R Lotufo. Semi-automatic common carotid lumen segmentation on dynamic MR images. *International Journal of Stroke* 2017; **12** (Suppl 4): 45.
433. S Schmid, ML Lauzon, **R Frayne**. IR-bSSFP for brain small artery MR angiography. *Proc SMRA* 2017; 129.
434. L Rodrigues, R Souza, M Boesen, L Rittner, **R Frayne**, R Lotufo. Common carotid artery lumen segmentation from cine fast spin echo MR images. *Proc SMRA* 2017; 139.
435. F Rezapoor, LB Andersen, RJ Sevick, RM Lebel, **R Frayne**. Differentiating between true cancer and pseudo progression in glioblastoma patients using dynamic contrast-enhanced (DCE) MR imaging. Canadian Cancer Research Conference. 5-7 Nov 2017, Vancouver, British Columbia, Canada.
436. J Park, F Rezapoor, LB Andersen, **R Frayne**, RM Lebel. Automatic bolus arrival time (BAT) detection for dynamic contrast-enhanced (DCE) imaging with under-sampling of k-space. *Proc Alberta Biomedical Engineering Meeting* 2017.
437. F Rezapoor, LB Andersen, RJ Sevick, RM Lebel, **R Frayne**. Dynamic contrast-enhanced (DCE) MR imaging: A promising approach to differentiate true cancer and pseudo progression in glioblastoma patients. *Proc Alberta Biomedical Engineering Meeting* 2017.
438. L Souto Maior, M Bento, M Salluzzi, **R Frayne**. Magnetic resonance image sequence classification using convolutional neural network. *Proc Alberta Biomedical Engineering Meeting* 2017.
439. H van den Brink, A Zwiers, A Charlton, AR Switzer, CR McCreary, BG Goodyear, **R Frayne**, GJ Biessels, EE Smith. Cortical microinfarcts on 3T MRI in cerebral amyloid angiopathy: Associations with MRI burden and cognitive dysfunction. *Stroke*. 2018; **49**: ATP417.
440. M Bento, Y Zhang, **R Frayne**. Brain abnormality characterization using convolutional and handcrafted features. ISMRM Machine Learning Workshop, 14-17 March 2018, Pacific Grove, California, USA.
441. LA Souto Maior Neto, H Charette, M Salluzzi, M Bento, **R Frayne**. Classifying brain MR sequences for quality control on medical imaging datasets: A hybrid CNN-SVM model. ISMRM Machine Learning Workshop, 14-17 March 2018, Pacific Grove, California, USA.
442. R Souza, **R Frayne**. Silver standards annotations combined with manual annotation to improve CNNs segmentation: A skull-stripping study case. ISMRM Machine Learning Workshop, 14-17 March 2018, Pacific Grove, California, USA.
443. AR Switzer, I Cheema, CR McCreary, S Batool, A Zwiers, A Charlton, C Zerna, RB Stafford, **R Frayne**, BG Goodyear, EE Smith. fMRI surrogate of cerebral vascular reactivity is impaired in cerebral amyloid angiopathy but not Alzheimer's disease. Neurology 2018; **151** (Supplement): P1.190.
444. R Souza, M Bento, L Rodrigues, L Rittner, R Lotufo, **R Frayne**. Towards a fully automated time-context sensitive convolutional neural network for common carotid artery lumen segmentation on dynamic MRI. *Proc ISMRM* 2018; 439.
445. O Lucena, R Souza, **R Frayne**, L Rittner, R Lotufo. 2D Single plane big data convolutional neural network for skull-stripping. *Proc ISMRM* 2018; 2731.
446. LA Souto Maior Neto, H Charette, M Salluzzi, M Bento, **R Frayne**. Automatic brain MR sequence classification for quality control using support vector machines and convolutional neural networks. *Proc ISMRM* 2018; 2860.
447. ME MacDonald, ND Forkert, Y Ma, RJ Williams, A Hanganu, H Sun, R Stafford, CR McCreary, R Frayne, GB Pike. Cerebrovascular brain aging examined with arterial spin labelling and applied to age prediction. *Proc ISMRM* 2018; 3262.
448. R Souza, O Lucena, L Rittner, R Lotufo, **R Frayne**. Can brain MRI skull-stripping methods be further improved using manual segmentation as ground-truth for validation? *Proc ISMRM* 2018; 3413.
449. M Bento, LA Souto Maior Neto, M Salluzzi, Y Zhang, **R Frayne**. Feature extraction using convolutional networks for identifying carotid artery atherosclerosis patients in a heterogeneous brain MR dataset. *Proc ISMRM* 2018; 3460.
450. M Bento, M Salluzzi, L Rittner, **R Frayne**. MR intensity normalization: Influence on supervised machine learning algorithms using textural and convolutional features. *Proc ISMRM* 2018; 3499.
451. CR McCreary, LB Andersen, M Salluzzi, D Gobbi, ML Lauzon, **R Frayne**. Calgary normative study: a prospective longitudinal study to characterize potential quantitative MR biomarkers of cognitive impairment in ageing. Book of Abstracts International Conference on Promoting Healthy Brain Aging and Preventing Dementia: Research and Translation 2018; 9.

452. LA Souto Maior Neto. M Bento, M Salluzi, **R Frayne**. Brain-based age prediction as a cognitive disease biomarker with deep learning: A longitudinal study. Book of Abstracts International Conference on Promoting Healthy Brain Aging and Preventing Dementia: Research and Translation, 2018; 15.
453. AE Beaudin, C McCreary, EL Mazerolle, **R Frayne**, B Goodyear, Z Ismail, B Pike, EE Smith. Cerebrovascular reactivity to carbon dioxide in patients with cerebral amyloid angiopathy: Preliminary data from the functional assessment of vascular reactivity to CO2 study (FAVRCO2). Book of Abstracts International Conference on Promoting Healthy Brain Aging and Preventing Dementia: Research and Translation 2018; 25.
454. A Subotic, A Beaudin, C McCreary, A Zwiers, A Charlton, A Alvarez-Veronesi; E Mazerolle, B Pike, Z Ismail, **R Frayne**, B Goodyear, E Smith. Assessment of cortical thickness and cerebrovascular reactivity in patients with cerebral amyloid angiopathy (CAA). Book of Abstracts International Conference on Promoting Healthy Brain Aging and Preventing Dementia: Research and Translation 2018; 27.
455. H van den Brink, A Zwiers, A Switzer, A Charlton, C McCreary, B Goodyear, **R Frayne**, GJ Biessels, E Smith. Cortical microinfarcts on 3T MRI in cerebral amyloid angiopathy: Relations with other MRI markers of CAA and cognition. Book of Abstracts International Conference on Promoting Healthy Brain Aging and Preventing Dementia: Research and Translation 2018; 28.
456. CR McCreary, AE Beaudin, A Zwiers, **R Frayne**, Eric E Smith. Longitudinal changes in mean diffusivity along skeletonized white matter tracks in cerebral amyloid angiopathy, mild cognitive impairment, Alzheimer's dis-ease, and healthy controls. Book of Abstracts International Conference on Promoting Healthy Brain Aging and Preventing Dementia: Research and Translation 2018; 30.
457. LA Souto Maior, M Bento, R Frayne. Adversarial variational autoencoder for visualizing and interpreting deep features of brain aging. ISMRM Machine Learning Workshop, 25-8 Oct 2018, Washington, DC, USA.
458. AM Danko, R Souza, R Frayne. Carotid artery lumen-wall segmentation using multi-contrast images. ISMRM Machine Learning Workshop, 25-8 Oct 2018, Washington, DC, USA. (accepted)
459. M Saluzzi, DG Gobbi, **R Frayne**, L Rittner, M Pinheiro Bento, R Medeiros de Souza. Mini-course: Advanced techniques for medical image processing. XXVI Congresso Brasileiro de Engenharia Biomédica (CBEB), 21-25 Oct 2018, Búzios, Rio de Janeiro, Brazil.
460. M Goubran, K Zukotynski, S Adamo, C Bocti, M Borrie, H Chertkow, **R Frayne**, F Gao, R Hsiung, A Kiss, R Laforce, M Noseworthy, M Ozzoude, F Prato, J Ramirez, J Sahlas, C Scott, E Smith, V Sossi, S Strother, R Swartz, J-C Tardif, A Thiel, J-P Soucy, SE Black. Relationship between amyloid uptake, white matter microstructure and cognitive performance in patients with significant white matter disease. VAS•COG 2018, 14-17 Nov 2018, Hong Kong.
461. AE Beaudin, C McCreary, EL Mazerolle, A Zwiers, A Charlton, **R Frayne**, Z Ismail, B Pike, EE Smith. Pilot Study of Cerebrovascular Reactivity to Carbon Dioxide in Patients with Cerebral Amyloid Angiopathy (CAA). VAS•COG 2018, 14-17 Nov 2018, Hong Kong.
462. H van den Brink, A Zwiers, AR Switzer, A Charlton, CR McCreary, BG Goodyear, **R Frayne**, GJ Biessels, EE Smith. Cortical microinfarcts on 3T MRI in cerebral amyloid angiopathy: progression over one year and relations with other MRI markers. VAS•COG 2018, 14-17 Nov 2018, Hong Kong.
463. M Bento, LAM Souto, CR McCreary, M Salluzzi, **R Frayne**. Machine learning analysis of white matter hyperintensity origin. VAS•COG 2018, 14-17 Nov 2018, Hong Kong.
464. S Kalra, C Beaulieau, H Briemberg, A Dionne, N Dupre, D Eurich, **R Frayne**, A Genge, S Graham, C Hanstock, A Ishaque, J Keith, L Korngut, D Mah, C Shoesmith, O Srivastava, B Steele, A Wilman, H Yang, Y Yunusova, L Zinman. The Canadian ALS neuroimaging consortium (CALSNIC). International Symposium on ALS/MND, 7-9 Dec 2018, Glasgow, UK.
465. K Zukotynski, V Gaudet, P Kuo, S Adamo, M Goubran, C Scott, C Bocti, M Borrie, H Chertkow, **R Frayne**, R Hsiung, R Laforce, MD Noseworthy, FS Prato, JD Sahlas, EE Smith, V Sossi, A Thiel, J-P Soucy, J-C Tardif, SE Black. Random forests of amyloid PET may pinpoint key brain regions predictive of MoCA score. *Book of Abstracts Human Amyloid Imaging*, 408.
466. K Zukotynski, V Gaudet, P Kuo, S Adamo, M Goubran, C Scott, C Bocti, M Borrie, H Chertkow, **R Frayne**, R Hsiung, R Laforce, MD Noseworthy, FS Prato, JD Sahlas, EE Smith, V Sossi, A Thiel, J-P Soucy, J-C Tardif, SE Black. The use of random forests to stratify amyloid brain PET. American College of Nuclear Medicine Annual Meeting. 17-19 Jan 2019, Palm Springs, California, USA.
467. M Reid, C McDougall, N Forkert, **R Frayne**, S Coutts, R Gupta Sah, CD d'Esterre, P Barber: The

association between decreased cerebral blood flow in transient ischemic attack patients and cognition. *Stroke* 2019; **50 (Suppl_1)**: AWP567-AWP567.

468. A Danko, R Souza, R Frayne. Multi-contrast carotid lumen-wall segmentation using deep learning. *Proc ImNO* 2019*;* 27.
469. S Kalra, C Beaulieau, H Briemberg, A Dionne, N Dupre, D Eurich, **R Frayne**, A Genge, S Graham, C Hanstock, A Ishaque, J Keith, L Korngut, D Mah, C Shoesmith, O Srivastava, B Steele, A Wilman, H Yang, Y Yunusova, L Zinman. The Canadian ALS neuroimaging consortium (CALSNIC). American Academy of Neurology, 4-10 May 2019, Philadelphia, Pennsylvania, USA.
470. R Souza, **R Frayne**. W-net: A hybrid compressed sensing MR reconstruction model. *Proc ISMRM* 2019; 608.
471. X Wang, CR McCreary, M Salluzzi, **R Frayne**. Repeatability of T2 Relaxation Measurements over a Four-Year Period. *Proc ISMRM* 2019; 4453.
472. LA Souto Maior Neto, M Bento, DG Gobbi, **R Frayne**. Variational vs adversarial autoencoders for visualization and interpretation of deep learning features of brain aging. *Proc ISMRM* 2019; 4651.
473. A Danko, R Souza, **R Frayne**. Towards domain-invariant carotid artery lumen-wall segmentation using adversarial networks. *Proc ISMRM* 2019; 4738.
474. V Gaudet, K Zukotynski, P Kuo, S Adamo, M Goubran, C Scott, C Bocti, M Borrie, H Chertkow, **R Frayne**, R Hsiung, R Laforce, MD Noseworthy, FS Prato, JD Sahlas, EE Smith, V Sossi, A Thiel, J-P Soucy, J-C Tardif, SE Black. Evaluation of random forests with ternary decision trees for classification of amyloid brain PET. International Symposium on Multiple-Valued Logic. International Symposium on Multiple-Valued Logic, 21-23 May 2019, Fredericton, New Brunswick, Canada.
475. A Danko, R Souza, **R Frayne**. Deep learning for domain-invariant MR carotid artery wall segmentation. *Proc SMRA* 2019; 95.
476. K Zukotynski, V Gaudet, P Kuo, S Adamo, M Goubran, C Scott, C Bocti, M Borrie, H Chertkow, **R Frayne**, R Hsiung, R Laforce, MD Noseworthy, FS Prato, JD Sahlas, EE Smith, V Sossi, A Thiel, J-P Soucy, J-C Tardif, SE Black. Associations of amyloid deposition and FDG uptake in aging and cognitively impaired elders with and without moderate to severe periventricular white matter hyperintensities. HAI Book 2020; 284. https://hai.worldeventsforum.net/hai-book-2020/
477. K Zukotynski, V Gaudet, P Kuo, S Adamo, M Goubran, C Scott, C Bocti, M Borrie, H Chertkow, **R Frayne**, R Hsiung, R Laforce, MD Noseworthy, FS Prato, JD Sahlas, EE Smith, V Sossi, A Thiel, J-P Soucy, J-C Tardif, SE Black. The use of random forests to identify brain regions on amyloid and FDG PET associated with MoCA score. American College of Nuclear Medcine, Tampa, FL, 23-25 Jan 2020.
478. KTN Duarte, DG Gobbi, **R Frayne**, MAG de Carvalho. Graph-based representation of 3D brain volume for Alzheimer's disease analysis. Imaging Network of Ontario, 26-27 March 2020, Toronto, Ontario, Canada.
479. W Loos, R Souza, RM Lebel, **R Frayne**. Brain structure volume analysis after accelerated MR imaging. Imaging Network of Ontario, 26-27 March 2020, Toronto, Ontario, Canada.
480. WS Loos, LB Andersen, RJ Sevick, RM Lebel, **R Frayne**. Assessment of blood–brain barrier permeability and microvascular changes to differentiate pseudo and true progression in patients with glioblastoma. 7th BRAINN Congress, 30 March – 1 April 2020, Campinas, São Paulo, Brazil. (accepted, meeting postponed)
481. R Souza, WS Loos, **R Frayne**. Multi-channel magnetic resonance image reconstruction challenge. Medical Imaging with Deep Learning, 6 - 8 July 2020, Montréal, QC, Canada. Virtual Meeting.
482. KJ Chung, R Souza, **R Frayne**, T-Y Lee. Low-dose CT enhancement network with a perceptual loss function in the spatial frequency and image domains. Medical Imaging with Deep Learning, 6 - 8 July 2020, Montréal, QC, Canada. Virtual Meeting.
483. KJ Chung, R Souza, **R Frayne**, T-Y Lee. Comparison of loss functions in dual-domain convolutional neural networks for low-dose CT enhancement. American Association of Physicists in Medicine 12-16 July 2020, Virtual Meeting. (*Best in Physics - Imaging*)
484. WS Loos, R Souza, M Bento, RM Lebel, **R Frayne**. Quantitative and volumetric assessment of a deep cascade network for MR reconstruction under different acceleration factors. International Society of Magnetic Resonance in Medicine 28th Annual Scientific Meeting 8-14 Aug 2020, Virtual Meeting.
485. Y Bliesener, RM Lebel, J Acharya, **R Frayne**, KS Nayak. Pseudo test-retest evaluation of sparse dce-MRI of brain tumor. International Society of Magnetic Resonance in Medicine 28th Annual Scientific

Meeting 8-14 Aug 2020, Virtual Meeting.

486. R Souza, Y Beauferris, W Loos, M Bento, RM Lebel, **R Frayne**. Enhanced deep-learning-based magnetic resonance image reconstruction using subjects' previous scans. International Society of Magnetic Resonance in Medicine 28th Annual Scientific Meeting 8-14 Aug 2020, Virtual Meeting.
487. R Souza, ML Lauzon, M Salluzzi, L Rittner, **R Frayne**. Calgary-Campinas raw k-space dataset: a benchmark for brain magnetic resonance image reconstruction. International Society of Magnetic Resonance in Medicine 28th Annual Scientific Meeting 8-14 Aug 2020, Virtual Meeting.
488. AE Beaudin, CR McCreary, EL Mazerolle, M Gee, B Sharma, A Subotic, A Zwiers, E Cox, K Nelles, A Charlton, **R Frayne**, Z Ismail, C Beaulieu, GC Jickling, R Camicioli, B Pike, EE Smith. Spatial differences in cerebrovascular reactivity to carbon dioxide between patients with cerebral amyloid angiopathy (CAA) and healthy controls. 7th International Cerebral Amyloid Angiopathy Conference, 1-3 Oct 2020, Banff, Alberta, Canada, Virtual Meeting.
489. AE Beaudin, CR. McCreary, EL Mazerolle, B Sharma, A Subotic, A Zwiers, E Cox, A Charlton, **R Frayne**, Z Ismail, GB Pike, Eric E. Smith. Relationship between Cerebrovascular Reactivity to Carbon Dioxide and Cognitive Function in Cerebral Amyloid Angiopathy (CAA) 7th International Cerebral Amyloid Angiopathy Conference, 1-3 Oct 2020, Banff, Alberta, Canada, Virtual Meeting.
490. S Housh, AE Beaudin, CR McCreary, EL Mazerolle, B Sharma, A Subotic, A Zwiers, E Cox, A Charlton, **R Frayne**, Z Ismail, GB Pike, EE Smith. Cerebrovascular reactivity to carbon dioxide in patients with cerebral amyloid angiopathy and Alzheimer's disease. 7th International Cerebral Amyloid Angiopathy Conference, 1-3 Oct 2020, Banff, Alberta, Canada, Virtual Meeting.
491. J Ramirez, K Zukotynski F Gao, V Gaudet, PH Kuo, S Adamo, M Goubran, CJM Scott, C Bocti, M Borrie, H Chertkow, **R Frayne**, R Hsiung, R Laforce, MD Noseworthy, FS Prato, DJ Sahlas, EE Smith, V Sossi, A Thiel, J-P Soucy, J-C Tardif, SE Black. Cerebral microbleeds and MRI-visible perivascular spaces, lacunes, cognition, and amyloid PET status, in patients with significant white matter disease. 7th International Cerebral Amyloid Angiopathy Conference, 1-3 Oct 2020, Banff, Alberta, Canada, Virtual Meeting.
492. B Varatharajah, M Geed, CR McCreary, A Beaudin, A Zwiers, R Sekhon, A Charlton, Z Ismail, **R Frayne**, R Camicioli, EE Smith. Gait dysfunction in CAA and its association with markers of CAA severity. 7th International Cerebral Amyloid Angiopathy Conference, 1-3 Oct 2020, Banff, Alberta, Canada, Virtual Meeting.
493. W Loos, R Souza, L Andersen, RM Lebel, **R Frayne**. Automatic vascular input (output?) function estimation using deep learning and dynamic contrast-enhanced magnetic resonance imaging. International Society of Magnetic Resonance in Medicine 29th Annual Scientific Meeting 5-20 May 2021, Vancouver, BC, Canada. (accepted)
494. M Bento, J Park, **R Frayne**. Machine learning-based analysis of heterogeneous, multi-center MR datasets: Impact of scan variability. International Society of Magnetic Resonance in Medicine 29th Annual Scientific Meeting 5-20 May 2021, Vancouver, BC, Canada. (accepted)
495. N Naji, ML Lauzon, P Seres, E Stolz, **R Frayne**, C Lebel, C Beaulieu, AH Wilman. Reproducibility of R2* and quantitative susceptibility mapping in deep grey matter at 3T: Cross-vendor non-harmonized protocol study International Society of Magnetic Resonance in Medicine 29th Annual Scientific Meeting 5-20 May 2021, Vancouver, BC, Canada. (accepted)
496. Z Zhu, J Acharya, Y Bliesener, RM Lebel, **R Frayne**, K Nayak. High-resolution T1 Mapping of High-grade Glioma. International Society of Magnetic Resonance in Medicine 29th Annual Scientific Meeting 5-20 May 2021, Vancouver, BC, Canada. (accepted)

v. Unpublished communications

None.

vi. Patents

1a. Method for time-resolved three-dimensional magnetic resonance imaging. CA Mistretta, TM Grist, FR Korosec, **R Frayne**, JA Polzin. US patent 5,713,358.
1b. Method for time-resolved three-dimensional magnetic resonance imaging. CA Mistretta, TM Grist, FR Korosec, **R Frayne**, JA Polzin. Europe patent 0798566.

1c. Method for time-resolved three-dimensional magnetic resonance imaging. CA Mistretta, TM Grist, FR Korosec, **R Frayne**, JA Polzin. Japan patent 10005191.
2a. Gated time-resolved contrast-enhanced 3D MR angiography. CA Mistretta, FR Korosec, TM Grist, **R Frayne**. US patent 5,830,143.
2b. Gated time-resolved contrast-enhanced 3D MR angiography. CA Mistretta, FR Korosec, TM Grist, **R Frayne**. World patent 98032026.
2c. Gated time-resolved contrast-enhanced 3D MR angiography. CA Mistretta, FR Korosec, TM Grist, **R Frayne**. Europe patent 1010016, 3 Nov 1998.
2d. Gated time-resolved contrast-enhanced 3D MR angiography. CA Mistretta, FR Korosec, TM Grist, **R Frayne**. Japan patent 5,830,143, 3 Nov 1998.
3. 3D digital subtraction magnetic resonance angiography with limited k-space mask. CA Mistretta, FR Korosec, **R Frayne**, TM Grist. US Patent 5,873,825, 23 Feb 1999.
4a. Digital subtraction magnetic resonance angiography with image artifact suppression. CA Mistretta, TM Grist, **R Frayne**, FR Korosec. US Patent 5,881,728, 16 March 1999.
4b. Digital subtraction magnetic resonance angiography with image artifact suppression. CA Mistretta, TM Grist, **R Frayne**, FR Korosec. World patent 98004928.
4c. Digital subtraction magnetic resonance angiography with image artifact suppression. CA Mistretta, TM Grist, **R Frayne**, FR Korosec. Europe patent 0852731.
5. Digital subtraction magnetic resonance angiography using echo-planar imaging. CA Mistretta, FR Korosec, **R Frayne**, TM Grist, KK Vigen. US Patent 6,044,290, 28 April 2000.
6. MR signal-emitting coatings. **R Frayne**, CM Strother, O Unal, H Yu, Z Yang, A Wehelie. US Patent 6,361,759, 26 March 2002.
7. Real-time *in vivo* measurement of temperature changes with contrast-enhanced NMR imaging. Y Zhou, **R Frayne**. US Patent 6,377,834, 23 April 2002.
8a. MR signal-emitting coatings. R Frayne, CM Strother, O Unal, H Yu, Z Yang, A Wehelie. US Patent 6,896,873, 24 May 2005.
8b. MR signal-emitting coatings. **R Frayne**, CM Strother, O Unal, H Yu, Z Yang, A Wehelie, World patent 99060920.
8c. MR signal-emitting coatings. **R Frayne**, CM Strother, O Unal, H Yu, Z Yang, A Wehelie, Europe patent 1082143.
8d. MR signal-emitting coatings. **R Frayne**, CM Strother, O Unal, H Yu, Z Yang, A Wehelie, Canada patent 2329014.
9. M Sabati, H Peng, **R Frayne**. (Patent disclosure filed Aug 2007; Provisional patent filed April 2008, not converted).
10. Signal processing with fast S-transforms. RA Brown, ML Lauzon, **R Frayne**. US Patent 8,458,240, 4 June 2013.

vii. Proffered presentations

[Abstracts associated with many of these proffered presentations are listed in Section "iv. Published proceedings and abstracts", starting on page 74]

1. **R Frayne**, PJ Dunmore, MR Roach, BK Rutt. High resolution MR imaging of *in vitro* vascular specimens. Canadian Organization of Medical Physicists 36th Conference, 6-9 June 1990, Montreal, Quebec, Canada.
2. LM Gowman, DW Rickey, DW Holdsworth, M Drangova, **R Frayne**, CB Caldwell, A Fenster, BK Rutt. Multi-modality carotid artery bifurcation phantom for comparative studies of x-ray, ultrasound, and magnetic resonance flow imaging capabilities. Canadian Organization of Medical Physicist 36th Conference, 6-9 June 1990, Montreal, Quebec, Canada.
3. LM Gowman, DW Rickey, DW Holdsworth, M Drangova, **R Frayne**, CB Caldwell, A Fenster, BK Rutt. Multi-modality carotid artery bifurcation phantom for comparative studies of x-ray, ultrasound, and magnetic resonance flow imaging capabilities. Medical Physics Symposium, Robarts Research Institute, 13 June 1990, London, Ontario, Canada.

4. **R Frayne**, PJ Dunmore, MR Roach, BK Rutt. Magnetic resonance imaging of vascular specimens. Medical Physics Symposium, Robarts Research Institute, 13 June 1990, London, Ontario, Canada.
5. **R Frayne**, LM Gowman, DW Holdsworth, DW Rickey, M Drangova, DJM. Miller, A Fenster, BK Rutt. A novel flow simulator for MR flow experiments. Society of Magnetic Resonance in Medicine 9th Annual Scientific Meeting, 18-24 Aug 1990, New York, New York, USA.
6. LM Gowman, DW Rickey, DW Holdsworth, C.B. Caldwell, **R Frayne**, A Fenster, BK Rutt. Construction of a geometrically accurate phantom for *in vitro* MRI flow studies. Society of Magnetic Resonance in Medicine 9th Annual Scientific Meeting, 18-24 Aug 1990, New York, New York, USA.
7. DW Holdsworth, DW Rickey, M Drangova, **R Frayne**, DJM. Miller, A Fenster, A computer-controlled pump for Doppler flow calibration. American Institute of Ultrasound in Medicine 35th Annual Convention, 24-27 Feb 1991, Atlanta, Georgia, USA.
8. S Napel, **R Frayne**, BK Rutt. Computation and display of 3-D flow streamlines from 3-D phase contrast MRI. Society of Magnetic Resonance in Medicine 10th Annual Scientific Meeting, 11-16 Aug 1991, San Francisco, California, USA.
9. BK Rutt, DH Lee, AD Vellet, **R Frayne**, S Napel. Quantitative comparison of velocity measurements in the extracranial carotid arteries by 2D and 3D phase-contrast MRI versus colour-flow Doppler ultrasound. Society of Magnetic Resonance in Medicine 10th Annual Scientific Meeting, 11-16 Aug 1991, San Francisco, California, USA.
10. **R Frayne**, KC Chu, BK Rutt. Verification of magnetic resonance velocity measurements of steady flow through a carotid bifurcation phantom. Society of Magnetic Resonance in Medicine 10th Annual Scientific Meeting, 11-16 Aug 1991, San Francisco, California, USA.
11. **R Frayne**, S Napel, BK Rutt. Quantitative MR acceleration imaging. Society of Magnetic Resonance in Medicine 10th Annual Scientific Meeting, 11-16 Aug 1991, San Francisco, California, USA.
12. BK Rutt, S Napel, **R Frayne**, DH Lee. Evaluation of complex flow in the extracranial carotid arteries with phase-contrast MR imaging and simulated streamlines. 77th Annual Meeting of the Radiological Society of North America, 1-6 Dec 1991, Chicago, Illinois, USA.
13. BK Rutt, DH Lee, S Napel, **R Frayne**. Quantitative comparison of velocity measurements in the extracranial carotid arteries with two- and three-dimensional phase contrast MR imaging versus Doppler US, 77th Annual Meeting of the Radiological Society of North America, 1-6 Dec 1991, Chicago, Illinois, USA.
14. **R Frayne**, LM Gowman, DW Rickey, DW Holdsworth, PA Picot, M Drangova, KC Chu, A Fenster, BK Rutt. An *in vitro* multi-modality vascular phantom. 18th Annual Canadian Medical and Biological Engineering Society Conference, 8-12 June 1992, Toronto, Ontario, Canada.
15. **R Frayne**, BK Rutt. Frequency response of cine phase contrast. Society of Magnetic Resonance in Medicine 11th Annual Scientific Meeting, 8-14 Aug 1992, Berlin, Germany.
16. **R Frayne**, BK Rutt. Acceleration-induced errors in phase contrast velocity measurements. Society of Magnetic Resonance in Medicine 11th Annual Scientific Meeting, 8-14 Aug 1992, Berlin, Germany.
17. **R Frayne**, LM Gowman, DW Rickey, DW Holdsworth, PA Picot, M Drangova, KC Chu, A Fester, BK Rutt. A multi-modality phantom for the assessment of vascular imaging systems. American Association of Physicists in Medicine 34th Annual Meeting, 23-27 Aug 1992, Calgary, Alberta, Canada.
18. **R Frayne**, DW Holdsworth, BK Rutt. MR velocity measurements of pulsatile waveforms using cine phase-contrast. Radiology Society of North America 78th Annual Meeting, 28 Nov-4 Dec 1992, Chicago, Illinois, USA.
19. **R Frayne**, DW Holdsworth, BK Rutt. Accuracy of gated phase contrast magnetic resonance velocity measurements: *in vivo* comparison with Doppler ultrasound. Canadian Organization of Medical Physicists 39th Conference, 12-15 May 1993, Ottawa, Ontario, Canada.

20. **R Frayne**, BK Rutt. Fluid shear stress measurement using Fourier velocity encoded MRI. 12th Annual Meeting Society of Magnetic Resonance in Medicine, 13-20 Aug 1993, New York, New York, USA.
21. **R Frayne**, BK Rutt. Frequency response of interleaved prospectively gated phase contrast MRI. 12th Annual Meeting Society of Magnetic Resonance in Medicine, 13-20 Aug 1993, New York, New York, USA.
22. DW Holdsworth, ML Lauzon, **R Frayne**, BK Rutt. Effects of cardiac variability on cine phase-contrast MRI. 12th Annual Meeting Society of Magnetic Resonance in Medicine, 13-20 Aug 1993, New York, New York, USA.
23. DW Holdsworth, **R Frayne**, BK Rutt. Comparison of phase-contrast MRI and pulsed Doppler measurements of carotid volume-flow rate. 79th Scientific Assembly and Annual Meeting of the Radiological Society of North America, 28 Nov-3 Dec 1993, Chicago, Illinois, USA.
24. DW Holdsworth, **R Frayne**, BK Rutt. *In vitro* investigation of MR phase contrast and Doppler ultrasound volume flow rate measurements. 79th Scientific Assembly and Annual Meeting of the Radiological Society of North America, 28 Nov-3 Dec 1993, Chicago, Illinois, USA.
25. RF Smith, **R Frayne**, M Moreau, BK Rutt, A Fenster, DW Holdsworth. Stenosed anthropomorphic vascular phantoms for digital subtraction angiography, magnetic resonance and Doppler ultrasound investigations. Society of Photo-optical Engineers, Feb 1994, Newport Beach, California, USA.
26. DW Holdsworth, R Kasrai, RF Smith, **R Frayne**, BK Rutt. Pulsed Doppler spectral analysis in a stenosed carotid-bifurcation phantom. American Institute of Ultrasound in Medicine 38th Annual Convention, 20-23 March 1994, Baltimore, Maryland, USA.
27. DA Steinman, **R Frayne**, RF Smith, XD Zhang, BK Rutt, CR Ethier. Steady flow in a end-to-side anastomosis: numerical simulations vs. MR measurements. 2nd World Congress on Biomechanics, 10-15 July 1994, Amsterdam, The Netherlands.
28. **R Frayne**, BK Rutt. Shear rate estimation using magnetic resonance imaging. 2nd World Congress on Biomechanics, 10-15 July 1994, Amsterdam, The Netherlands.
29. **R Frayne**, DA Steinman, KC Chu, BK Rutt. Velocity measurement of steady flow in an *in vitro* carotid artery bifurcation phantom using phase contrast magnetic resonance imaging. 2nd World Congress on Biomechanics, 10-15 July 1994, Amsterdam, The Netherlands.
30. **R Frayne**, BK Rutt. Pulse sequences for fluid shear measurement using Fourier-encoded velocity imaging. 2nd Meeting Society of Magnetic Resonance, 6-12 Aug 1994, San Francisco, California, USA.
31. DA Steinman, **R Frayne**, X Zhang, RF Smith, CR Either, BK Rutt. A comparison of MR velocity measurements and numerical simulation of sinusoidal flow in a model end-to-side anastomosis. 2nd Meeting Society of Magnetic Resonance, 6-12 Aug 1994, San Francisco, California, USA.
32. DW Holdsworth, R Kasrai, RF Smith, **R Frayne**, BK Rutt. MRA signal loss near stenoses: *In vitro* measurements in a carotid bifurcation model. 2nd Meeting Society of Magnetic Resonance, 6-12 Aug 1994, San Francisco, California, USA.
33. DW Holdsworth, R Kasrai, RF Smith, **R Frayne**, BK Rutt. Turbulence distal to stenoses: *In vitro* measurements in a carotid bifurcation model. Canadian Organization of Medical Physicists 40th Conference, 16-18 Sep 1994, Toronto, Ontario, Canada.
34. **R Frayne**, JA Polzin, Y Mazaheri, KL Wedding, FR Korosec, DC Peters, TM Grist, CA Mistretta. Myocardial motion effects on measuring coronary volume flow estimates, Society of Magnetic Resonance Workshop on Quantitative Magnetic Resonance Flow Imaging, 2-4 June 1995, St. Louis, Missouri, USA.
35. DA Steinman, **R Frayne**, X Zhang, RF Smith, CR Ethier, BK Rutt. On the accuracy of MR phase contrast velocity measurements, Society of Magnetic Resonance Workshop on Quantitative Magnetic Resonance Flow Imaging, 2-4 June 1995, St. Louis, Missouri, USA.
36. JA Polzin, **R Frayne**, TM Grist, CA Mistretta. Frequency response of continuous multi-phase segmented phase-contrast. Society of Magnetic Resonance Workshop on Quantitative Magnetic Resonance Flow Imaging, 2-4 June 1995, St. Louis, Missouri, USA.

37. **R Frayne**, JA Polzin, Y Mazaheri, TM Grist, CA Mistretta. Effect of and correction for in-plane motion on coronary flow measurements, Society of Magnetic Resonance 3rd Annual Meeting, 19-25 Aug 1995, Nice, France.
38. JA Polzin, **R Frayne**, TM Grist, CA Mistretta. Phase contrast measurements with variable rate *k*-space sampling, Society of Magnetic Resonance 3rd Annual Meeting, 19-25 Aug 1995, Nice, France.
39. TM Grist, JA Polzin, JA Bianco, FR Korosec, TK Foo, MA Bernstein, KL Wedding, **R Frayne**, Y Mazaheri, CA Mistretta. Measurement of absolute coronary flow and flow reserve using Phase-Contrast MRI Techniques, Society of Magnetic Resonance 3rd Annual Meeting, 19-25 Aug 1995, Nice, France.
40. DW Holdsworth, CJD Norley, **R Frayne**, DA Steinman, BK Rutt. Variability in common carotid blood-flow waveforms. 81st Scientific Assembly and Annual Meeting of the Radiological Society of North America, 25 Nov-1 Dec 1995, Chicago, Illinois, USA.
41. **R Frayne**, AM Masaryk, CM Strother, CA Mistretta. Accurate wall shear rate measurements from MR phase contrast data. Society of Magnetic Resonance 4th Annual Meeting, 27 April-3 May 1996, New York, New York, USA.
42. CA Mistretta, TM Grist, **R Frayne**, FR Korosec, JA Polzin. Simulation of a breath-hold method for time resolved 3D contrast imaging. Society of Magnetic Resonance 4th Annual Meeting, 27 April-3 May 1996, New York, New York, USA.
43. DC Peters, **R Frayne**, FR Korosec, JA Polzin, TM Grist, CA Mistretta. Simulation of contrast enhanced single breath-hold multiphase 3D coronary artery imaging. Society of Magnetic Resonance 4th Annual Meeting, 27 April-3 May 1996, New York, New York, USA.
44. FR Korosec, TM Grist, **R Frayne**, JA Polzin, CA Mistretta. Time-resolved contrast-enhanced 3D MR angiography. Society of Magnetic Resonance 4th Annual Meeting, 27 April-3 May 1996, New York, New York, USA.
45. ER Niendorf, GE Santyr, **R Frayne**, TM Grist. Measurement of Gd-DPTA filtration in a dialysis filter system using an EPI Look-Locker Technique. Society of Magnetic Resonance 4th Annual Meeting, 27 April-3 May 1996, New York, New York, USA.
46. AM Masaryk, **R Frayne**, O Unal, CM Strother. MR measurement of wall shear rate within the cervical carotid artery. American Society of Neuroradiology Annual Meeting, 22-27 June 1996, Seattle, Washington, USA.
47. PA Turski, **R Frayne**. Noninvasive imaging and acute cerebral ischemia. Syllabus of "A multi disciplinary approach to the diagnosis and management of stoke" Symposium, American Club, 26 Oct 1996, Kohler, Wisconsin, USA.
48. FR Korosec, **R Frayne**, TM Grist, CA Mistretta, Time-resolved contrast-enhanced 3D MR angiography. Radiological Society of North America 82nd Annual Meeting, 1-6 Dec 1996, Chicago, Illinois, USA.
49. CA Mistretta, TM Grist, **R Frayne**, FR Korosec. Contrast and motion artifacts in 4D MRA. Radiological Society of North America 82nd Annual Meeting, 1-6 Dec 1996, Chicago, Illinois, USA.
50. DS Willig, **R Frayne**, FR Korosec, TM Grist, JS Swan, CA Mistretta, PA Turski. Rapid sequential (arterial, capillary and venous) MRA of carotid stenosis using a technique that is independent of inflow effects termed time resolved imaging of contrast kinetics). Radiological Society of North America 82nd Annual Meeting, 1-6 Dec 1996, Chicago, Illinois, USA.
51. **R Frayne**, FR Korosec, TM Grist, CA Mistretta. Time-resolved MR volume angiography using contrast. Radiological Society of North America 82nd Annual Meeting, 1-6 Dec 1996, Chicago, Illinois, USA.
52. Y Mazaheri, FR Korosec, **R Frayne**, TM Grist, CA Mistretta. Reduction of artifacts and reconstruction time in 3D MR DSA. International Society of Magnetic Resonance, 5th Annual Scientific Meeting, 12-18 April 1997, Vancouver, British Columbia, Canada.
53. DC Peters, FR Korosec, **R Frayne**, TM Grist, CA Mistretta. Cardiac-gated contrast-enhanced time-resolved 3D imaging of the pulmonary arteries. International Society of Magnetic Resonance, 5th Annual Scientific Meeting, 12-18 April 1997, Vancouver, British Columbia, Canada.

54. JS Swan, TM Grist, **R Frayne**, FR Korosec, CA Mistretta, DM Heisey, ME Hagenauer. Time-resolved MR angiography of the peripheral vasculature. International Society of Magnetic Resonance, 5th Annual Scientific Meeting, 12-18 April 1997, Vancouver, British Columbia, Canada.
55. **R Frayne**, FR Korosec, TM Grist, CA Mistretta. Improved data acquisition strategies for 3D MR DSA. International Society of Magnetic Resonance, 5th Annual Scientific Meeting, 12-18 April 1997, Vancouver, British Columbia, Canada.
56. DS Willig, PA Turski, **R Frayne**, FR Korosec and the University of Wisconsin MRA research Group. Neurovascular applications of 3D MR DSA (3D TRICKS). American Roentgen Ray Society Annual Meeting, 5-10 May 1997, Boston, Massachusetts, USA.
57. AM Masaryk, **R Frayne**, O Unal, AH Rappe, CM Strother. Utility of CTA and MRA for follow-up evaluation of experimental aneurysms treated with stents or Guglielmi detachable coils. American Society of Neuroradiology 35th Annual Meeting, 18-22 May 1997, Toronto, Ontario, Canada.
58. R Frayne, DS Willig, PA Turski, FR Korosec, TM Grist, CA Mistretta. 3D MR DSA: A new technique for imaging of the neurovasculature. American Society of Neuroradiology 35th Annual Meeting, 18-22 May 1997, Toronto, Ontario, Canada.
59. DS Willig, **R Frayne**, FR Korosec, VB Graves, T Grist, PA Turski. Forced choice ranking of 2D and 3D time of flight MRA versus contrast enhanced 3D MR DSA of the carotid bifurcation. American Society of Neuroradiology 35th Annual Meeting, 18-22 May 1997, Toronto, Ontario, Canada.
60. FR Korosec, **R Frayne**, TM Grist, CA Mistretta. Low spatial-frequency mask subtraction for breath hold contrast-enhanced MRA. Radiological Society of North America 83rd Annual Meeting, 1 -7 Dec 1997, Chicago, Illinois, USA.
61. KK Vigen, CA Mistretta, FR Korosec, **R Frayne**, TM Grist. Multi-echo technique for time-resolved contrast-enhanced 3D MR angiography. Radiological Society of North America 83rd Annual Meeting, 1 -7 Dec 1997, Chicago, Illinois, USA.
62. **R Frayne**, TM Grist, JS Swan, DC Peters, FR Korosec, CA Mistretta. Contrast agent injection protocols for 3D MR DSA: Effect of injection order, volume and rate. International Society of Magnetic Resonance in Medicine 6th Annual Meeting, 18-24 April 1998, Sydney, Australia.
63. TJ Carroll, KK Vigen, **R Frayne**. *In vitro* evaluation of dynamic contrast-enhanced MRA. International Society of Magnetic Resonance in Medicine 6th Annual Meeting, 18-24 April 1998, Sydney, Australia.
64. KK Vigen, FR Korosec, **R Frayne**, TM Grist, CA Mistretta. A multi-echo technique for time-resolved contrast-enhanced 3D MR angiography. International Society of Magnetic Resonance in Medicine 6th Annual Meeting, 18-24 April 1998, Sydney, Australia.
65. O Unal, FR Korosec, **R Frayne**, CM Strother, CA Mistretta. Rapid 2D time-resolved MR technique for passive catheter tracking. International Society of Magnetic Resonance in Medicine 6th Annual Meeting, 18-24 April 1998, Sydney, Australia.
66. SG McKinnon, PA Turski, **R Frayne**, TJ Carroll, FR Korosec, TM Grist, CA Mistretta. Cerebrovascular imaging with time-resolved contrast-enhanced MRA. Symposium Neuroradiologicum XVI/American Society of Neuroradiology 36th Annual Meeting, 15-21 May 1998, Philadelphia, Pennsylvania, USA. *[Award of Excellence recipient]*
67. O Unal, **R Frayne**, CM Strother, FR Korosec, CA Mistretta, 2D time resolved MR technique for catheter visualization during endovascular procedures at 1.5 T. Symposium Neuroradiologicum XVI/American Society of Neuroradiology 36th Annual Meeting, 15-21 May 1998, Philadelphia, Pennsylvania, USA. *[Award of Excellence recipient]*
68. A Wehelie, Z Yang, **R Frayne**, O Unal, CM Strother, H Yu. Polymer surface modification by plasma treatment: Gadolinium ion cheaters attachment for magnetic resonance imaging enhancement of medical devices. 7th International Symposium on Chemically Modified Surfaces, 24-26 June 1998, Evanston, Illinois, USA.
69. **R Frayne**, CM Strother, O Unal, H Yu, Z Yang, A Wehelie. Signal-emitting coatings for interventional MR. 84th Scientific Meeting of the Radiological Society of North America, 29 Nov - 4 Dec 1998, Chicago, Illinois, USA.

70. O Unal, FR Korosec, **R Frayne**, CM Strother, CA Mistretta. A time-resolved fast 2D MR technique for passive catheter tracking. 84th Scientific Meeting of the Radiological Society of North America, 29 Nov - 4 Dec 1998, Chicago, Illinois, USA.
71. O Unal, A.M. Masaryk, **R Frayne**, CA Mistretta, CM Strother. MRA versus CTA: Impact of Different Post-processing Techniques in Characterization of Cerebral Aneurysms. 84th Scientific Meeting of the Radiological Society of North America, 29 Nov - 4 Dec 1998, Chicago, Illinois, USA.
72. CM Strother, O Unal, **R Frayne**, FR Korosec, CA Mistretta. Feasibility study of the endovascular treatment of experimental canine aneurysms using MR guidance. 84th Scientific Meeting of the Radiological Society of North America, 29 Nov - 4 Dec 1998, Chicago, Illinois, USA.
73. TJ Carroll, FR Korosec, JS Swan, TM Grist, **R Frayne**, CA Mistretta. A method for rapid reconstruction of a single image volume from a time-resolved CE-MRA exam. International Society for Magnetic Resonance in Medicine 7th Annual Scientific Meeting, 22-28 May 1999, Philadelphia, Pennsylvania, USA.
74. Y Zhou, DH Skuldt, **R Frayne**. Rapid reconstruction of 3D TRICKS images. International Society for Magnetic Resonance in Medicine 7th Annual Scientific Meeting, 22-28 May 1999, Philadelphia, Pennsylvania, USA..
75. Y Zhou, **R Frayne**. Contrast-enhanced MR thermometry. International Society for Magnetic Resonance in Medicine 7th Annual Scientific Meeting, 22-28 May 1999, Philadelphia, Pennsylvania, USA.
76. DH Skuldt, O Unal, **R Frayne**. Catheter visualization with projection dephaser gradients. International Society for Magnetic Resonance in Medicine 7th Annual Scientific Meeting, 22-28 May 1999, Philadelphia, Pennsylvania, USA.
77. O Wieben, TJ Carroll, **R Frayne**. Rapid generation of preview images for 3D MR DSA. International Society for Magnetic Resonance in Medicine 7th Annual Scientific Meeting, 22-28 May 1999, Philadelphia, Pennsylvania, USA.
78. RA Omary, **R Frayne**, O Unal, FR Korosec, CA Mistretta, CM Strother, TM Grist. Magnetic resonance-guided angioplasty of renal artery stenosis in a pig model: A feasibility study. International Society for Magnetic Resonance in Medicine 7th Annual Scientific Meeting, 22-28 May 1999, Philadelphia, Pennsylvania, USA.
79. O Unal, DC Peters, FR Korosec, **R Frayne**, WF Block, TM Grist, CA Mistretta, CM Strother. Angular projection MR technique for passive catheter tracking. International Society for Magnetic Resonance in Medicine 7th Annual Scientific Meeting, 22-28 May 1999, Philadelphia, Pennsylvania, USA.
80. **R Frayne**, RA Omary, O Unal, TM Grist, CM Strother. MRA with intra-arterial administration of contrast. International Society for Magnetic Resonance in Medicine 7th Annual Scientific Meeting, 22-28 May 1999, Philadelphia, Pennsylvania, USA.
81. **R Frayne**, A Wehelie, Z Yang, RW Hergenrother, O Unal, CM Strother, H Yu, MR evaluation of signal-emitting coatings. International Society for Magnetic Resonance in Medicine 7th Annual Scientific Meeting, 22-28 May 1999, Philadelphia, Pennsylvania, USA.
82. O Wieben, TJ Carroll, JS Swan, **R Frayne**. Observer evaluation of 3D MR DSA preview images. Radiological Society of North America 85th Scientific Meeting, 27 Nov 1999 – 3 Dec 1999, Chicago, Illinois, USA.
83. RA Omary, O Unal, DS Koscielski, **R Frayne**, CM Strother, TM Grist, FR Korosec, CA Mistretta. Real-time MR-guided passive catheter tracking using gadolinium-filled catheters. Society of Cardiovascular and Interventional Radiology 25th Annual Scientific Meeting, March 2000, San Diego, California, USA.
84. TM Grist, O Unal, RA Omary, D Koscielski, ER Niendorf, **R Frayne**, FR Korosec. MR Clearance Measurements predict hemodynamically significant renal artery stenosis following angiotensen converting enzyme (ACE) inhibition. International Society for Magnetic Resonance in Medicine 8th Annual Scientific Meeting, 1-7 April 2000, Denver, Colorado, USA.

85. **R Frayne**, RJ Sevick, AM Demchuk, PA Barber, MD Hill, A Cole-Haskayne, S Curtis, AM Buchan, Clinical Stroke Imaging at 3 T. International Society for Magnetic Resonance in Medicine 8th Annual Scientific Meeting, 1-7 April 2000, Denver, Colorado, USA.
86. RA Omary, O Unal, DS Koscielski, **R Frayne**, FR Korosec, CA Mistretta, CM Strother, TM Grist, Real-Time MRI-Guided Passive Catheter Tracking Using Gadolinium-Filled Catheters. International Society for Magnetic Resonance in Medicine 8th Annual Scientific Meeting, 1-7 April 2000, Denver, Colorado, USA.
87. RW Hergenrother, RF Ofstead, DG Swan, **R Frayne**, CM Strother, X Jiang, H Yu, Signal-emitting coatings for use with interventional MRI. Sixth World Biomaterials Congress, 15-20 May 2000, Kamuela, Hawaii, USA.
88. RJ Sevick, **R Frayne**, AM Demchuk, P Barber, MD Hill, AM Buchan. Evaluation of acute stroke with high field MR. Radiological Society of North America 86th Scientific Assembly and Annual Meeting, 26 Nov – 1 Dec 2000, Chicago, Illinois, USA.
89. RS Pereira, AD Harris, RJ Sevick, **R Frayne**, Optimizing contrast between normal and infarcted tissue on diffusion-weighted magnetic resonance images during acute stroke. Calgary Neuroscience Research Day, 15 Dec 2000, Calgary, Alberta, Canada.
90. RC Ryder, A Cole-Haskayne, RJ Sevick, AM Demchuk, MD Hill, PA Barber, AM Buchan, **R Frayne**. MR Imaging in acute stroke. Calgary Neuroscience Research Day, 15 Dec 2000, Calgary, Alberta, Canada.
91. D Tang, TJ Carroll, R Frayne. Quantifying MR Perfusion. Calgary Neuroscience Research Day, 15 Dec 2000, Calgary, Alberta, Canada.
92. B Wong, E Block, **R Frayne**, Real-time interactive MR: Applications in neurovascular imaging and therapy. Calgary Neuroscience Research Day, 15 Dec 2000, Calgary, Alberta, Canada.
93. JJ Yang, **R Frayne**, MD Hill, WF Morrish, ME Hudon, PA Barber, A Demchuk, RJ Sevick. Post-contrast 3D TOF MRA: Possible role in acute stroke. Calgary Neuroscience Research Day, 15 Dec 2000, Calgary, Alberta, Canada.
94. AM Demchuk, D Beaupre, PA Barber, MD Hill, A Button, W Morrish, M Hudon, **R Frayne**. A stroke neurologist/nurse operated acute stroke TCD service can reliably identify MCA occlusion when compared to MRA. American Heart Association International Stroke Conference, Feb 2001, Fort Lauderdale, Florida, USA.
95. PA Barber, AM Demchuk, MD Hill, W Pexman, ME Hudon, A Tomanek, D Beaupre, **R Frayne**, AM Buchan. A comparison of CT versus MR imaging in acute stroke using ASPECTS: Will the "new" replace the "old" as the preferred imaging modality? American Heart Association International Stroke Conference. Feb 2001, Fort Lauderdale, Florida, USA.
96. **R Frayne**. Magnetic resonance imaging at the Seaman Family MR Centre. Centre for Functional Magnetic Resonance Imaging of the Brain, Department of Clinical Neurology, University of Oxford, Oxford, UK, 18 April 2001.
97. JJ Yang, MD Hill, WF Morrish, ME Hudon, PA Barber, AM Demchuk, RJ Sevick, **R Frayne**. Post-contrast 3D TOF MRA: Possible role in acute stroke? International Society of Magnetic Resonance in Med, 9th Annual Meeting, 21-27 April 2001, Glasgow, UK.
98. RC Ryder, A Cole-Haskayne, RJ Sevick, AM Demchuk, MD Hill, PA Barber, AM Buchan, **R Frayne**. Cerebral blood volume: Possible predictor of clinical deficit in acute stroke. International Society of Magnetic Resonance in Medicine, 9th Annual Meeting, 21-27 April 2001, Glasgow, UK.
99. JW Chan, WF Morrish, ME Hudon, **R Frayne**, AD Harris, AM Demchuk, PA Barber, MD Hill, AM Buchan, RJ Sevick. Demonstration of reversible acute ischemic injury by diffusion-weighted magnetic resonance imaging. American Society of Neuroradiology, 39th Annual Meeting, 21-27 April 2001, Boston, Massachusetts, USA.
100. **R Frayne**. Magnetic resonance imaging at the Seaman Family MR Centre. Wolfson Brain Imaging Centre, Addenbrooke's Hospital, University of Cambridge, Cambridge, UK, 30 April 2001.
101. MD Hill, PA Barber, AM Demchuk, NJ Newcommon, A Cole-Haskayne, KJ Ryckborst, L Sopher, A Button, W Hu, ME Hudon, WF Morrish, **R Frayne**, AM Buchan. Acute IV-IA revascularization

therapy for severe ischemic stroke. Canadian Congress of Neurological Sciences, June 2001, Halifax, Nova Scotia, Canada.

102. A Tomanek, R Ryder, J Simon, M Hill, **R Frayne**, A Buchan, R Mitchell. Computer assisted quantification of stroke lesion volumes. Canadian Organization of Medical Physicists, 47th Annual Meeting, 12-14 July 2001, Kelowna, British Columbia, Canada.
103. RC Ryder, A Cole-Haskayne, RJ Sevick, AM Demchuk, MD Hill, PA Barber, AM Buchan, **R Frayne**, Relative cerebral blood volume changes in acute stroke. Canadian Organization of Medical Physicists, 47th Annual Meeting, 12-14 July 2001, Kelowna, British Columbia, Canada.
104. RS Pereira, AD Harris, RJ Sevick, **R Frayne**. Effect of b-value on contrast for diffusion-weighted magnetic resonance imaging assessment of acute stroke. Canadian Organization of Medical Physicists, 47th Annual Meeting, 12-14 July 2001, Kelowna, British Columbia, Canada.
105. AD Harris, RS Pereira, RJ Sevick, **R Frayne**. Diffusion MR imaging strategies in acute stroke. Canadian Organization of Medical Physicists, 47th Annual Meeting, 12-14 July 2001, Kelowna, British Columbia, Canada.
106. H Lu, MR Smith, **R Frayne**. Quantitative cerebral blood flow measurements using a dynamic susceptibility contrast MR technique. Alberta Biomedical Engineering Meeting, 2nd Annual Meeting, Banff, Alberta, Canada.
107. M Sabati, **R Frayne**. Interactive large field of view peripheral magnetic resonance angiography. Alberta Biomedical Engineering Meeting, 2nd Annual Meeting, Banff, Alberta, Canada.
108. AD Harris, RS Pereira, RJ Sevick, **R Frayne**. Diffusion MR imaging strategies in acute stroke. Calgary Neuroscience Research Day. 13 Dec 2001, Calgary, Alberta, Canada.
109. H Lu, MR Smith, **R Frayne**. Quantitative perfusion measurements using a dynamic susceptibility contrast MR technique. Calgary Neuroscience Research Day. 13 Dec 2001, Calgary, Alberta, Canada.
110. RS Pereira, AD Harris, RJ Sevick, **R Frayne**. Effect of b-value on contrast for diffusion-weighted magnetic resonance imaging assessment of acute stroke. Calgary Neuroscience Research Day. 13 Dec 2001, Calgary, Alberta, Canada.
111. D Tang**,** RC Ryder, **R Frayne**, Cerebrovascular MR imaging of animal models. Calgary Neuroscience Research Day. 13 Dec 2001, Calgary, Alberta, Canada.
112. JJ Yang**,** MD Hill, WF Morrish, ME Hudon, PA Barber, AM Demchuk, RJ Sevick, **R Frayne**, Post-contrast 3D TOF MRA: Possible role in acute stroke? Calgary Neuroscience Research Day. 13 Dec 2001, Calgary, Alberta, Canada.
113. AM Demchuk, M Schebel, D Beaupre, A Button, PA Barber, MD Hill, W Pexman, M Hudon, W Morrish, **R Frayne**. A Novel Magnetic Resonance Angiographic Scale (MAGNIFY) Is Reliable in Detecting ICA/MCA Flow Abnormalities in Acute Stroke. American Heart Association 27th International Stroke Conference. San Antonio, Texas, USA.
114. R Mitchell, A Tomanek, J Simon, R Ryder, **R Fray**ne, R Sevick, P Barber, A Demchuk, A Buchan. Reliable Computer Assisted Measurement of Stroke Lesion Volumes American Heart Association 27th International Stroke Conference. San Antonio, Texas, USA.
115. PA Barber, AM Demchuk, MD Hill, JHW Pexman, ME Hudon, **R Frayne**, AM Buchan for the ASPECTS Study Group. The significance of the hyperdense middle cerebral artery and MCA "dot" sign in acute stroke: A CT study with magnetic resonance angiography correlation. American Heart Association 27th International Stroke Conference. San Antonio, Texas, USA.
116. W Utz, **R Frayne**, N Filipchuk, J Hubacek, T Anderson, M Friedrich. Assessment of endothelial function at 3 T. Society for Cardiac Magnetic Resonance 5th Annual Scientific Session, 25-27 Jan 2002, Lake Buena Vista, Florida, USA.
117. B Goodyear, C Tobolski, J Eggermont, H Zhu, R Brown, JR Mitchell, A Tomanek, W Fletcher, A Demchuk, **R Frayne**. Functional magnetic resonance imaging at the Seaman Family MR Research Centre. Ninth Annual Banff Conference and Research Day, Department of Clinical Neurosciences, University of Calgary, 15-17 March 2002, Canmore, Alberta, Canada.

118. J Simon, **R Frayne**, RJ Sevick, AM Demchuk, MD Hill, AM Buchan, and the Calgary Stroke Program. MRI can change management in acute stroke. Ninth Annual Banff Conference and Research Day, Department of Clinical Neurosciences, University of Calgary, 15-17 March 2002, Canmore, Alberta, Canada.
119. H Lu, MR Smith, **R Frayne**. Quantitative MR cerebral blood flow using ARMA-based deconvolution. Ninth Annual Banff Conference and Research Day, Department of Clinical Neurosciences, University of Calgary, 15-17 March 2002, Canmore, Alberta, Canada.
120. RC Ryder, D Tang, **R Frayne**. Vascular imaging research at the Seaman Family MR Research Centre. Ninth Annual Banff Conference and Research Day, Department of Clinical Neurosciences, University of Calgary, 15-17 March 2002, Canmore, Alberta, Canada.
121. M Sabati, ML Lauzon, **R Frayne**. Imaging of entire peripheral arterial tree using magnetic resonance angiography. Ninth Annual Banff Conference and Research Day, Department of Clinical Neurosciences, University of Calgary, 15-17 March 2002, Canmore, Alberta, Canada.
122. RC Ryder, D Tang, R Frayne. Developing a robust perfusion quantification technique in the feline. 2002 Alberta Neuroscience Meeting, 2-4 May 2002, Canmore, Alberta, Canada.
123. M Sabati, **R Frayne**. A new strategy for imaging blood vessels in the legs using magnetic resonance imaging. IEEE 2002 Canadian Conference of Electrical and Computer Engineering, 12-15 May 2002, Winnipeg, Manitoba, Canada.
124. H Lu, MR Smith, **R Frayne**. Quantitative MR cerebral blood flow using ARMA-based deconvolution. IEEE 2002 Canadian Conference of Electrical and Computer Engineering, 12-15 May 2002, Winnipeg, Manitoba, Canada.
125. M Sabati, ML Lauzon, **R Frayne**. Interactive large field-of-view peripheral MRA. International Society for Magnetic Resonance in Medicine. Tenth Scientific Meeting and Exhibition. 18-24 May 2002, Honolulu, Hawai'i, USA.
126. J Simon, AD Harris, MD Hill, RJ Sevick, **R Frayne**. Fluid-inversion prepared diffusion-weighted (FLIPD) imaging from in acute human stroke. International Society for Magnetic Resonance in Medicine. Tenth Scientific Meeting and Exhibition. 18-24 May 2002, Honolulu, Hawai'i, USA.
127. AD Harris, RS Pereira, JR Mitchell, MD Hill, RJ Sevick, **R Frayne**. Diffusion post-processing strategy for hyper-acute stroke. . International Society for Magnetic Resonance in Medicine. Tenth Scientific Meeting and Exhibition. 18-24 May 2002, Honolulu, Hawai'i, USA.
128. MR Smith, H Lu, **R Frayne**. SNR characteristics on quantitative cerebral perfusion. International Society for Magnetic Resonance in Medicine. Tenth Scientific Meeting and Exhibition. 18-24 May 2002, Honolulu, Hawai'i, USA.
129. H Lu, MR Smith, **R Frayne**. An automated cerebral blood flow perfusion analysis system using a novel deconvolution technique. International Society for Magnetic Resonance in Medicine. Tenth Scientific Meeting and Exhibition. 18-24 May 2002, Honolulu, Hawai'i, USA.
130. BG Goodyear, H Zhu, **R Frayne**, JR Mitchell. Filtering noise from fMRI data using the Stockwell transform. International Society for Magnetic Resonance in Medicine. Tenth Scientific Meeting and Exhibition. 18-24 May 2002, Honolulu, Hawai'i, USA.
131. PA Barber, AM Demchuk, MD Hill, JHW Pexman, ME Hudon, **R Frayne**, AM Buchan. The probability of middle cerebral artery MRA flow signal abnormality with quantified CT ischemic change: Targets for future therapeutic studies. American Academy of Neurology Meeting, 2002, Denver, Colorado, USA.
132. PA Barber, AM Demchuk, MD Hill, JHW Pexman, ME Hudon, **R Frayne**, AM Buchan. The presence of middle cerebral artery occlusion increases with quantified CT ischemic change: Therapeutic targets for future acute stroke studies. Canadian Society of Neurological Sciences Meeting, June 2002, Vancouver, British Columbia, Canada.
133. A Khan, RJ Sevick, **R Frayne**. Hyperacute time course of apparent diffusion coefficient in stroke. CAR Annual Meeting, Quebec City, Quebec, Canada, 19-22 Sep 2002.
134. PA Barber, MD Hill, AM Demchuk, JWH Pexman, ME Hudon, A Tomanek, **R Frayne**, AM Buchan. A comparison of CT versus diffusion weighted imaging in hyper-acute stroke using a systematic

quantitative score (ASPECTS). British Society of Neuroradiologists Annual Meeting 11-12 Oct 2002, Winchester, UK.

135. A Khan, RJ Sevick, **R Frayne**. Evolution of ADC in the first six hours post infarction. Radiological Society of North America 88th Scientific Assembly and Annual Meeting, 26 Nov – 1 Dec 2002, Chicago, Illinois, USA.
136. N Nagarajappa, RWM Lau, M Sabati, **R Frayne**. Passive catheter tracking requirements for endovascular MR. Alberta Biomedical Engineering Meeting, 3rd Annual Meeting, 8-11 Nov 2002, Banff, Alberta, Canada.
137. J Chen, MR Smith, **R Frayne**. Sensitivity of deconvolution techniques in dynamic susceptibility contrast MR perfusion quantification. Alberta Biomedical Engineering Meeting, 3rd Annual Meeting, 8-11 Nov 2002, Banff, Alberta, Canada.
138. H Lu, MR Smith, **R Frayne**. Quantitative MR cerebral blood flow using a novel deconvolution technique. Alberta Biomedical Engineering Meeting, 3rd Annual Meeting, 8-11 Nov 2002, Banff, Alberta, Canada.
139. M Sabati, RWM Lau, ML Lauzon, **R Frayne**. Engineering issues with the implementation of a continuously moving table technique for large field-of-view peripheral magnetic resonance angiography. Alberta Biomedical Engineering Meeting, 3rd Annual Meeting, 8-11 Nov 2002, Banff, Alberta, Canada.
140. K Srinivasan, MR Smith, **R Frayne**. Using ARMA model to remove PVE in DSC MRI quantification of cerebral blood flow. Alberta Biomedical Engineering Meeting, 3rd Annual Meeting, 8-11 Nov 2002, Banff, Alberta, Canada.
141. JE Simon, JR Mitchell, **R Frayne**, M Eliasziw, AL Cole-Haskayne, MD Hill, AI Tomanek, PA Barber, SB Coutts, RJ Sevick, AM Buchan, AM Demchuk. Recanalization, regardless of tPA use, improves clinical outcome and reduces infarct growth on MRI in stroke patients. American Heart Association 27th International Stroke Conference. Feb 2003, Phoenix, Arizona, USA.
142. SB Coutts, JE Simon, AI Tomanek, PA Barber, ME Hudon, J Chan, R Frayne, JR Mitchell, M Eliasziw, AM Buchan, AM Demchuk reliability in assessment of DWI/PWI mismatch. American Heart Association 27th International Stroke Conference. Feb 2003, Phoenix, Arizona, USA.
143. AI Tomanek, MD Hudon, RJ Sevick, JE Simon, M Schebel, **R Frayne**, AM Buchan, AM Demchuk, accuracy and reliability of MR angiography compared to conventional selective angiography in acute stroke. American Heart Association 27th International Stroke Conference. Feb 2003, Phoenix, Arizona, USA.
144. SB Coutts, J Simon, AI Tomanek, PA Barber, J Chan, ME. Hudon, JR Mitchell, **R Frayne**, M Eliasziw, AM. Buchan, AM Demchuk. Reliability of assessing percentage DWI-PWI mismatch. Tenth Annual Banff Conference and Research Day, Department of Clinical Neurosciences, University of Calgary, 21-23 Feb 2003, Canmore, Alberta, Canada.
145. J Chen, MR Smith, **R Frayne**. Advantages of frequency domain modeling in MR perfusion quantification. Tenth Annual Banff Conference and Research Day, Department of Clinical Neurosciences, University of Calgary, 21-23 Feb 2003, Canmore, Alberta, Canada.
146. M Bristow, RA Brown, JE Simon, ML Lauzon, H Lu, **R Frayne**, JR Mitchell. A novel method of deriving grey and white matter CBF using MR imaging in acute ischemic stroke. Tenth Annual Banff Conference and Research Day, Department of Clinical Neurosciences, University of Calgary, 21-23 Feb 2003, Canmore, Alberta, Canada.
147. N Nagarajappa, RWM Lau, M Sabati, R Frayne. Passive catheter tracking requirements for endovascular MR. Tenth Annual Banff Conference and Research Day, Department of Clinical Neurosciences, University of Calgary, 21-23 Feb 2003, Canmore, Alberta, Canada.
148. AI Tomanek, MD Hill, SB Coutts, ME Hudon, RJ Sevick, JE Simon, **R Frayne**, AM Buchan, AM Demchuk. Reliability of Intracranial MR Angiography in Acute Stroke: Comparison to Conventional Angiography. Tenth Annual Banff Conference and Research Day, Department of Clinical Neurosciences, University of Calgary, 21-23 Feb 2003, Canmore, Alberta, Canada.

149. T Chou, K McLaughlin, **R Frayne**, M Chapman, J Ronsky. Medical image accuracy, data fusion and co-registration for surgical applications. 5th Annual Scientific Conference GEOIDE, 21-23 May 2003, Victoria British Columbia, Canada. *[Best poster award]*
150. N Nagarajappa, **R Frayne**. Endovascular MR: Measurements of relaxation parameters for visualization of contrast-enhanced catheters at 3.0 T. Canadian Organization of Medical Physicists Conference. 5-8 June 2003, Edmonton, Alberta, Canada.
151. M Sabati, ML Lauzon, N Nagarajappa, **R Frayne**. Interactive large field-of-view real-time peripheral magnetic resonance angiography. Canadian Organization of Medical Physicists Conference. 5-8 June 2003, Edmonton, Alberta, Canada.
152. H Lu, MR Smith, **R Frayne**. A user-assisted arterial input function identification and validation algorithm, Canadian Organization of Medical Physicists Conference. 5-8 June 2003, Edmonton, Alberta, Canada.
153. J Chen, MR Smith, **R Frayne**. Characteristics of frequency domain modeling in DSC-MR perfusion quantification. 21st International Symposium on Cerebral Blood Flow Metabolism and Function with 6th International Conference on Quantification of Brain Function with PET, 29 June-3 July 2003, Calgary, Alberta, Canada.
154. MR Smith, H Lu, **R Frayne**. Improving SNR in DSC perfusion studies reduces noise related biases in CBF estimates, but reveals other artefacts associated with the experimental sampling rate, TR. 21st International Symposium on Cerebral Blood Flow Metabolism and Function with 6th International Conference on Quantification of Brain Function with PET, 29 June-3 July 2003, Calgary, Alberta, Canada.
155. MS Bristow, RA Brown, JE Simon, ML Lauzon, H Lu, **R Frayne**, JR Mitchell. A novel method of deriving grey and white matter CBF using MR Imaging in acute ischemic stroke. 21st International Symposium on Cerebral Blood Flow Metabolism and Function with 6th International Conference on Quantification of Brain Function with PET, 29 June-3 July 2003, Calgary, Alberta, Canada.
156. H Lu, MR Smith, JE Simon, **R Frayne**, Comparison of deconvolution methods for quantitative MR cerebral blood flow. 21st International Symposium on Cerebral Blood Flow Metabolism and Function with 6th International Conference on Quantification of Brain Function with PET, 29 June-3 July 2003, Calgary, Alberta, Canada.
157. AI Tomanek, ME Hudon, R Sevick, JE Simon, M Schebel, **R Frayne**, A Buchan, AM Demchuk. Accuracy and Reliability of MR angiography compared to conventional angiography in acute stroke. 21st International Symposium on Cerebral Blood Flow Metabolism and Function with 6th International Conference on Quantification of Brain Function with PET, 29 June-3 July 2003, Calgary, Alberta, Canada.
158. RC Ryder, RJ Sevick, WF Morrish, JH Wong, WY Hu, M Hudon, **R Frayne**. Development and evaluation of a reversible embolic stroke model for MR endovascular thrombolysis. International Society for Magnetic Resonance in Medicine 11th Scientific Meeting, 10-16 July 2003, Toronto, Ontario, Canada.
159. RA Brown, JE Simon, H Lu, ML Lauzon, **R Frayne**, JR Mitchell. A novel method for deriving grey and white matter CBF using multi-spectral MR. International Society for Magnetic Resonance in Medicine 11th Scientific Meeting, 10-16 July 2003, Toronto, Ontario, Canada.
160. BG Goodyear, AM Demchuk, **R Frayne**. T2* heterogeneity in cerebral ischemia: Implication for fMRI interpretation. International Society for Magnetic Resonance in Medicine 11th Scientific Meeting, 10-16 July 2003, Toronto, Ontario, Canada.
161. CJ Tobolowski, JJ Eggermont, **R Frayne**, BG Goodyear. MR scanner effects on auditory cortex tonotopy using fMRI. International Society for Magnetic Resonance in Medicine 11th Scientific Meeting, 10-16 July 2003, Toronto, Ontario, Canada.
162. NC Sharma, RJ Sevick, **R Frayne**. Effect of earlier contrast-enhanced MRA (CE MRA) on dynamics susceptibility contrast (DSC) perfusion-weighted imaging (PWI). International Society for Magnetic Resonance in Medicine 11th Scientific Meeting, 10-16 July 2003, Toronto, Ontario, Canada.

163. M Sabati, RW Lau, N Nagarajappa, ML Lauzon, **R Frayne**. Implementation issues associated with continuously moving table methods for peripheral contrast-enhanced MRA. International Society for Magnetic Resonance in Medicine 11th Scientific Meeting, 10-16 July 2003, Toronto, Ontario, Canada.
164. MR Smith, H Lu, S Trochet, **R Frayne**. Removing CBF artifacts introduced during SVD deconvolution. International Society for Magnetic Resonance in Medicine 11th Scientific Meeting, 10-16 July 2003, Toronto, Ontario, Canada.
165. ML Lauzon, **R Frayne**. Reducing Nyquist ghosts in gradient recalled echo echo-planar perfusion-weighted imaging. International Society for Magnetic Resonance in Medicine 11th Scientific Meeting, 10-16 July 2003, Toronto, Ontario, Canada.
166. J Chen, MR Smith, S Trochet, **R Frayne**. Advantages of frequency domain modeling in magnetic resonance CBF quantification. International Society for Magnetic Resonance in Medicine 11th Scientific Meeting, 10-16 July 2003, Toronto, Ontario, Canada.
167. M Sabati, ML Lauzon, **R Frayne.** Novel undersampled acquisition schemes for continuously moving table peripheral contrast-enhanced MRA. International Society for Magnetic Resonance in Medicine 11th Scientific Meeting, 10-16 July 2003, Toronto, Ontario, Canada.
168. J Chen, MR Smith, **R Frayne**. Further advantages of frequency domain modeling in magnetic resonance CBF quantification. Alberta Biomedical Engineering Meeting, 4th Annual Meeting, 24-26 Oct 2003, Banff, Alberta, Canada.
169. M Sabati, ML Lauzon N Nagarajappa, **R Frayne**. Interactive large field-of-view real-time peripheral magnetic resonance arteriography. Alberta Biomedical Engineering Meeting, 4th Annual Meeting, 24-26 Oct 2003, Banff, Alberta, Canada.
170. M Salluzzi, MR Smith, **R Frayne**. A different viewpoint of SVD deconvolution used for cerebral blood flow estimation. Alberta Biomedical Engineering Meeting, 4th Annual Meeting, 24-26 Oct 2003, Banff, Alberta, Canada.
171. JC Kosior, JE Simon, MS Bristow, JR Mitchell, **R Frayne**. A software engineering approach for investigating quantitative perfusion. Alberta Biomedical Engineering Meeting, 4th Annual Meeting, 24-26 Oct 2003, Banff, Alberta, Canada.
172. AD Harris, R Pereira, JR Mitchell, MD Hill, RJ Sevick, **R Frayne**. Diffusion post-processing strategy for hyper-acute stroke. Alberta Biomedical Engineering Meeting, 4th Annual Meeting, 24-26 Oct 2003, Banff, Alberta, Canada.
173. MS Bristow, JE Simon, DM Stepien, H Lu, RA Brown, JV Manjón, ML Lauzon, **R Frayne**, JR Mitchell, Perfusion and diffusion values in penumbral gray and white matter. Alberta Biomedical Engineering Meeting, 4th Annual Meeting, 24-26 Oct 2003, Banff, Alberta, Canada.
174. C-H Sohn, JE Simon, SB Coutts, AL Krol, **R Frayne**, AM Demchuk, RJ Sevick for the Vision Study Group. Prediction of hemorrhagic transformation in acute stroke using T1-weighted gradient-echo time-of-flight MR angiography images. 9th International Stroke Conference. 5-7 Feb 2004, San Diego, California, USA.
175. JE Simon, MS Bristow, DM Stepien, H Lu, JV Majon, ML Lauzon, SB Coutts, R **Frayne**, AM Demchuk, JR Mitchell. A novel method demonstrates that gray and white matter have measurable differences in cerebral perfusion and apparent diffusion coefficient values in stroke penumbra. 9th International Stroke Conference. 5-7 Feb 2004, San Diego, California, USA.
176. AL Krol, SB Coutts, JE Simon, C-H Sohn, L Anderson-Armitage, **R Frayne**, RJ Sevick, M Eliasziw, AM Buchan, AM Demchuk. Acute MRI in speech or motor TIA reveals ongoing ischemia and active disease in a high proportion of patients. 9th International Stroke Conference. 5-7 Feb 2004, San Diego, California, USA.
177. BG Goodyear, **R Frayne**, AM Demchuk. Cerebral ischemia contributes to T2* heterogeneity: Implications for functional magnetic resonance imaging. 9th International Stroke Conference. 5-7 Feb 2004, San Diego, California, USA.

178. RK Zabad, X Wei, ML Lauzon, LM Metz, **R Frayne**, Y Zhang, JR Mitchell. Iron deposits in multiple sclerosis brains: a fortuitous or real finding? American Academy of Neurology 56th Annual Meeting. 24 April – 1 May 2004, San Francisco, California, USA.
179. AD Harris, K Ide, MJ Poulin, **R Frayne**. Reducing blood flow variability in imaging studies with dynamic end-tidal forcing. CIHR Institute of Cardiovascular Health: Young Investigators Forum. 8-10 May 2004, Winnipeg, Manitoba, Canada.
180. C-H Sohn, X Wei, **R Frayne**, K Byun, M Bristow, ML Lauzon, RJ Sevick. Fast FLAIR imaging of the normal brain: Comparison of 3.0 T vs 1.5 T. International Society for Magnetic Resonance in Medicine 12th Scientific Meeting, 15-21 May 2004, Kyoto, Japan.
181. M Sabati, ML Lauzon, N Nagarajappa, H Mahallati, **R Frayne**. Real-time peripheral magnetic resonance angiography: An interactive single-station/single injection method. International Society for Magnetic Resonance in Medicine 12th Scientific Meeting, 15-21 May 2004, Kyoto, Japan.
182. M Sabati, N Nagarajappa, ML Lauzon, **R Frayne**. Fast correction of the gradient field non-uniformity for large FOV continuously moving table techniques. International Society for Magnetic Resonance in Medicine 12th Scientific Meeting, 15-21 May 2004, Kyoto, Japan.
183. X Wei, R Zabad, ML Lauzon, Y Zhang, **R Frayne**, LM Metz, JR Mitchell. T2 hypointensity in the deep gray matter of patients with multiple sclerosis: Different characteristics on 3.0 Tesla MRI. International Society for Magnetic Resonance in Medicine 12th Scientific Meeting, 15-21 May 2004, Kyoto, Japan.
184. MS Bristow, JE Simon, RA Brown, JV Manjon, ML Lauzon, **R Frayne**, AM Demchuk, JR Mitchell. Determining ischemic thresholds for gray and white matter in stroke penumbra. International Society for Magnetic Resonance in Medicine 12th Scientific Meeting, 15-21 May 2004, Kyoto, Japan.
185. JJ Chen, MR Smith, **R Frayne**. DSC MR contrast recirculation effects in CBF quantification based on frequency-domain modeling. International Society for Magnetic Resonance in Medicine 12th Scientific Meeting, 15-21 May 2004, Kyoto, Japan.
186. N Nagarajappa, M Sabati, ML Lauzon, **R Frayne**. A novel background suppression method for endovascular therapy. International Society for Magnetic Resonance in Medicine 12th Scientific Meeting, 15-21 May 2004, Kyoto, Japan.
187. P Chen, JE Simon, MD Hill, P Dickhoff, WF Morrish, C-H Sohn, RJ Sevick, **R Frayne**. Comparison of diffusion-weighted imaging strategies in acute ischemic stroke. International Society for Magnetic Resonance in Medicine 12th Scientific Meeting, 15-21 May 2004, Kyoto, Japan.
188. MR Smith, **R Frayne**. Use of adaptive deconvolution algorithms reveals new variation of cerebral blood flow estimates with arterial-tissue-delay in dynamic susceptibility contrast MR perfusion studies. International Society for Magnetic Resonance in Medicine 12th Scientific Meeting, 15-21 May 2004, Kyoto, Japan.
189. H Mahallati, ML Lauzon, **R Frayne**. 3D Breath-hold fat-suppressed T1-weighted abdominal MRI at 3.0 Tesla. International Society for Magnetic Resonance in Medicine 12th Scientific Meeting, 15-21 May 2004, Kyoto, Japan.
190. ML Lauzon, H Mahallati, **R Frayne**. SAR-efficient Breath-hold T2-weighted abdominal MRI at 3.0 Tesla. International Society for Magnetic Resonance in Medicine 12th Scientific Meeting, 15-21 May 2004, Kyoto, Japan.
191. ML Lauzon, H Mahallati, **R Frayne**. Optimized dual-echo T1-weighted abdominal MRI at 3.0 Tesla. International Society for Magnetic Resonance in Medicine 12th Scientific Meeting, 15-21 May 2004, Kyoto, Japan.
192. A Kurji, C Debert, **R Frayne**, MJ Poulin. Variability of middle cerebral artery blood velocity waveforms in young and postmenopausal women. Canadian Congress of Neurological Sciences, 12-18 June 2004, Calgary, Alberta. Canada.
193. Oliphant D, **Frayne R**, Lauzon ML, Fauvel R, Kawchuk GN. An injury model of progressively increasing disc derangement. International Society for the Study of Lumbar Spine. June 2004, Porto, Portugal.

194. Oliphant D, **Frayne R**, Lauzon ML, Fauvel R, Kawchuk GN. An induced internal disc disruption verified by MRI in porcine lumbar discs. Canadian Orthopedic Society. June 2004, Calgary, Alberta.
195. MB Bristow, JE Simon, RA Brown, JV Majon, ML Lauzon, **R Frayne**, AM Demchuk, JR Mitchell. Predictive value of diffusion and perfusion imaging in identifying acute ischemic stroke lesions. World Stroke Congress, 20-25 June 2004, Vancouver, British Columbia, Canada.
196. S Aalbersberg-van Berkel, I Kingma, JL Ronsky, **R Frayne**, JH van Dieën. Muscle tendon line-of-action changes between 0 and 30 degrees of knee flexion. European Society of Biomechanics 14th Biannual Conference, 1-4 July 2004, s'-Hertogenbosch, The Netherlands.
197. N Nagarajappa, M Sabati, J Draper, ML Lauzon, **R Frayne**. Hadamard and projection dephaser methods in endovascular magnetic resonance. Alberta Biomedical Engineering Meeting, 5th Annual Meeting, 22-24 Oct 2004, Banff, Alberta, Canada.
198. JC Kosior, **R Frayne**. Improving the precision of MR perfusion using enclosing arterial input function regions. Alberta Biomedical Engineering Meeting, 5th Annual Meeting, 22-24 Oct 2004, Banff, Alberta, Canada.
199. H Peng, **R Frayne**. Reconstruction of MR images from incompletely sampled k-space. Alberta Biomedical Engineering Meeting, 5th Annual Meeting, 22-24 Oct 2004, Banff, Alberta, Canada.
200. Y Zhang, X Wei, R Zabad, ML Lauzon, **R Frayne**, LM Metz, JR Mitchell. 3.0 T vs. 1.5 T quantification of T2 hypointesity in the GM of MS patients. Alberta Biomedical Engineering Meeting, 5th Annual Meeting, 22-24 Oct 2004, Banff, Alberta, Canada.
201. J Draper, N Nagarajappa, ML Lauzon, **R Frayne**. MR Projection dephaser method: Theoretical and experimental comparison. Alberta Biomedical Engineering Meeting, 5th Annual Meeting, 22-24 Oct 2004, Banff, Alberta, Canada.
202. L Lee, AD Harris, **R Frayne**. Isotropic and anisotropic diffusion in a dog model of hyperacute ischemic stroke. Alberta Biomedical Engineering Meeting, 5th Annual Meeting, 22-24 Oct 2004, Banff, Alberta, Canada.
203. AD Harris, K Ide, MJ Poulin, **R Frayne**. Reducing cerebral blood flow velocity variability. Alberta Biomedical Engineering Meeting, 5th Annual Meeting, 22-24 Oct 2004, Banff, Alberta, Canada.
204. MS Bristow, JE Simon, RA Brown, M Eliasziw, MD Hill, SB Coutts, **R Frayne**, AM Demchuk, JR Mitchell. Perfusion and diffusion in acute ischemic stroke: Gray and white matter have different thresholds for infarction. Alberta Biomedical Engineering Meeting, 5th Annual Meeting, 22-24 Oct 2004, Banff, Alberta, Canada.
205. R Stafford, M Sabati, ML Lauzon, H Mahallati, **R Frayne**. MR Angiography of peripheral vessels using SSFP with multi-station method. Alberta Biomedical Engineering Meeting, 5th Annual Meeting, 22-24 Oct 2004, Banff, Alberta, Canada.
206. AD Harris, LJ Lee, RJ Sevick, **R Frayne**. Fractional anisotropy in hyper-acute stroke. International Society for Magnetic Resonance in Medicine ISMRM Workshop on Methods for Quantitative Diffusion MRI of Human Brain, 13-16 March 2005, Lake Louis, Alberta, Canada.
207. M Sabati, L Lauzon, R Stafford, **R Frayne**. Interactive approach for imaging peripheral vascular disease using magnetic resonance technique. National Research Forum for Young Investigators in Circulatory and Respiratory Health, 28 April – 1 May 2005, Winnipeg, Manitoba, Canada.
208. AD Harris, K Ide, MJ Poulin, **R Frayne**. Reducing CBF variability with end-tidal carbon dioxide. International Society for Magnetic Resonance in Medicine. Thirteenth Scientific Meeting and Exhibition. 7-13 May 2005, Miami Beach, Florida, USA.
209. LJ Lee, AD Harris, **R Frayne**. Diffusion anisotropy evolution in early hyper-acute stroke. International Society for Magnetic Resonance in Medicine. Thirteenth Scientific Meeting and Exhibition. 7-13 May 2005, Miami Beach, Florida, USA.
210. M Salluzzi, **R Frayne**, MR Smith. Reducing the tissue specific MTT-biases in quantitative cerebral blood flow measurements. International Society for Magnetic Resonance in Medicine. Thirteenth Scientific Meeting and Exhibition. 7-13 May 2005, Miami Beach, Florida, USA.

211. M Sabati, RB Stafford, ML Lauzon, H Mahallati, **R Frayne**. Interactive real-time large field-of-view peripheral MR digital subtraction angiography. International Society for Magnetic Resonance in Medicine. Thirteenth Scientific Meeting and Exhibition. 7-13 May 2005, Miami Beach, Florida, USA.
212. H Peng, M Sabati, ML Lauzon, R **Frayne**. Reconstruction of MR imagines from sparsely sampled 3-D k-space data. International Society for Magnetic Resonance in Medicine. Thirteenth Scientific Meeting and Exhibition. 7-13 May 2005, Miami Beach, Florida, USA.
213. JC Kosior, **R Frayne**. PerfTool: A software platform for quantification of dynamic susceptibility contrast perfusion imaging. International Society for Magnetic Resonance in Medicine. Thirteenth Scientific Meeting and Exhibition. 7-13 May 2005, Miami Beach, Florida, USA.
214. A Habib, R Cheng, **R Frayne**, J Ronsky. Surface matching for automated registration of Lidar and MR imagery Italy-Canada 2005 "3D Digital Imaging and Modelling: Applications of Heritage, Industry, Medicine and Land", May 17-18, Padua, Italy.
215. C Igna, D Spencer, I Kay, A Chan, Z Kiss, **R Frayne**. Regional change in brain perfusion after fractionated stereotactic radiotherapy (FSRT) at 4 months and 3 years follow-up. Canadian Organization of Medical Physicists Annual Meeting. 51st Annual Scientific Meeting. 6-9 July 2005, Hamilton, Ontario, Canada.
216. JN Draper, ML Lauzon, **R Frayne**. Improving background suppression in magnetic resonance-guided endovascular therapy. Canadian Organization of Medical Physicists Annual Meeting. 51st Annual Scientific Meeting. 6-9 July 2005, Hamilton, Ontario, Canada.
217. RB Stafford, M Sabati, ML Lauzon, H Mahallati, **R Frayne**. A comparative study between multi-station and moving-table methods with steady-state free precession Canadian Organization of Medical Physicists Annual Meeting. 51st Annual Scientific Meeting. 6-9 July 2005, Hamilton, Ontario, Canada.
218. DP Spencer, CD Igna, I Kay, A Chan, Z Kiss, **R Frayne**. Regional change in brain perfusion, in irradiated normal tissue: Correlation study between perfusion MRI and spatial distribution of radiation dose delivered. American Association of Physicists in Medicine, 47th Annual Meeting, 24-28 July 2004, Seattle, Washington, USA.
219. RWT Cheng, **R Frayne**, JL Ronsky, AF Habib. Matching strategy for co-registration of surfaces acquired by magnetic resonance imaging. International Geoscience and Remote Sensing Symposium. 25-29 July 2005, Seoul, Korea.
220. K McLaughlin, J Ronsky, **R Frayne**. *In vivo* assessment of congruence in the patellofemoral joint of healthy subjects. International Society of Biomechanics. Twentieth Congress, 1-5 Aug, 2005, Cleveland, Ohio, USA.
221. JN Draper, ML Lauzon, **R Frayne**. Catheter visualization in endovascular MR using multi-cycle projection dephasers. Alberta Biomedical Engineering Meeting, 6th Annual Meeting, 21-23 Oct 2005, Banff, Alberta, Canada.
222. RB Stafford, **M Sabati**, ML Lauzon, H Mahallati, **R Frayne**. The effect of table motion on balanced steady-state free precession. Alberta Biomedical Engineering Meeting, 6th Annual Meeting, 21-23 Oct 2005, Banff, Alberta, Canada.
223. RK Kosior, MD Hill, JC Kosior, **R Frayne**. 3 T vs 1.5 T MR diffusion and perfusion imaging in hyper-acute ischemic stroke. Alberta Biomedical Engineering Meeting, 6th Annual Meeting, 21-23 Oct 2005, Banff, Alberta, Canada.
224. M Govindaraj, AD Harris, **R Frayne**. Variability in diffusion-tensor measurements in patients with acute ischemic stroke. Alberta Biomedical Engineering Meeting, 6th Annual Meeting, 21-23 Oct 2005, Banff, Alberta, Canada.
225. M Salluzzi, **R Frayne**, MR Smith. Improved quantitative CBF estimates from the distribution of transit times. Alberta Biomedical Engineering Meeting, 6th Annual Meeting, 21-23 Oct 2005, Banff, Alberta, Canada.

226. AD Harris, **R Frayne**. Characterizing the evolution of ADC changes in early hyper-acute ischemic stroke. Alberta Biomedical Engineering Meeting, 6th Annual Meeting, 21-23 Oct 2005, Banff, Alberta, Canada.
227. L Ko, J Miller **R Frayne**, MR Smith. Advantages of test-driven development for MATLAB simulation and code transfer. Alberta Biomedical Engineering Meeting, 6th Annual Meeting, 21-23 Oct 2005, Banff, Alberta, Canada.
228. R Cheng, A Habib, **R Frayne**, J Ronsky. Registration of knee joint surfaces for the *in vivo* study of joint injuries based on magnetic resonance imaging. SPIE Medical Imaging Meeting, 11-16 Feb 2006, San Diego, CA, USA.
229. JC Kosior, **R Frayne**. PerfTool: A software platform for investigating CT and MR perfusion. American Society of Neuroradiology 44th Annual Meeting, 29 April – 5 May 2006, San Diego, California, USA.
230. AD Harris, RC Ryder, M Hudon, WY Hu, WF Morrish, RJ Sevick, JH Wong, **R Frayne.** A canine model of ischemic stroke for MR guided endovascular therapy. American Society of Neuroradiology 44th Annual Meeting, 29 April – 5 May 2006, San Diego, California, USA.
231. JN Draper, M Sabati, ML Lauzon, **R Frayne**. Real-time endovascular magnetic resonance system for interventional therapy. American Society of Neuroradiology 44th Annual Meeting, 29 April – 5 May 2006, San Diego, California, USA.
232. M Smith, M Salluzzi, **R Frayne**. Adaptive SVD thresholding is shown to be more appropriate for partial brain scans (TR = 1 s) rather than full brain scans (TR = 2 s) . International Society of Magnetic Resonance in Medicine, 14th Annual Scientific Meeting, 6-12 May 2006, Seattle, Washington, USA.
233. M Govindaraj, AD Harris, **R Frayne**. Variability in ADC and FA Measurements in acute ischemic stroke. International Society of Magnetic Resonance in Medicine, 14th Annual Scientific Meeting, 6-12 May 2006, Seattle, Washington, USA.
234. ML Lauzon, M Breitling, **R Frayne**, H Mahallati. 3D multi-phase contrast-enhanced MR imaging of cirrhosis: 3.0. T versus 1.5 T. International Society of Magnetic Resonance in Medicine, 14th Annual Scientific Meeting, 6-12 May 2006, Seattle, Washington, USA.
235. M Salluzzi, MR Smith, **R Frayne**. A new approach using the distribution of transit times (DTT) to determine improved absolute CBF values in patients with ischemic stroke. International Society of Magnetic Resonance in Medicine, 14th Annual Scientific Meeting, 6-12 May 2006, Seattle, Washington, USA.
236. RK Kosior, MD Hill, JC Kosior, **R Frayne**. 3 T vs 1.5 T MR diffusion and perfusion imaging in hyper-acute Ischemic stroke. International Society of Magnetic Resonance in Medicine, 14th Annual Scientific Meeting, 6-12 May 2006, Seattle, Washington, USA.
237. RB Stafford, M Sabati, M. L. Lauzon, H Mahallati, **R Frayne**. Comparison between variable rate k-space sampling and sequential k-space acquisition with bSSFP and CMT. International Society of Magnetic Resonance in Medicine, 14th Annual Scientific Meeting, 6-12 May 2006, Seattle, Washington, USA.
238. DJ Niven, JC Kosior, PJ Dickoff, I Dzialowski, A Subramaniam, AM Demchuk, **R Frayne**. Variability in qCBF obtained from deconvolution-based perfusion-weighted MR techniques. International Society of Magnetic Resonance in Medicine, 14th Annual Scientific Meeting, 6-12 May 2006, Seattle, Washington, USA.
239. H Peng, M Sabati, ML Lauzon, **R Frayne**. Sparse k-space sampling strategies and projection-onto-convex sets image reconstruction for improved fast 3D imaging. International Society of Magnetic Resonance in Medicine, 14th Annual Scientific Meeting, 6-12 May 2006, Seattle, Washington, USA.
240. H Peng, MR Smith, **R Frayne**. Autoregressive moving average (ARMA) method for the reconstruction of MR images from sparsely sampled 3D K-Space. International Society of Magnetic Resonance in Medicine, 14th Annual Scientific Meeting, 6-12 May 2006, Seattle, Washington, USA.

241. JC Kosior, **R Frayne**. Accurate dynamic susceptibility contrast MR perfusion quantification using spatiotemporal noise filtering algorithms. International Society of Magnetic Resonance in Medicine, 14th Annual Scientific Meeting, 6-12 May 2006, Seattle, Washington, USA.
242. JC Kosior, **R Frayne**. Digital anthropomorphic perfusion phantom for the evaluation of DSC-MR perfusion algorithms. International Society of Magnetic Resonance in Medicine, 14th Annual Scientific Meeting, 6-12 May 2006, Seattle, Washington, USA.
243. M Sabati, H Peng, **R Frayne**. Noise characteristics in POCS (projection onto convex sets)-reconstructed MR images. International Society of Magnetic Resonance in Medicine, 14th Annual Scientific Meeting, 6-12 May 2006, Seattle, Washington, USA.
244. L Ko, M Salluzzi, **R Frayne**, M Smith. A re-examination of the impact of dispersion on quantitative cerebral blood flow measurements. International Society of Magnetic Resonance in Medicine, 14th Annual Scientific Meeting, 6-12 May 2006, Seattle, Washington, USA.
245. JN Draper, M Sabati, ML Lauzon, **R Frayne**. Image fusion for catheter tracking in MR-guided endovascular therapy. Canadian Organization of Medical Physicists Annual Meeting. 52nd Annual Scientific Meeting. 31 May-3 June 2006, Saskatoon, Saskatchewan, Canada.
246. H Peng, M Sabati, ML Lauzon, **R Frayne**. Comparison of image reconstruction algorithms for reconstruction of 3D sparsely sampled k-space data. Canadian Organization of Medical Physicists Annual Meeting. 52nd Annual Scientific Meeting. 31 May-3 June 2006, Saskatoon, Saskatchewan, Canada.
247. RK Kosior, JC Kosior, **R Frayne**. Motion correction in DSC-MR perfusion-weighted imaging for ischemic stroke. Canadian Organization of Medical Physicists Annual Meeting. 52nd Annual Scientific Meeting. 31 May-3 June 2006, Saskatoon, Saskatchewan, Canada.
248. I Fjeld, J Johnson, J Ronsky, **R Frayne**. Integration of finite helical axis location with magnetic resonance images of the knee. World Congress of Biomechanics Fifth Annual Meeting, 29 July-4 Aug 2006. Munich, Germany.
249. MR Smith, J Miller, L Ko, J Chen, A Geras, **R Frayne.** Approaches to validating the "quantity" in quantitative MR cerebral perfusion studies. 3rd International Conference MEDSIP 2006, 17-19 July 2006, Glasgow, UK.
250. RK Kosior, ML Lauzon, P Federico, **R Frayne**. T2 relaxometry and voxel-based statistics for MR imaging of epilepsy. Alberta Biomedical Engineering Meeting, 7th Annual Meeting, 20-22 Oct 2006, Banff, Alberta, Canada.
251. JC Kosior, RK Kosior, **R Frayne**. Robust dynamic susceptibility contrast MR perfusion techniques: correcting for motion and noise artifacts. Radiological Society of North America 92nd Scientific Assembly and Annual Meeting, 26 Nov-1 Dec 2006, Chicago, Illinois, USA.
252. JC Kupper, JL Ronsky, **R Frayne**, I Robu, D Hart. A novel measure of knee joint laxity. Canadian Arthritis Network Meeting. 2006 Annual Scientific Conference, 30 Nov - 2 Dec 2006, Winnipeg, Manitoba, Canada.
253. RK Kosior, ML Lauzon, P Federcio, **R Frayne**. T2 relaxometry and voxel-based statistics for MR imaging of epilepsy. NeuroConnections Retreat, 26-27 Jan 2007, Banff, Alberta, Canada.
254. MD Hill, C Wright, R Martin, JR Mitchell, **R Frayne**, AM Demchuk, KJ Ryckborst, D Tamariz, MD Ginsberg, YY Palesch. MR evidence of reduced lesion volume after human albumin therapy for acute ischemic stroke. The ALIAS pilot trial. American Academy of Neurology, 59th Annual Meeting, 28 April – 5 May 2007, Boston, Massachusetts, USA.
255. AD Harris, JC Kosior, LB Andersen, **R Frayne**. Intraarterial perfusion to monitor endovascular procedures in MR. International Society for Magnetic Resonance in Medicine, 15th Annual Scientific Meeting, 19-25 May 2007, Berlin, Germany.
256. AD Harris, **R Frayne**. Early changes in the apparent diffusion coefficient following ischemic stroke in canines. International Society for Magnetic Resonance in Medicine, 15th Annual Scientific Meeting, 19-25 May 2007, Berlin, Germany.

257. M Salluzzi, MR Smith, **R Frayne**. Investigating absolute quantification in MR perfusion studies. International Society for Magnetic Resonance in Medicine, 15th Annual Scientific Meeting, 19-25 May 2007, Berlin, Germany.
258. JC Kosior, **R Frayne**. Cerebral blood flow estimation using local tissue reference functions. International Society for Magnetic Resonance in Medicine, 15th Annual Scientific Meeting, 19-25 May 2007, Berlin, Germany.
259. JC Kosior, RK Kosior, **R Frayne**. The potential sensitivity of cerebral blood flow to cross-calibration. International Society for Magnetic Resonance in Medicine, 15th Annual Scientific Meeting, 19-25 May 2007, Berlin, Germany.
260. MR Smith, M Salluzzi, **R Frayne**. A novel approach to remove the effect of recirculation in arterial input functions. International Society for Magnetic Resonance in Medicine, 15th Annual Scientific Meeting, 19-25 May 2007, Berlin, Germany.
261. RK Kosior, JC Kosior, **R Frayne**. Robust DSC MR perfusion using a patient motion correction scheme. International Society for Magnetic Resonance in Medicine, 15th Annual Scientific Meeting, 19-25 May 2007, Berlin, Germany.
262. M Sabati, C Hahn, MA Bates, MJ Verano, MJ Haakstad, **R Frayne**. A real-time system for interactive large FOV MR imaging. International Society for Magnetic Resonance in Medicine, 15th Annual Scientific Meeting, 19-25 May 2007, Berlin, Germany.
263. M Sabati, **R Frayne**. Is sub-pixel registration necessary for continuously moving table MRI. International Society for Magnetic Resonance in Medicine, 15th Annual Scientific Meeting, 19-25 May 2007, Berlin, Germany.
264. RK Kosior, ML Lauzon, **R Frayne**, P Federico. T2 relaxometry and voxel-based statistics for MR imaging of epilepsy. 42nd Congress of the Canadian Neurological Sciences, 19-22 June 2007, Edmonton, Alberta, Canada.
265. I Robu, JL Ronsky, **R Frayne**, AH Habib. Assesment of a novel technique for in-vivo investigation of joint cartilage deformation characteristics. ASME 2007 Summer Bioengineering Conference, 20-24 June 2007, Keystone Resort & Conference Center, Keystone, Colorado, USA.
266. JC Küpper, JL Ronsky, **R Frayne**, I Robu, B Loitz-Ramage, DA Hart. A novel measure of in-vivo knee joint laxity. ASME 2007 Summer Bioengineering Conference, 20-24 June 2007, Keystone Resort & Conference Center, Keystone, Colorado, USA. [*Honorable Mention, MSc Student Paper Competition*]
267. IR Fjeld, JC Küpper. JL Ronsky , **R Frayne**. Knee joint motion quantified using the finite helical axis method. ASME 2007 Summer Bioengineering Conference, 20-24 June 2007, Keystone Resort & Conference Center, Keystone, Colorado, USA. [*First Place, MSc Student Paper Competition.*]
268. RK Kosior, N Steffenhagen, JC Kosior, C O'Reilly, AM Demchuk, **R Frayne**. Semi-automated topographical scoring for MR imaging of ischemic stroke. Alberta Biomedical Engineering Meeting, 7th Annual Meeting, 19-21 Oct 2007, Banff, Alberta, Canada.
269. RS Stafford, M Sabati, MJ Haakstad, H Mahallati, **R Frayne**. Non-contrast-enhanced MR angiography of the peripheral vasculature with the balanced steady-state free precession Dixon method. Alberta Biomedical Engineering Meeting, 7th Annual Meeting, 19-21 Oct 2007, Banff, Alberta, Canada.
270. HS Chen, JN Draper, LB Andersen, **R Frayne** Selection and integration of roadmap images for MR-guided catheter tracking. Alberta Biomedical Engineering Meeting, 7th Annual Meeting, 19-21 Oct 2007, Banff, Alberta, Canada.
271. MJ Haakstad, RB Stafford, M Sabati, H Mahallati, **R Frayne**. Non-contrast enhanced MR angiography of the carotid arteries with balanced steady-state free precession Dixon method. Alberta Biomedical Engineering Meeting, 7th Annual Meeting, 19-21 Oct 2007, Banff, Alberta, Canada.
272. JM Sill, TC Williams, EC Fear, **R Frayne**, M Okoniewski. Realistic breast models for second generation tissue sensing adaptive radar system. European Conference on Antennas and Propagation, 11 - 16 Nov 2007, Edinburgh, UK

273. RB Stafford, M Sabati, MJ Haakstad, H Mahallati, **R Frayne**. Applying the bSSFP Dixon Method for fat-water separation to non-contrast-enhanced MRA in the legs. International Society for Magnetic Resonance in Medicine, 16th Annual Scientific Meeting, 3-9 May 2008, Toronto, Ontario, CANADA.
274. M Sabati, H Peng, **R Frayne**. Phase-constrained reconstruction of GRAPPA for accelerated acquisitions. International Society for Magnetic Resonance in Medicine, 16th Annual Scientific Meeting, 3-9 May 2008, Toronto, Ontario, CANADA.
275. RB Stafford, M Sabati, MJ Haakstad, H Mahallati, **R Frayne**. Non-contrast enhanced MRA of the renal vasculature with the bSSFP Dixon method. International Society for Magnetic Resonance in Medicine, 16th Annual Scientific Meeting, 3-9 May 2008, Toronto, Ontario, CANADA.
276. MS Bristow, BW Poulin, JE Simon, MD Hill, JC Kosior, SB Coutts, **R Frayne**, JR Mitchell, AM Demchuk. Predicting infarct growth with multi-parametric modeling in acute ischemic stroke. International Society for Magnetic Resonance in Medicine, 16th Annual Scientific Meeting, 3-9 May 2008, Toronto, Ontario, CANADA.
277. RK Kosior, N Steffenhagen, JC Kosior, AM Demchuk, **R Frayne**. Semi-automated topographical scoring for MR imaging of ischemic stroke. International Society for Magnetic Resonance in Medicine, 16th Annual Scientific Meeting, 3-9 May 2008, Toronto, Ontario, CANADA.
278. RK Kosior, ML Lauzon, **R Frayne**, P Federico Single subject voxel-based relaxometry for clinical assessment of temporal lobe epilepsy. Organization for Human Brain Mapping, 14th Annual Meeting. 15-19 June 2008, Melbourne Australia.
279. HS Chen, JN Draper, LB Andersen, M Sabati, **R Frayne**. Roadmap images for endvascular MR. Canadian Organization of Medical Physicists 54th Annual Meeting, 25-27 June 2008, Quebec City, Quebec, CANADA.
280. RA Brown, **R Frayne**. A fast discrete S-transform for biomedical signal processing. IEEE Engineering in Medicine and Biology Society, 30th Annual International Conference (EMBC'08), 20-24 Aug 2008, Vancouver, British Columbia, CANADA.
281. J Yerly, ML Lauzon, HS Chen, **R Frayne.** Catheter visualization for endovascular MR using compressive sampling. Rapid-Imaging: Beyond the Nyquist Limit Workshop, 12-13 Oct 2008, Freiburg, Germany.
282. ML Lauzon, RA Brown, M Sabati, J Yerly, **R Frayne**. Understanding parallel imaging reconstruction using the STFT formalism. Rapid-Imaging: Beyond the Nyquist Limit Workshop, 12-13 Oct 2008, Freiburg, Germany.
283. M Sabati, RB Stafford, MJ Haakstad, ML Lauzon, **R Frayne**. Accelerated non-contrast enhanced bSSFP MR angiography with the Dixon method. Rapid-Imaging: Beyond the Nyquist Limit Workshop, 12-13 Oct 2008, Freiburg, Germany.
284. H Peng, M Sabati, **R Frayne**. Accelerating MR using SENSE and POCS. Rapid-Imaging: Beyond the Nyquist Limit Workshop, 12-13 Oct 2008, Freiburg, Germany.
285. H Mahllati, RB Stafford, ML Lauzon, **R Frayne**. Renal artery stenosis: Evaluation without contrast agent or radiation. MR Angio Club, 20th Annual Meeting. 15-18 Oct 2008, Graz, Austria.
286. ME MacDonald, **R Frayne**, MR Smith. Fourier Domain Extrapolation to Improve MR Perfusion. Alberta Biomedical Engineering Meeting, 7th Annual Meeting, 24-26 Oct 2008, Banff, Alberta, Canada.
287. A-L Aulanier, LB Andersen, H Mahallati **R Frayne**. Targeted Molecular Contrast Agents To Detect Early Atherosclerosis. Alberta Biomedical Engineering Meeting, 7th Annual Meeting, 24-26 Oct 2008, Banff, Alberta, Canada.
288. J Yerly, ML Lauzon, HS Chen, **R Frayne**. Rapid MR Catheter Visualization for Endovascular Therapy Using Compressive Sampling. Alberta Biomedical Engineering Meeting, 7th Annual Meeting, 24-26 Oct 2008, Banff, Alberta, Canada.
289. J Yerly, ML Lauzon, HS Chen, **R Frayne**. Catheter Visualization for endovascular MR: compressive sampling versus POCS for different sampling schemes. International Society for

Magnetic Resonance in Medicine Workshop on Data Acquisition, 31 Jan 2009, Sedona, Arizona, USA.

290. JC Kosior, S Idris, D Dowlatshahi, M Alzawahmah, S Tymchuk, MD Hill, **R Frayne**, AD Demchuk for the PREDICT/Sunnybrook CTA ICH Study Investigators. Quantomo: Validation of a computer-assisted method used in the predict trial for volumetric analysis of hematoma in intracerebral hemorrhage. American Heart Association International Stroke Conference. 17-20 Feb 2009, San Diego, CA, USA.
291. RA Brown, **R Frayne**. Design of an MR phantom for comparison of frequency based texture analysis techniques. International Society for Magnetic Resonance in Medicine 17th Scientific Meeting, 18-24 April 2009, Honolulu, Hawai'i, USA.
292. JC Kosior, **R Frayne**. DSC-MR perfusion: Leave tracer recirculation alone. International Society for Magnetic Resonance in Medicine 17th Scientific Meeting, 18-24 April 2009, Honolulu, Hawai'i, USA.
293. RK Kosior, R Sharkey, P Federico, **R Frayne**. Voxel-based relaxometry for cases of an unresolved epilepsy diagnosis. International Society for Magnetic Resonance in Medicine 17th Scientific Meeting, 18-24 April 2009, Honolulu, Hawai'i, USA.
294. RA Brown, AD Harris, **R Frayne**. Demonstration of a novel edge analysis technique using a purpose built MR phantom. International Society for Magnetic Resonance in Medicine 17th Scientific Meeting, 18-24 April 2009, Honolulu, Hawai'i, USA.
295. ML Lauzon, RB Stafford, M Sabati, **R Frayne**. Dixon bSSFP in the presence of Bo inhomogeneities. International Society for Magnetic Resonance in Medicine 17th Scientific Meeting, 18-24 April 2009, Honolulu, Hawai'i, USA.
296. H Mahallati, ML Lauzon, L Andersen, **R Frayne**. Non-contrast-enhanced MR identification of deep vein thrombosis: A feasibility study. International Society for Magnetic Resonance in Medicine 17th Scientific Meeting, 18-24 April 2009, Honolulu, Hawai'i, USA.
297. J Yerly, ML Lauzon, HS Chen, **R Frayne**. Catheter visualization for endovascular MR using compressive sampling: Comparison against POCS. International Society for Magnetic Resonance in Medicine 17th Scientific Meeting, 18-24 April 2009, Honolulu, Hawai'i, USA.
298. AD Harris, HMS Chen, LB Andersen, RK Kosior, **R Frayne**. Diffusion lesion reversal in a canine ischemic stroke model. American Society for Neuroradiology 47th Annual Meeting. 16-19 May 2009, Vancouver, British Columbia, Canada.
299. JC Kosior, D Dowlatshahi, S Idris , M Alzawahmah, S Tymchuk, MD Hill, **R Frayne**, AM Demchuk for the PREDICT/Sunnybrook CTA ICH Study Investigators. Quantomo: validation of a computer-assisted method used in the PREDICT trial for volumetric analysis of hematoma in intracerebral hemorrhage. American Society for Neuroradiology 47th Annual Meeting. 16-19 May 2009, Vancouver, British Columbia, Canada.
300. M Salluzi, MR Smith, **R Frayne**. Investigating absolute quantification in MR perfusion studies: the role of partial–volume errors. Canadian Medical and Biomedical Engineering Conference 32nd Annual Meeting. 20-22 May 2008, Calgary, Alberta, Canada.
301. ME McDonald, **R Frayne**, MR Smith. Extrapolation methods for improving MR perfusion measurements. Canadian Medical and Biomedical Engineering Conference 32nd Annual Meeting. 20-22 May 2008, Calgary, Alberta, Canada.
302. JC Kosior, S Idris , D Dowlatshahi, M Alzawahmah, S Tymchuk, MD Hill, P Dickoff, M Joshi, **R Frayne**, AM Demchuk for the PREDICT/Sunnybrook CTA ICH Study Investigators. Quantomo: validation of a computer-assisted method used in the PREDICT trial for volumetric analysis of hematoma in intracerebral and intraventricular hemorrhage. European Stroke 18th Congress, 26 - 29 May 2009, Stockholm, Sweden.
303. RK Kosior, R Sharkey, **R Frayne**, P Federico. Single-subject voxel-based T2 relaxometry in focal epilepsy of uncertain origin. 44th Congress of the Canadian Neurological Sciences Federation, 9-12 June 2009, Halifax, Nova Scotia, Canada.

304. ME McDonald, RB Stafford, **R Frayne**. Real-time MR imaging for angioplasty. Canadian Organization of Medical Physicists 55th Annual Meeting, 21-24 July 2009, Victoria, BC, Canada.
305. AL Aulanier, LB Andersen, KD Rinker, R Shepherd, **R Frayne**. A sophisticated flow system to investigate early atherosclerosis using molecular contrast agent. World Molecular Imaging Conference, 23-26 Sep 2009, Montreal, QC, Canada.
306. RB Stafford, M Sabati, H Mahallati, **R Frayne**. Towards continuously moving table NCE peripheral MRA. MR Angio Club, 21st Annual Meeting. 28-30 Sep 2009, East Lansing, Michigan, USA.
307. ML Lauzon, H Mahallti, LB Anersen, **R Frayne**. Non-contrast-enhanced MR identification of DVT. MR Angio Club, 21st Annual Meeting. 28-30 Sep 2009, East Lansing, Michigan, USA.
308. R Brown, K Schnackenburg, H Macdonald, D Hanley, **R Frayne**, S Boyd. Texture analysis for fracture prediction in osteoporosis based on HR-pQCT and the fast S-Transform. American Society for Bone and Mineral Research 31st Annual Meeting, Denver, Colorado, USA.
309. RB Stafford, ME MacDonald, **R Frayne**. Real-time gradient war correction with OpenGL NURBS surfaces. International Society for Magnetic Resonance in Medicine. Eighteenth Scientific Meeting and Exhibition. 1-7rich May 2010, Stockholm, Sweden.
310. MR Smith, M Salluzzi, J Qiao, **R Frayne**. Reducing tissue-specific errors when estimating cerebral blood flow using DSC MRI. International Society for Magnetic Resonance in Medicine. Eighteenth Scientific Meeting and Exhibition. 1-7 May 2010, Stockholm, Sweden.
311. AD Harris, LB Andersen, RK Kosior, HS Chen, M Salluzzi, RB Stafford, BG Goodyear, **R Frayne**. Evolution of fractional anisotropy in hyperacute ischemic stroke. International Society for Magnetic Resonance in Medicine. Eighteenth Scientific Meeting and Exhibition. 1-7 May 2010, Stockholm, Sweden.
312. AD Harris, LB Andersen, HS Chen, P Sharma, **R Frayne**. Fractional anisotropy changes following blood brain barrier disruption. International Society for Magnetic Resonance in Medicine. Eighteenth Scientific Meeting and Exhibition. 1-7 May 2010, Stockholm, Sweden.
313. RJ Sharkey, RK Kosior, P Federico, **R Frayne**. Assessing the effect of age on voxel-based relaxometry of epileptic patients. International Society for Magnetic Resonance in Medicine. Eighteenth Scientific Meeting and Exhibition. 1-7 May 2010, Stockholm, Sweden.
314. J Yerly, ML Lauzon, **R Frayne**. Feasibility Study of Combining CS with SENSE for Catheter Visualization in MR Endovascular Intervention. International Society for Magnetic Resonance in Medicine. Eighteenth Scientific Meeting and Exhibition. 1-7 May 2010, Stockholm, Sweden.
315. ME MacDonald, RB Stafford, ML Lauzon, **R Frayne**. Gradient warp and UnderSampled Transform Operation (GUSTO). International Society for Magnetic Resonance in Medicine. Eighteenth Scientific Meeting and Exhibition. 1-7 May 2010, Stockholm, Sweden.
316. MM Hirji, CR McCreary, AD Harris, RK Kosior, **R Frayne**. Early FA change in acute ischemic stroke. International Society for Magnetic Resonance in Medicine. Eighteenth Scientific Meeting and Exhibition. 1-7 May 2010, Stockholm, Sweden.
317. CF Curtis, **R Frayne**, EC Fear. Automated registration of x-ray mammograms and magnetic resonance breast images. Canadian Organization of Medical Physicists 56th Annual Meeting, 16-19 June 2010, Ottawa, ON, Canada
318. P Gauderon, M Salluzi, CR McCreary, MR Smith, **R Frayne**. Investigating contrast agent concentration in DCE-MR using a SPGR pulse sequence. 11th Alberta Biomedical Engineering Meeting, 22-24 Oct 2010, Banff, Alberta.
319. NE Swailes, ME MacDonald, **R Frayne**. Closed-Loop Circulation Phantom with Heart and Lung Motion for Validating Passive Catheter Tracking. 11th Alberta Biomedical Engineering Meeting, 22-24 Oct 2010, Banff, Alberta.
320. WE Misik, AM Demchuk, **R Frayne**, B Menon. Modeling the Ischemic Penumbra in Acute Stroke: a Novel "Balloon" Volume Approach. 11th Alberta Biomedical Engineering Meeting, 22-24 Oct 2010, Banff, Alberta.

321. D Dowlatshai, J Kosior, S Irdis, M Essa, P Dickhoff, M Joshi, S Subramanian, S Tymchuk, MD Hill, R Aviv, **R Frayne**, AM Demchuk for the PREDCIT Sunnybrook Study. Validation of a computerized planimetric tool for quantifying intraventricular hemorrhage volumes. International Stroke Conference, 8-10 Feb 2011, Los Angeles, California, USA.
322. ME MacDonald, NE Swailes, RB Stafford, LB Anderson, CR McCreary, **R Frayne**. Catheter Tracking using Passive Magnetic Resonance Imaging into the Ascending Aorta. 11th Alberta Biomedical Engineering Meeting, 22-24 Oct 2010, Banff, Alberta.
323. CF Curtis, **R Frayne**, EC Fear. Estimation of three-dimensional breast features from two-view mammograms. 11th Alberta Biomedical Engineering Meeting, 22-24 Oct 2010, Banff, Alberta.
324. J Yerly, ML Lauzon, **R Frayne**. Visualizing small intra-cranial arteries using TOF with compressed sensing. International Society for Magnetic Resonance in Medicine 19th Scientific Meeting, 7-13 May 2011, Monteal, Quebec, Canada.
325. ME MacDonald, MR Smith, **R Frayne**. Improving CBF Image Contrast with Frequency Extrapolation for DSC-MRI during Acute Stroke. International Society for Magnetic Resonance in Medicine 19th Scientific Meeting, 7-13 May 2011, Monteal, Quebec, Canada.
326. RB Stafford, ML Lauzon, M Sabati, LB Andersen, H Mahallati, **R Frayne**. Diagnostic quality assessment of the bSSFP Dixon method for NCE MRA. International Society for Magnetic Resonance in Medicine 19th Scientific Meeting, 7-13 May 2011, Monteal, Quebec, Canada.
327. WE Missik, **R Frayne**, B Menon. A New Model For Characterizing the Temporal Progression of the Ischemic Penumbra in Acute Ischemic Stroke. International Society for Magnetic Resonance in Medicine 19th Scientific Meeting, 7-13 May 2011, Monteal, Quebec, Canada.
328. ME MacDonald, ML Lauzon, J Nielsen, **R Frayne**. Determining the Cramer-Rao lower bound in magnetic resonance imaging. American Association of Medical Physicists/Canadian Organization of Medical Physicists Joint Meeting, 31 July -4 Aug 2011, Vancouver, BC.
329. P Gauderon, ML Lauzon, M Salluzzi, MR Smith, **R Frayne**. Whole-brain DCE quantitative perfusion imaging, American Association of Medical Physicists/Canadian Organization of Medical Physicists Joint Meeting, 31 July -4 Aug 2011, Vancouver, BC.
330. AD Harris, MM Hirji, CR McCreary, **R Frayne**. Early diffusion tensor changes in ischemic white matter. White Matter Study Group 2011 Workshop: Advanced White Matter Imaging, 22-26 Aug 2011, Reykjavik, Iceland.
331. CR McCreary, KG Sanchez, G Kumarpillai, **R Frayne**, EE Smith. Severity of white matter hyperintensities evaluated using diffusion tensor imaging. White Matter Study Group 2011 Workshop: Advanced White Matter Imaging, 22-26 Aug 2011, Reykjavik, Iceland.
332. CF Curtis, **R Frayne**, EC Fear. Automated multimodal breast image registration. Nuclear Science Symposium (NSS) and Medical Imaging Conference (MIC), 23 Oct – 29 Oct 2011, Valencia, Spain. MIC12.M-185.
333. A-L Cheng, CR McCreary, ML Lauzon, **R Frayne**, M Goyal, EE Smith. Sensitivity and reliability of SWI compared to T2* GRE MRI for detection of microbleeds in cerebral amyloid angiopathy. International Stroke Conference 2012, 1-3 Feb 2012, New Orleans, LA, USA.
334. ML Lauzon, F Sayani, K Valentine, **R Frayne**, H Mahallati. Liver iron content quantification via single breath-hold MR imaging at 3.0 Tesla. International Society for Magnetic Resonance in Medicine, 5-11 May 2012, Melbourne, Australia.
335. P Gauderon, M Salluzzi, ML Lauzon, MR Smith, **R Frayne** High SNR DCE imaging for whole-brain perfusion assessment. International Society for Magnetic Resonance in Medicine, 5-11 May 2012, Melbourne, Australia.
336. CR McCreary, E Donaldson, KG Sanchez, **R Frayne**, EE Smith. Severity of White Matter Hyperintensities Evaluated using Diffusion Tensor Imaging. International Society for Magnetic Resonance in Medicine, 5-11 May 2012, Melbourne, Australia.
337. LY Li, CR McCreary, F Costello, **R Frayne**. Comparison of susceptibility-weighted imaging methods for detection of differences in deep grey matter in MS. International Society for Magnetic Resonance in Medicine, 5-11 May 2012, Melbourne, Australia.

338. J Yerly, ML Lauzon, **R Frayne.** Recontruction of TOF images from undersampled k-space data using SENSE, GRAPPA, CS, CS-SENSE, SPIRiT, and L1-SPIRiT. International Society for Magnetic Resonance in Medicine, 5-11 May 2012, Melbourne, Australia.

339. ME MacDonald, P Dolati, LB Anderson, CR McCreary, J Wong, **R Frayne**. Measurement of perfusion during transient carotid occlusion. International Society for Magnetic Resonance in Medicine, 5-11 May 2012, Melbourne, Australia.

340. ME MacDonald, D Adair, P Dolati, J Yerly, **R Frayne**. Real-time 3D MRI with random undersampling trajectories to visualize endovascular catheters and contrast inflow. International Society for Magnetic Resonance in Medicine, 5-11 May 2012, Melbourne, Australia.

341. S. Beladi, CR McCreary, EE Smith, ML Lauzon, ME MacDonald **R Frayne**. Quantitative susceptibility mapping as an improved biomarker for cerebral microbleeeds in small vessel disease. International Society for Magnetic Resonance in Medicine, 5-11 May 2012, Melbourne.

342. W Misik, AM Demchuk, **R Frayne**, B Menon. Assessing the Characteristics of Acute Ischemic Stroke Using Quantitative Cerebral Blood Flow Gradient Mapping. Canadian Association of Physics Congress, 11-15 June 2012, Calgary, Alberta.

343. ME Boesen, J Yerly, ML Lauzon, RM Lebel, **R Frayne**. Dynamic Fast Spin Echo MR Imaging for Distensibility Measurement in Human Carotid Arteries. Canadian Association of Physics Congress, 11-15 June, Calgary, Alberta. (*1st place in the Medical/Biological Physics Stream Student Presentation Competition*).

344. J Yerly, RJ Sevick, ML Lauzon, **R Frayne**. Accelerating Acute MR Stroke Protocol Using Advanced Reconstruction Techniques. MITACS Workshop on the Mathematics of Brain Imaging 11-3 July 2012, Burnaby, BC. (*Winner best trainee presentation*)

345. DG Gobbi, Q Lu, **R Frayne**, M Salluzzi. Cerebra-WML: A Stand-Alone Application for White Matter Lesion Quantification. MITACS Workshop on the Mathematics of Brain Imaging 11-3 July 2012, Burnaby, BC.

346. **R Frayne**. NSERC CREATE International and Industrial Imaging Training (I3T) Program. MITACS Workshop on the Mathematics of Brain Imaging 11-3 July 2012, Burnaby, BC.

347. AL. Doiron, SXY Jiang, RRM Steele, LB Andersen, RD Shepherd, SJ Childs, DT Cramb, **R Frayne**, KD Rinker. Experimental In Vitro and In Vivo Testing Systems for Evaluation of Novel Contrast Agent Nanoparticles. 13th Meeting International Society for Applied Cardiovascular Biology, 12-15 Sep 2012, London, UK.

348. RM Lebel, J Jones, M Law, KS Nayak, **R Frayne**, A Shankaranarayanan. Time resolved contrast enhanced angiography with parallel imaging and compressed sensing. XXIV International Workshop on Magnetic Resonance Angiography, 19-21 Sep 2012, Utrecht, The Netherlands.

349. J Yerly, RJ Sevick, ML Lauzon, **R Frayne**. Acquisition and Reconstruction Techniques to Accelerate Acute MR Cerebrovascular Imaging. XXIV International Workshop on Magnetic Resonance Angiography, 19-21 Sep 2012, Utrecht, The Netherlands.

350. RJ Sevick, J Yerly, ML Lauzon, **R Frayne**. Accelerating an MR Stroke Protocol with State-of-the-Art Acquisition and Reconstruction Techniques. XXIV International Workshop on Magnetic Resonance Angiography, 19-21 Sep 2012, Utrecht, The Netherlands.

351. ME Boesen, J Yerly, RM Lebel RM, ML Lauzon, **R Frayne**. Dynamic Fast Spin Echo Imaging for Time Resolved Carotid Assessment. XXIV International Workshop on Magnetic Resonance Angiography, 19-21 Sep 2012, Utrecht, The Netherlands.

352. ME MacDonald, P Dolati, A Mitha, JH Wong, T Leung, J Nielsen, **R Frayne**. Sensitivity of Phase Contrast Derived Wall Shear Stress Fields to Receiver Bandwidth in the Circle of Willis. XXIV International Workshop on Magnetic Resonance Angiography, 19-21 Sep 2012, Utrecht, The Netherlands.

353. MB Boesen MB, J Yerly, RM Lebel, ML Lauzon, R Frayne. Spatio-Temporal Sparse SENSE Reconstruction of Retrospectively Gated Fast Spin Echo Data. 3rd International Workshop on Accelerated Magnetic Resonance Imaging, 23-24 Sep 2012, Freiburg, Germany.

354. AL Doiron, RD Shepherd, KD Rinker, **R Frayne**, LB Andersen, *In vitro* and *In vivo* Investigation of an MR Molecular Imaging Agent for Detection of Atherosclerotic Plaques. 3rd Annual Canadian Stroke Congress, 29 Sep - 2 Oct 2012, Calgary, Alberta.
355. J Yerly, ML Lauzon, RJ Sevick, **R Frayne**. Accelerating MR Stroke Protocol Using SENSE, GRAPPA, CS, CS-SENSE, SPIRiT, and L1-SPIRiT. 3rd Annual Canadian Stroke Congress, 29 Sep - 2 Oct 2012, Calgary, Alberta.
356. A-L Cheng, CR McCreary, ML Lauzon, **R Frayne**; M Goyal, EE Smith, SWI Is More Reliable than T2* GRE MRI for Detection of Microbleeds in Cerebral Amyloid Angiopathy. 3rd Annual Canadian Stroke Congress, 29 Sep - 2 Oct 2012, Calgary, Alberta.
357. ME Boesen, J Yerly, ML Lauzon, RM Lebel, **R Frayne**. Dynamic MRI to Reduce Motion Artifacts in Carotid Imaging. 3rd Annual Canadian Stroke Congress, 29 Sep - 2 Oct 2012, Calgary, Alberta.
358. W Misik, CR McCreary, EE Smith, **R Frayne**. Evaluation of MR Image Normalization Methods for Cerebral Small Vessel Disease. 3rd Annual Canadian Stroke Congress, 29 Sep - 2 Oct 2012, Calgary, Alberta.
359. DG Gobbi, Q Lu, **R Frayne**, M Salluzzi. Cerebra-WML: A Rapid Workflow for Quantification of White Matter Hyperintensities. 3rd Annual Canadian Stroke Congress, 29 Sep - 2 Oct 2012, Calgary, Alberta.
360. CR McCreary, E Donaldson, G Kumarpillai, MJ Poulin, **R Frayne**, EE Smith. Diffusion Tensor (DT) Characterization of Cerebral Amyloid Angiopathy (CAA). 3rd Annual Canadian Stroke Congress, 29 Sep - 2 Oct 2012, Calgary, Alberta.
361. ME MacDonald, B Menon, P Dolati, M Goyal, **R Frayne**. Arterial Spin Labeling Applications of Ischemic Stroke. 3rd Annual Canadian Stroke Congress, 29 Sep - 2 Oct 2012, Calgary, Alberta.
362. J Yerly, ML Lauzo, RJ Sevick, **R Frayne**, Accelerating MR stroke protocol using SENSE, GRAPPA, CS, CS-SENSE, SPIRiT, and L1-SPIRiT, 3rd Annual Canadian Stroke Congress, 29 Sep - 2 Oct 2012, Calgary, Alberta.
363. AL Doiron, RD Shepherd, KD Rinker, **R Frayne**, LB Andersen. In vitro and in vivo investigation of a magnetic resonance molecular imaging agent for detection of atherosclerotic plaques. 3rd Annual Canadian Stroke Congress, 29 Sep - 2 Oct 2012, Calgary, Alberta.
364. EE Donaldson, CR McCreary, A Charlton, G Kumarpillai, N Shobha, MJ Poulin, BG Goodyear, **R Frayne,** EE Smith. The neuropsychological profile of patients with cerebral amyloid angiopathy. 3rd Annual Canadian Stroke Congress, 29 Sep - 2 Oct 2012, Calgary, Alberta.
365. YL Li, **R Frayne**, CR McCreary. Quantitative comparison of susceptibility-weighted magnetic resonance imaging methods for detection of differences in deep grey matter in multiple sclerosis. 13th Annual Alberta Biomedical Engineering Meeting,19-21 Ocotber 2012, Banff, Alberta, Canada.
366. A Pulwicki, WE Misik, **R Frayne**, Evaluation of MR image normalization methods for cerebral small vessel disease. 13th Annual Alberta Biomedical Engineering Meeting,19-21 Ocotber 2012, Banff, Alberta, Canada.
367. E Lee, ME MacDonald, **R Frayne**. Optimal repetition time ranges for dynamic contrast enhanced T1-weighted magnetic resonance imaging. 13th Annual Alberta Biomedical Engineering Meeting,19-21 Ocotber 2012, Banff, Alberta, Canada.
368. D Adair, DG Gobbi, **R Frayne**. M Salluzzi. Perfusion. 13th Annual Alberta Biomedical Engineering Meeting,19-21 Ocotber 2012, Banff, Alberta, Canada.
369. AL Doiron, RD Shepherd, KD Rinker, **R Frayne**, LB Andersen. *In Vitro* and *In Vivo* Uptake of an MR Molecular Imaging Agent for Detection of Inflammatory Cells. Biomedical Engineering Society 2012 Annual Meeting, 24-27 Oct 2012, Atlanta, Georgia, USA.
370. S Peca, CR McCreary, E Donaldson, K Garcias, A Charlton, N Pillay, MJ Poulin, **R Frayne**, BG Goodyear, EE. Smith Neurovascular Coupling is Impaired in Cerebral Amyloid Angiopathy. International Stroke Conference, 6-8 Feb 2013, Honolulu, Hawai`I, USA.

371. J Yerly, **R Frayne**, RM Lebel. The 30-second Time-of-Flight Exam: Improving Image Quality with Modern Acceleration Methods. International Society for Magnetic Resonance in Medicine, 20-26 April 2013, Salt Lake City, Utah, USA. (*awarded ISMRM Merit Award – Magna cum laude*.)
372. ME MacDonald, RM Lebel, **R Frayne**. Passive Magnetic Resonance Catheter Tracking with Spatial Wavelet and Temporal Constraints. International Society for Magnetic Resonance in Medicine, 20-26 April 2013, Salt Lake City, Utah, USA.
373. LY Li, R Frayne, F Costello, **R Frayne**. Quantitative Comparison of Susceptibility-weighted Magnetic Resonance Imaging Methods for Detection of Differences in Deep Grey Matter in Multiple Sclerosis. International Society for Magnetic Resonance in Medicine, 20-26 April 2013, Salt Lake City, Utah, USA..
374. J Yerly, ME Boesen, ML Lauzon, **R Frayne**. Investigating Spatiotemporal Sparse SENSE Reconstruction to Preserve Geometric and Temporal Fidelity. International Society for Magnetic Resonance in Medicine, 20-26 April 2013, Salt Lake City, Utah, USA. (*awarded ISMRM Merit Award – Magna cum laude*.)
375. ME Boesen, J Yerly, ML Lauzon, RM Lebel, **R Frayne** Dynamic Fast Spin Echo Imaging of the Carotid Arteries. International Society for Magnetic Resonance in Medicine, 20-26 April 2013, Salt Lake City, Utah, USA.
376. ML Bernbaum, B Menon, EE Smith, M Goyal, **R Frayne**, SB Coutts. Predicting longitudinal white matter hyperintensity development in patients with TIA and minor stroke. European Stroke Congress, 28-31 May 2013, London, UK.
377. S Mishra, R Kosior, V Nambiar, S Bal, **R Frayne**, ML Lauzon, U Tuor, PA Barber. Quantitiated T1 and T2 MRI in acute stroke: A step towards a "tissue window" therapeutic paradigm. European Stroke Congress, 28-31 May 2013, London, UK.
378. A. Eilaghi, M. E. MacDonald, C.R. McCreary, M.L. Lauzon, E.E. Smith, D.G. Gobbi, M. Salluzzi, **R Frayne**. Characterization of Cerebral Microbleeds using MR Quantitative Susceptibility Mapping: Role in Imaging Clinical Trials of Dementia and Small Vessel Disease. Molecular Function and Imaging (MFI) Symposium, Ottawa, Ontario, Canada, 27-28 June 2013.
379. ME Boesen, J Yerly, RM Lebel, **R Frayne**. Black blood and bright blood time-resolved carotid area measurements. XXV International Workshop on Magnetic Resonance Angiography, 20-23 Aug 2013, New York, New York, USA.
380. E Lee, ME MacDonald, **R Frayne**. Improving dynamic contrast enhanced (DCE) MR perfusion measurements by appropriate selection of image acquisition parameters. XXV International Workshop on Magnetic Resonance Angiography, 20-23 Aug 2013, New York, New York, USA.
381. ME MacDonald, P Dolati, A Mitha JH Wong, **R Frayne**. Phase contrast magnetic resonance imaging in cerebrovascular malformations: Towards pressure estimation. XXV International Workshop on Magnetic Resonance Angiography, 20-23 Aug 2013, New York, New York, USA.
382. J Yerly, ML Lauzon, RM Lebel, RJ Sevick, **R Frayne**. Accelerating time-of-flight: A patient study. XXV International Workshop on Magnetic Resonance Angiography, 20-23 Aug 2013, New York, New York, USA.
383. F Costello, J Modi, M Goyal, J Scott, D Lautner, D Bhayana, J Trufyn, **R Frayne**, J Davenport, J Mah, M Hill. Determining the relationship between chronic cerebrospinal venous insufficiency (CCSVI) and multiple sclerosis (MS). 29th Congress of the European-Committee-for-Treatment-and-Research-in-Multiple-Sclerosis / 18th Annual Conference of Rehabilitation in MS, 2-5 Oct 2013, Copenhagen, Denmark.
384. T-Y Lee, B Menon, M Goyal, A Demchuk, M Essa, **R Frayne**. Quantitative CBF measurement with CT perfusion: Is it correct to correct the partial volume averaged arterial input curve with venous output curve? Canadian Stroke Congress, 17-20 Oct 2013, Montreal, Quebec.
385. E Lee, ME MacDonald, **R Frayne**. Enhanced dynamic contrast enhanced (DCE) MR for brain perfusion imaging. Canadian Stroke Congress, 17-20 Oct 2013, Montreal, Quebec.
386. ME Boesen, J Yerly, RM Lebel, **R Frayne**. Carotid artery distensibility evaluation with dynamic MR imaging. Canadian Stroke Congress, 17-20 Oct 2013, Montreal, Quebec.

387. J Yerly, ML Lauzon, RM Lebel, RJ Sevick, PA Barber, **R Frayne**. New approaches to fast stroke imaging with magnetic resonance. Canadian Stroke Congress, 17-20 Oct 2013, Montreal, Quebec.

388. S Batool, M O'Donnell, K Teo, Gilles Dagenais, Paul Poirier, Scott Lear, A Wielgosz, M Sharma, G Stotts, CR McCreary, **R Frayne**, S Rangarajan, S Islam, S Yusuf, EE Smith. Incidental small acute brain infarcts are rare in neurologically asymptomatic community-dwelling older adults. Canadian Stroke Congress, 17-20 Oct 2013, Montreal, Quebec.

389. X Dai, G Sharma, G Kuntze, **R Frayne**, JL Ronsky. An application of algebraic method on MR T2 imaging of knee articular cartilage. IEEE International Conference on Imaging Systems and Techniques, 22-23 Oct 2013, Beijing, China.

390. X Wang, I Gaxolia, **R Frayne**, **P Federico**. Voxel-based relaxometry of focal epilepsy. Alberta Biomedical Engineering Meeting, 14th Annual Meeting, 25-27 Oct 2013, Banff, Alberta, Canada.

391. C Sarsons, A Doiron, RD Shepherd, **R Frayne**, L Andersen, KD Rinker. Optimizing the delivery of gadolinium-loaded, targeted nanoparticles: The effect of steric hindrance on folate receptor-mediated cellular uptake in vitro. Alberta Biomedical Engineering Meeting, 14th Annual Meeting, 25-27 Oct 2013, Banff, Alberta, Canada.

392. ME Boesen, J Yerly, RM Lebel, **R Frayne**. Dynamic MR imaging of the carotid arteries. Alberta Biomedical Engineering Meeting, 14th Annual Meeting, 25-27 Oct 2013, Banff, Alberta, Canada.

393. R Wang, CR McCreary, **R Frayne**. Building a quantitative MR database of the healthy population. Alberta Biomedical Engineering Meeting, 14th Annual Meeting, 25-27 Oct 2013, Banff, Alberta, Canada.

394. M Krongold, A Eilaghi, M Almekhalfi, A Demchuk, **R Frayne**. Cerebral infarct volume change over time in ischemic stroke. Alberta Biomedical Engineering Meeting, 14th Annual Meeting, 25-27 Oct 2013, Banff, Alberta, Canada.

395. AR Switzer, CR McCreary, **R Frayne**, BG Goodyear, EE Smith. Longitudinal change in fMRI blood oxygen level dependent signal in cerebral amyloid angiopathy. International Stroke Conference, 12-14 Feb 2014, San Diego, California, USA.

396. EL Bishop, G Kuntze, **R Frayne**, C Frank, JL Ronsky. Relationships between passive knee laxity and finite helical axis measures in healthy individuals. Orthopeadic Research Society, 15-18 March 2014, New Orleans, Louisiana, USA.

397. A Eilaghi, S Batool, DA McLean, CR McCreary, ML Lauzon, EE Smith, DG Gobbi, M Salluzzi, **R Frayne**. Characterizing magnetic susceptibility changes of human brain in normal aging using quantititiae susceptibility mapping. Imaging Network Ontario 12th Imaging Symposium, 24-25 March 2014, Toronto, Ontario, Canada.

398. Q Lu, DG Gobbi, **R Frayne** M Salluzzi. Cerebra-WML: A stand-alone application for quantification of white matter lesion. Imaging Network Ontario 12th Imaging Symposium, 24-25 March 2014, Toronto, Ontario, Canada.

399. Medical imaging trials network of Canada (MITNEC) – Project C6 – Amyoid and glucose PET imaging in Alzhiemer's and vascular cognitive impairment patients with significant white matter disease. SE Black, A Ganda, CJM Scott, G Wang, EE Smith, **R Frayne**, FS Prato, SC Strother, DJ Sahlas, G-Y R Hsiung, CE Caldwell, J-C Tardif. Imaging Network Ontario 12th Imaging Symposium, 24-25 March 2014, Toronto, Ontario, Canada.

400. ME Boesen, A Pulwicki, LA Souto Maior, J Yerly, RM Lebel, **R Frayne**. Dynamic carotid MR imaging for distensibility assessment. Imaging Network Ontario 12th Imaging Symposium, 24-25 March 2014, Toronto, Ontario, Canada.

401. EL Bishop, G Kuntze, **R Frayne**, C Frank, JL Ronsky. Quantifying differences in passive knee laxity and finite helical axis measures between healthy and anterior cruciate ligament deficient individuals. Osteoarthritis Research Society International (OARSI) World Congress, 24-27 April 2014, Paris France.

402. RK Kosior, A Trivedi, A Mahajan, ML Lauzon, **R Frayne**, PA Barber. Quantitative T2 imaging is an important addition to diffusion MRI in acute ischaemic stroke. European Stroke Conference, 6-9 May 2014, Nice, France.

403. ML Lauzon **R Frayne**. Characterizing the inherent and noise-induced errors in actual flip angle imaging. International Society for Magnetic Resonance in Medicine, 10-16 May 2014, Milan, Italy.
404. ME Boesen, J Yerly, RM Lebel, **R Frayne**. Pulsatile motion suppression using cine fast spin echo and non-linear image reconstruction. International Society for Magnetic Resonance in Medicine, 10-16 May 2014, Milan, Italy.
405. ME Boesen, A Pulwicki, LA Souto Maior, J Yerly, RM Lebel, **R Frayne**. Inter-rater and intra-rater reliability of cinefse carotid measurements. International Society for Magnetic Resonance in Medicine, 10-16 May 2014, Milan, Italy.
406. ME MacDonald, P Dolati, JH Wong, **R Frayne**. Volume flow rates of cerebral vessels in healthy human cerebral vasculature. International Society for Magnetic Resonance in Medicine, 10-16 May 2014, Milan, Italy.
407. ME MacDonald, ML Lauzon **R Frayne**. Imaging battery for brain quantification. International Society for Magnetic Resonance in Medicine, 10-16 May 2014, Milan, Italy.
408. M Krongold, M Almekhlafi, A Demchuk, **R Frayne**, A Eilaghi. Predicting final infarct volume at one week post ischemic stroke: Recanalization and baseline infarct volume are important parameters for early infarct estimation. International Society for Magnetic Resonance in Medicine, 10-16 May 2014, Milan, Italy.
409. RK Kosior, A Trivedi, A Mahajan, ML Lauzon, **R Frayne** PA Barber. Quantitative T2 imaging is an important complement to diffusion MRI for acute ischemic stroke. 49th Annual Congress Canadian Neurological Sciences Federation, 3-6 June 2014, Banff, Alberta, Canada.
410. C d'Esterre, E Qazi, P Shivanand, T-Y Lee, M Almekhlafi, **R Frayne**, AM Demchuk, M Goyal, BK Menon. CT perfusion thresholds to separate acute infarct core from penumbra using optimized imaging and advanced post-processing: an acute ischemic stroke study. Molecular and Functional Imaging Symposium, 19-20 June 2014, Ottawa, Ontario, Canada.
411. A Eilaghi, DA McLean, DG Gobbi, ME MacDonald, ML Lauzon, M Salluzzi, **R Frayne**. Quantitative susceptibility mapping in human brain with normal aging. Molecular and Functional Imaging Symposium, 19-20 June 2014, Ottawa, Ontario, Canada.
412. C d'Esterre, **R Frayne**. Predicting forward flow through large cerebrovascular clots: An under-recognized but crucial predictor of early recanalization with IV tPA. 11th International Symposium on Resistance Arteries. 7-11 Sep 2014, Banff, Alberta, Canada.
413. ME Boesen, J Yerly, RM Lebel, **R Frayne**. Free breathing cine fast spin echo of the thoracic aorta. XXVI International Workshop on Magnetic Resonance Angiography, 16-19 Sep 2014, Rome, Italy.
414. ME MacDonald, **R Frayne**. Comparing blood flow between brain hemispheres. XXVI International Workshop on Magnetic Resonance Angiography, 16-19 Sep 2014, Rome, Italy.
415. RB Stafford, S Peters, S Ly, S Batool, CR McCreary, BG Goodyear, **R Frayne**, EE Smith. Occipital resting CBF is unaltered in CAA compared to healthy controls. International CAA Conference, 18-20 Sep 2014, London, UK.
416. S Batool, Q Lu, CR McCreary, DG Gobbi, M Salluzzi, **R Frayne**, EE Smith. Cerebra-CMB: An application for detection and quantification of cerebral microbleeds in cerebral amyloid angiopathy. International CAA Conference, 18-20 Sep 2014, London, UK.
417. A Eilaghi, S Batool, DA McLean, CR McCreary, ML Lauzon, EE Smith, DG Gobbi, M Salluzzi, **R Frayne**. Characterization of cerebral microbleeds using MR quantitative susceptibility mapping. International CAA Conference, 18-20 Sep 2014, London, UK.
418. N Case, A Charlton, E Donaldson, A Zwiers, A Peterson, **R Frayne**, B Goodyear, A Haffenden, EE Smith. Cognitive impairment in cerebral amyloid angiopathy. International CAA Conference, 18-20 Sep 2014, London, UK.
419. A Eilaghi, DA McLean, DG Gobbi, ME MacDonald, ML Lauzon, M Salluzzi, **R Frayne**. Quantitative susceptibility mapping in human brain with normal aging. 3rd International Workshop on MRI Phase Contrast & Quantitative Susceptibility Mapping, 6-8 Oct 2014, Durham, NC, USA.

420. CD Sarsons, A Doiron, HI Labouta, RD Shepherd, L Andersen, **R Frayne**, KD Rinker. Optimizing the delivery of gadolinium-loaded, targeted nanoparticles: the effect of steric hindrance on folate receptor-mediated cellular uptake in vitro. Canadian Cardiovascular Congress, 25-28 Oct 2014, Vancouver, British Columbia, Canada.
421. S Batool, S Patil, MD Noseworthy, M O'Donnell, M Sharma, S Islam, K Teo, S Black, ML Lauzon, CR McCreary, **R Frayne**, J DeJesus, S Rangarajan, S Yusuf, EE Smith. Sensitivity and reliability of MRI SWI compared with GRE sequences for detecting microbleeds in a community population. International Stroke Conference, 11-13 Feb 2015, Nashville, Tenesseee, USA.
422. I Cheema, A Switzer, CR McCreary, R Frayne, BG Goodyear, EE Smith. Functional MRI-measured vascular reactivity is preserved in CADASIL, but not cerebral amyloid angiopathy. International Stroke Conference, 11-13 Feb 2015, Nashville, Tenesseee, USA.
423. C d'Esterre, E Qazi, S Patil, E Fainardi, A Ospedaliero, M Rubiera, V d'Hebron, A Khaw, T-Y Lee, M Almekhlafi, **R Frayne**, AM Demchuk, M Goyal, B Menon. Separating acute infarct core from penumbra using optimized imaging and standardized post-processing in the setting of ischemic stroke: a CT perfusion study. International Stroke Conference, 11-13 Feb 2015, Nashville, Tenesseee, USA.
424. A Trivedi, R Kosior, A Mahajan, C d'Esterre, L Lauzon, **R Frayne**, PA Barber. Combining conventional MRI-DWI with advanced quantitative T2 imaging for characterizing extent of infarction in ischemic stroke: the heterogeneity of the evolving ischemic lesion. International Stroke Conference, 11-13 Feb 2015, Nashville, Tenesseee, USA.
425. GB Sharma, G Kuntze, JE Beveridge, C Bhatla, **R Frayne**, JL Ronsky. Subject-Specific 3D T2 relaxation mapping of the tibiofemoral cartilage contact regions during walking: a dual fluoroscopy and magnetic resonance imaging approach. Othopeadic Research Society Annual Meeting, 28-31 March 2015, Las Vegas, Nevada, USA.
426. A Eilaghi, A Rahmani, DA McLean, CR McCreary, D Gobbi, ML Lauzon, M Salluzzi, **R Frayne**. Reproducibility of quantitative susceptibility mapping in healthy brains. Imaging Network Ontario 12th Imaging Symposium, 30-31 March 2015, London, Ontario, Canada.
427. D Adair, DG Gobbi, **R Frayne**, YP Starreveld. Integrated image guidance for endoscopic sinus and skull-base surgery. Imaging Network Ontario 12th Imaging Symposium, 30-31 March 2015, London, Ontario, Canada.
428. C d'Esterre, BK Menon, EM Qazi, M Almekhlafi, AM Demchuk, **R Frayne**, M Goyal. Precise and rapid assessment of collaterals using multi- phase cta in the triage of patients with acute ischemic stroke for intra-arterial therapy (PROVE-IT). Imaging Network Ontario 12th Imaging Symposium, 30-31 March 2015, London, Ontario, Canada.
429. M Leite (Bento), L Rittner, D Gobbi, M Salluzi, **R Frayne**, R Lotufo. Influence of MR image intensity normalization on texture-based classification of brain white matter. BRAINN Congresso, 13-15 April 2015, Campinas, São Paulo, Brazil.
430. RB Stafford, CR McCreary, A Charlton, A Zwiers, XR Wang, I Cheema, S Batool, Z Ismail, BG Goodyear, **R Frayne**, EE Smith. Cerebral amyloid angiopathy patients exhibit cortical gray matter atrophy but not hypoperfusion. International Society of Magnetic Resonance in Medicine Annual Meeting, 28 May-5 June 2015, Toronto, Ontario, Canada.
431. A Eilaghi, DA McLean, CR McCreary, D Gobbi, ML Lauzon, M Salluzzi, EE Smith, **R Frayne**. Brain magnetic susceptibility is increased with cognitive impairment in a community population. International Society of Magnetic Resonance in Medicine Annual Meeting, 28 May-5 June 2015, Toronto, Ontario, Canada.
432. RJ Williams, B Goodyear, S Peca, CR McCreary, **R Frayne**, EE Smith, GB Pike. Identification of neurovascular changes in cerebral amyloid angiopathy by modeling subject-specific hemodynamic response functions. International Society of Magnetic Resonance in Medicine Annual Meeting, 28 May-5 June 2015, Toronto, Ontario, Canada.
433. CR McCreary, ML Lauzon, S Batool, EE Smith, **R Frayne**. Evaluation of two susceptibility-weighted sequences for detection of cerebral microbleeds. International Society of Magnetic Resonance in Medicine Annual Meeting, 28 May-5 June 2015, Toronto, Ontario, Canada.

434. RM Lebel, A Shankaranarayanan, EE Smith, C McCreary, **R Frayne**, W Dai, D Alsop. The many advantages of arterial spin labeling with long label duration. International Society of Magnetic Resonance in Medicine Annual Meeting, 28 May-5 June 2015, Toronto, Ontario, Canada.
435. RM Lebel, Y Guo, Y Zhu, SG Langal, **R Frayne**, LB Andersen, J Easaw, KS Nayak. The comprehensive contrast-enhanced neurovascular exam. International Society of Magnetic Resonance in Medicine Annual Meeting, 28 May-5 June 2015, Toronto, Ontario, Canada.
436. ME MacDonald, ND Forkert, GB Pike, **R Frayne**. The impact of phase errors on mapping the flow of the cerebral vasculature with phase contrast MRI. Organization of Human Brain Mapping. 14-18 June 2015, Honolulu, Hawaii, USA.
437. MA Munir, G Zamboni, L Griffanti, Y Zhang, S Tariq, E Smith, **R Frayne**, T Sajobi, S Coutts, P Barber. TIA and minor stroke patients experience higher brain atrophy rates than healthy controls. VAS•COG 2015, 16-19 Sep 2015, Tokyo, Japan.
438. MA Munir, G Zamboni, L Griffanti, Y Zhang, S Tariq, E Smith, **R Frayne**, T Sajobi, S Coutts, P Barber. Cognitive decline at 3 years in TIA and minor stroke patients. VAS•COG 2015, 16-19 Sep 2015, Tokyo, Japan.
439. CM O'Neill, CR McCreary, EE Smith**, R Frayne**. Diffuse grey matter susceptibility changes for detecting smaller microbleeds in cerebral amyloid angiopathy. 16th Alberta Biomedical Engineering Meeting, 6-8 Nov 2015, Banff, Alberta.
440. R Souza, L Rittner, **R Frayne**, R Lotufo. Analysis of the watershed tie-zone influence on skull-stripping. 16th Alberta Biomedical Engineering Meeting, 6-8 Nov 2015, Banff, Alberta. 28, 2015.
441. M Leite (Bento), D Gobbi, M Salluzi, **R Frayne**, R Lotufo, L Rittner. 3D texture-based classification applied on brain white matter lesions on MR images. SPIE Medical Imaging 2016: Computer-Aided Diagnosis, 27 Feb-3 March 2016, San Diego, California, USA.
442. R Souza, L Rittner, **R Frayne**, R Lotufo. Max-tree\watershed combination for medical image segmentation. Imaging Network of Ontario. 30-31 March 2016, Toronto, Ontario. Canada.
443. A Tsang, C Lebel, S Bray, B Goodyear, R Sotero Diaz, CR McCreary, **R Frayne**. Changes in white matter structural connectivity and cortical functional connectivity over the healthy adult lifespan. Imaging Network of Ontario. 30-31 March 2016, Toronto, Ontario. Canada.
444. D Adair, **R Frayne**. Functional medical imaging software. Imaging Network of Ontario. 30-31 March 2016, Tornonto, Ontario. Canada.
445. ML Lauzon, CR McCreary, DA McLean, M Salluzzi, **R Frayne**. QSM at 3 T: Comparison of acquisition methodologies. International Society of Magnetic Resonance in Medicine Annual Meeting, 7-13 May 2016. Singapore.
446. A Tsang, C Lebel, S Bray, B Goodyear, R Sotero Diaz, CR McCreary, **R Frayne**. Changes in white matter structural connectivity and cortical functional connectivity over the healthy adult lifespan. International Society of Magnetic Resonance in Medicine Annual Meeting, 7-13 May 2016. Singapore.
447. A Tsang, C Lebel, S Bray, B Goodyear, R Sotero Diaz, CR McCreary, **R Frayne**. Changes in white matter structure with age are not the primary cause of changes in functional connectivity. Campus Alberta Neuroscience 2016 International Conference: Promoting Healthy Brain Aging and Preventing Dementia: Research and Translation. 24-27 May 2016, Banff, Alberta, Canada.
448. A Tsang, C Lebel, S Bray, B Goodyear, R Sotero Diaz, CR McCreary, **R Frayne**. White matter connectivity and cortical functional connectivity changes over the adult lifespan. OHBM Annual Meeting, 26-30 June 2016, Geneva, Switzerland.
449. S Shultz, S Mutimer, D Wright, M Clough, D Costello, A Tsang, S McDonald, J Fields, P Desmond, **R Frayne**, T O'Brien. Neurological outcomes in Australian-rules footballers with a history of sports-related concussion. 34th Annual National Neurotrauma Symposium 26-29 June 2016 Lexington, Kentucky, USA.
450. A Cieslak, P Barber, S Black, J Chen, J Edwards, H Elbayoumi , **R Frayne**, T Field, V Hachinski, J Hagedus , V Hanganu, Z Ismail, J Kanji, M Nakajima, R Noor, S Peca, L Sposato, R Swartz, C Zerna, EE Smith. Systematic review of RCTs of interventions for vascular cognitive impairment. Alzheimer's Association International Conference, 22-28 July 2016, Toronto, Ontario, Canada.
451. RM Lebel, N Nallapareddy, S Lingala, LB Andersen, **R Frayne**, KS Nayak. Automatic bolus detection for dynamic contrast enhanced imaging with sparse sampling. XXVIII International Workshop on Magnetic Resonance Angiography, 21-23 Sep 2017, Chicago, Illinois, USA.
452. S Schmid, ML Lauzon, **R Frayne**. Saturation effects in phase contrast magnetic resonance angiography. 17th Alberta Biomedical Engineering Meeting, 22-24 Oct 2016, Banff, Alberta.

453. CM O'Neill, CR McCreary, **R Frayne**. Variability of MR R2* and quantitative susceptibility mapping. 17th Alberta Biomedical Engineering Meeting, 22-24 Oct 2016, Banff, Alberta.
454. E Meikleham, ML Lauzon, **R Frayne**. Quantitative analysis of sparse MR techniques using spline-based phantoms. 17th Alberta Biomedical Engineering Meeting, 22-24 Oct 2016, Banff, Alberta.
455. MER Jones, **R Frayne**, RM Lebel. Image quality impact of randomized sampling trajectories in MRI: Implications for compressed sensing. 17th Alberta Biomedical Engineering Meeting, 22-24 Oct 2016, Banff, Alberta.
456. S Tariq, A Tsang, J Ursenbach, N-R Dutta, LB Andersen, RS Longman, R Frayne, PA Barber. Diffusion tensor imaging of white matter tracts in transient ischemic attack patients. International Stroke Conference, 22-24 Feb 2017, Houston, TX, USA.
457. YF Ribeiro, **R Frayne**, A Tsang. Comparison of two tractography approaches in healthy adults. Brazilian Institute for Neuroscience and Neurotechnolgy (BRAINN) Congress, 27-29 March 2017, Campinas, São Paulo, Brasil.
458. M Salluzzi, N Blenkin, **R Frayne**. The adaptive learning processing of establishing a research imaging core lab. International Society of Magnetic Resonance in Medicine Annual Meeting, 22-27 April 2017, Honolulu, Hawai'i, USA.
459. CM O'Neill, CR McCreary, ML Lauzon, **R Frayne**. MR R2* and quantitative susceptibility mapping: Variability in normal subjects across the adult lifespan. International Society of Magnetic Resonance in Medicine Annual Meeting, 22-27 April 2017, Honolulu, Hawai'i, USA.
460. ME MacDonald, RJ Williams, ND Forkert, A Berman, CR McCreary, **R Frayne**, GB Pike. Consistency of intra-database cortical thinning with age. International Society of Magnetic Resonance in Medicine Annual Meeting, 22-27 April 2017, Honolulu, Hawai'i, USA.
461. MER Jones, **R Frayne**, RM Lebel. Image quality impact of randomized sampling trajectories: implications for compressed sensing and a correction strategy. International Society of Magnetic Resonance in Medicine Annual Meeting, 22-27 April 2017, Honolulu, Hawai'i, USA.
462. M Salluzzi, DA McLean, DG Gobbi, CR McCreary, ML Lauzon, **R Frayne**. Cerebra-QSM: An Application for Exploring Quantitative Susceptibility Mapping Algorithms. International Society of Magnetic Resonance in Medicine Annual Meeting, 22-27 April 2017, Honolulu, Hawai'i, USA.
463. RM Lebel, Y Guo, SG Lingala, **R Frayne**, KS Nayak. Highly accelerated DCE imaging with integrated T1 mapping. International Society of Magnetic Resonance in Medicine Annual Meeting, 22-27 April 2017, Honolulu, Hawai'i, USA.
464. ML Lauzon, N Balu, C Yuan, **R Frayne**. Comparison of two different implementations for the simultaneous non-contrast angiography and intraplaque hemorrhage (SNAP) sequences. International Society of Magnetic Resonance in Medicine Annual Meeting, 22-27 April 2017, Honolulu, Hawai'i, USA.
465. M Bento, Y Sym, R Frayne, R Lotufo, L Rittner. Probabilistic segmentation of brain white matter lesions using texture-based classification. International Conference on Image Analysis and Recognition, 5-7, July 2017, Montreal, Quebec, Canada.
466. A Beaudin, A Cieslak, C Zerna, P Barber, S Black, **R Frayne**, TS Field, V Hachinski, Z Ismail, D Sahlas, M Sharma, RH Swartz, EE. Smith. Outcomes in vascular dementia trial patients: A meta-analysis of placebo data from prior randomized controlled trials. Alzheimer's Association International Conference 2017, 16-20 July 2017, London, UK.
467. A Tsang, CR McCreary, L Andersen, BG Goodyear, **R Frayne**. Comparison of structural and functional connectivity between older adults with impaired and normal cognition. Organization for Human Brain Mapping Annual Meeting, 25-29 June 2017, Vancouver, British Columbia, Canada.
468. M Bento, S Appenzeller, **R Frayne**, R Lotufo, L Rittner. White matter lesion segmentation using texture-based classification on MR imaging. Organization for Human Brain Mapping Annual Meeting, 25-29 June 2017, Vancouver, British Columbia, Canada.
469. CR McCreary, LB Andersen, EE Smith, **R Frayne**. Evaluation of mean diffusivity along skeletonized white matter tracks over the adult lifespan. Organization for Human Brain Mapping Annual Meeting, 25-29 June 2017, Vancouver, British Columbia, Canada.
470. A Beaudin, A Cieslak, C Zerna, P Barber, S Black, **R Frayne**, TS Field, V Hachinski, Z Ismail, D Sahlas, M Sharma, RH Swartz, EE. Smith. Outcomes in vascular dementia trial patients: A meta-analysis of placebo data from prior randomized controlled trials. *Alzheimer's & Dementia: The Journal of the Alzheimer's Association* 2017; **13**: a17601.
471. M Salluzzi, N Blenkin, **R Frayne**. Utility of an imaging core lab for conduct of research trials: Calgary

image processing and analysis centre. Canadian Stroke Congress, 9-11 Sep 2017, Calgary, Alberta, Canada.

472. S Schmid, ML Lauzon, **R Frayne**. Cerebral spinal fluid suppression in small vessel MR angiography using IR-bSSFP. Canadian Stroke Congress, 9-11 Sep 2017, Calgary, Alberta, Canada.
473. M Bento, M Saluzzi, D Gobbi, **R Frayne**, L Rittner. Characterizing white matter hyperintensities for longitudinal atherosclerosis studies. Canadian Stroke Congress, 9-11 Sep 2017, Calgary, Alberta, Canada.
474. DG Gobbi, Q Lu, **R Frayne**, M Salluzzi. The Cerebra software environment for quantitative lesion assessment. Canadian Stroke Congress, 9-11 Sep 2017, Calgary, Alberta, Canada.
475. L Rodrigues, R Souza, M Boesen, L Rittner, R Frayne, R Lotufo. Semi-automatic common carotid lumen segmentation on dynamic MR images. Canadian Stroke Congress, 9-11 Sep 2017, Calgary, Alberta, Canada.
476. M Bento, RR Souza, R Lotufo, **R Frayne**, L Rittner. WMH segmentation challenge: A texture-based classification approach. WMH Segmentation Challenge. Brain Lesion (BrainLes) workshop. International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI). 14 Sep 2017. Quebec, QC, Canada.
477. L Rodrigues, R Souza, M Boesen, L Rittner, **R Frayne**, R Lotufo. Common carotid artery lumen segmentation from cine fast spin echo MR images. Society for Magnetic Resonance Angiography, 2-5 Oct 2017, Stellenbosch, South Africa.
478. S Schmid, ML Lauzon, **R Frayne**. IR-bSSFP for brain small artery MR angiography. Society for Magnetic Resonance Angiography, 2-5 Oct 2017, Stellenbosch, South Africa.
479. F Rezapoor, LB Andersen, RJ Sevick, RM Lebel, **R Frayne**. Differentiating between true cancer and pseudo progression in glioblastoma patients using dynamic contrast-enhanced (DCE) MR imaging. Canadian Cancer Research Conference. 5-7 Nov 2017, Vancouver, British Columbia, Canada.
480. J Park, F Rezapoor, LB Andersen, **R Frayne**, RM Lebel. Automatic bolus detection for dynamic contrast-enhanced imaging with undersampling. 2017 BMES Annual Meeting,11-14 Oct 2017, Phoenix, Arizona, USA.
481. LAMD Rodrigues, RMD Souza, L Rittner, **R Frayne**, RDA Lotufo. Common carotid artery lumen segmentation from cardiac cycle-resolved cine fast spin echo magnetic resonance imaging. 30th Brazilian Conference on Graphics, Patterns and Images (SIBGRAPI), 17-20 Oct 2017, Niterói, Rio de Janerio, Brazil.
482. F Rezapoor, LB Andersen, RJ Sevick, RM Lebel, **R Frayne**. Differentiating between true cancer and pseudo progression in glioblastoma patients using dynamic contrast-enhanced (DCE) MR imaging. Canadian Cancer Research Conference. 5-7 Nov 2017, Vancouver, British Columbia, Canada.
483. J Park, F Rezapoor, LB Andersen, **R Frayne**, RM Lebel. Automatic bolus arrival time (BAT) detection for dynamic contrast-enhanced (DCE) imaging with under-sampling of k-space. Alberta Biomedical Engineering Meeting 3-5 Nov 2017, Banff, Alberta, Canada.
484. F Rezapoor, LB Andersen, RJ Sevick, RM Lebel, **R Frayne**. Dynamic contrast-enhanced (DCE) MR imaging: A promising approach to differentiate true cancer and pseudo progression in glioblastoma patients. Alberta Biomedical Engineering Meeting 3-5 Nov 2017, Banff, Alberta, Canada.
485. L Souto Maior, M Bento, M Salluzzi, **R Frayne**. Magnetic resonance image sequence classification using convolutional neural network. Alberta Biomedical Engineering Meeting 3-5 Nov 2017, Banff, Alberta, Canada.
486. H van den Brink, A Zwiers, A Charlton, AR Switzer, CR McCreary, BG Goodyear, **R Frayne**, GJ Biessels, EE Smith. Cortical microinfarcts on 3T MRI in cerebral amyloid angiopathy: Associations with MRI burden and cognitive dysfunction. International Stroke Conference, 24-26 Jan 2018, Los Angeles, California, USA.
487. M Bento, Y Zhang, **R Frayne**. Brain abnormality characterization using convolutional and handcrafted features. ISMRM Machine Learning Workshop, 14-17 March 2018, Pacific Grove, California, USA.
488. LA Souto Maior Neto, H Charette, M Salluzzi, M Bento, **R Frayne**. Classifying brain MR sequences for quality control on medical imaging datasets: A hybrid CNN-SVM model. ISMRM Machine Learning Workshop, 14-17 March 2018, Pacific Grove, California, USA.
489. Roberto Souza, **R Frayne**. Silver standards annotations combined with manual annotation to improve CNNs segmentation: A skull-stripping study case. ISMRM Machine Learning Workshop, 14-17 March 2018, Pacific Grove, California, USA.

490. O Lucena, R Souza, L Rittner, **R Frayne**, R Lotufo. Silver standard masks for data augmentation applied to deep-learning-based skull-stripping. IEEE International Symposium on Biomedical Imaging (ISBI). 4-7 April 2018, Washington, DC, USA.
491. R Souza, O Lucena, M Bento, J Garrafa, S Appenzeler, L Rittner, R Lotufo, **R Frayne**. Reliability of using single specialist annotation for designing and evaluating automatic data-driven segmentation methods: skull stripping study case. IEEE International Symposium on Biomedical Imaging (ISBI). 4-7 April 2018, Washington, DC, USA.
492. AR Switzer, I Cheema, CR McCreary, S Batool, A Zwiers, A Charlton, C Zerna, RB Stafford, **R Frayne**, BG Goodyear, EE Smith. fMRI surrogate of cerebral vascular reactivity is impaired in cerebral amyloid angiopathy but not alzheimer's disease. American Academy of Neurology, 21-28 April 2018, Los Angeles, California, USA.
493. S Chenji, A Ishaque, D Mah, C Beaulieu, P Seres, S Graham, **R Frayne**, W Johnston, L Ziman, A Genge, L Kongrut, S Kalra. Neuroanatomical associations of the Edinburgh ALS cognitive and behavioral screen (ECAS). ALS Society Research Meeting, 28-30 April 2018, Toronto, Ontario, Canada.
494. M Chunn, A Ishhque, D Ta, H Yang, D Mah, L Korngut, **R Frayne**, L Zinman, S Graham, A Genge, S Kalra. Detecting cerebral degeneration in ALS using texture analysis: A multicenter study. ALS Society Research Meeting, 28-30 April 2018, Toronto, Ontario, Canada.
495. D Mah, B Steele, C Beaulieu, C Hanstock, D Eurich, A Wilman, H Yang, M Khan, H Briemberg, L Kongrut, **R Frayne**, L Zinman, S Graham, Y Yunusova, J Keith, C Shoesmith, A Genge, A Dionne, M Benetar, S Kalra. The Canadian ALS neuroimaging consortium (CALSINC). ALS Society Research Meeting, 28-30 April 2018, Toronto, Ontario, Canada.
496. M Bento, LA Souto Maior Neto, M Salluzzi, Y Zhang, **R Frayne**. Feature extraction using convolutional networks for identifying carotid artery atherosclerosis patients in a heterogeneous brain MR dataset. Joint Annual Meeting of the International Society for Magnetic Resonance in Medicine and the European Society for Magnetic Resonance in Medicine and Biology, 16-21 June 2018, Paris, France.
497. M Bento, M Salluzzi, L Rittner, **R Frayne**. MR intensity normalization: Influence on supervised machine learning algorithms using textural and convolutional features. Joint Annual Meeting of the International Society for Magnetic Resonance in Medicine and the European Society for Magnetic Resonance in Medicine and Biology, 16-21 June 2018, Paris, France.
498. ME MacDonald, ND Forkert, Y Ma, RJ Williams, A Hanganu, H Sun, R Stafford, CR McCreary, R Frayne, GB Pike. Cerebrovascular brain aging examined with arterial spin labelling and applied to age prediction. Joint Annual Meeting of the International Society for Magnetic Resonance in Medicine and the European Society for Magnetic Resonance in Medicine and Biology, 16-21 June 2018, Paris, France.
499. R Souza, M Bento, L Rodrigues, L Rittner, R Lotufo, **R Frayne**. Towards a fully Automated Time-context Sensitive Convolutional Neural Network for Common Carotid Artery Lumen Segmentation on Dynamic MRI. Joint Annual Meeting of the International Society for Magnetic Resonance in Medicine and the European Society for Magnetic Resonance in Medicine and Biology, 16-21 June 2018, Paris, France.
500. R Souza, O Lucena, L Rittner, R Lotufo, **R Frayne**. Can brain MRI skull-stripping methods be further improved using manual segmentation as ground-truth for validation? Joint Annual Meeting of the International Society for Magnetic Resonance in Medicine and the European Society for Magnetic Resonance in Medicine and Biology, 16-21 June 2018, Paris, France.
501. O Lucena, R Souza, **R Frayne**, L Rittner, R Lotufo. 2D Single plane big data convolutional neural network for skull-stripping. Joint Annual Meeting of the International Society for Magnetic Resonance in Medicine and the European Society for Magnetic Resonance in Medicine and Biology, 16-21 June 2018, Paris, France.
502. LA Souto Maior Neto, H Charette, M Salluzzi, M Bento, **R Frayne**. Automatic brain MR sequence classification for quality control using support vector machines and convolutional neural networks. Joint Annual Meeting of the International Society for Magnetic Resonance in Medicine and the European Society for Magnetic Resonance in Medicine and Biology, 16-21 June 2018, Paris, France.
503. CR McCreary, AE Beaudin, A Zwiers, **R Frayne**, Eric E Smith. Longitudinal changes in mean diffusivity along skeletonized white matter tracks in cerebral amyloid angiopathy, mild cognitive impairment, Alzheimer's disease, and healthy controls. International Conference on Promoting

Healthy Brain Aging and Preventing Dementia: Research and Translation, 20-22 June 2018, Banff, Alberta, Canada.

504. AE Beaudin, C McCreary, EL Mazerolle, **R Frayne**, B Goodyear, Z Ismail, B Pike, EE Smith. Cerebrovascular reactivity to carbon dioxide in patients with cerebral amyloid angiopathy: Preliminary data from the functional assessment of vascular reactivity to CO2 study (FAVRCO2). International Conference on Promoting Healthy Brain Aging and Preventing Dementia: Research and Translation, 20-22 June 2018, Banff, Alberta, Canada.
505. A Subotic, A Beaudin, C McCreary, A Zwiers, A Charlton, A Alvarez-Veronesi; E Mazerolle, B Pike, Z Ismail, **R Frayne**, B Goodyear, E Smith. Assessment of cortical thickness and cerebrovascular reactivity in patients with cerebral amyloid angiopathy (CAA). International Conference on Promoting Healthy Brain Aging and Preventing Dementia: Research and Translation, 20-22 June 2018, Banff, Alberta, Canada.
506. H van den Brink, A Zwiers, A Switzer, A Charlton, C McCreary, B Goodyear, **R Frayne**, GJ Biessels, E Smith. Cortical microinfarcts on 3T MRI in cerebral amyloid angiopathy: Relations with other MRI markers of CAA and cognition. International Conference on Promoting Healthy Brain Aging and Preventing Dementia: Research and Translation, 20-22 June 2018, Banff, Alberta, Canada.
507. CR McCreary, LB Andersen, M Salluzzi, D Gobbi, ML Lauzon, **R Frayne**. Calgary normative study: a prospective longitudinal study to characterize potential quantitative MR biomarkers of cognitive impairment in ageing. International Conference on Promoting Healthy Brain Aging and Preventing Dementia: Research and Translation, 20-22 June 2018, Banff, Alberta, Canada.
508. LA Souto Maior Neto. M Bento, M Salluzi, **R Frayne**. Brain-based age prediction as a cognitive disease biomarker with deep learning: A longitudinal study. International Conference on Promoting Healthy Brain Aging and Preventing Dementia: Research and Translation, 20-22 June 2018, Banff, Alberta, Canada.
509. L Rodrigues, R Souza, L Rittner, **R Frayne**, R Lotufo. Common carotid artery lumen automatic segmentation from cine fast spin echo magnetic resonance imaging. International Symposium on Medical Information Processing and Analysis (SIPAIM), MICCAI-SIPAIM, 20 Sep 2018, Granada, Spain.
510. K Zukotynski, SE Black, S Adamo, M Goubran, C Bocti, M Borrie, H Chertkow, **R Frayne**, R Hsiung, R Laforce, MD Noseworthy, FS Prato, JD Sahlas, C Scott, EE Smith, V Sossi, A Thiel, J-P Soucy, V Gaudet. K-means clustering of amyloid brain PET. Eastern Great Lakes Chapter of the Society of Nuclear Medicine and Molecular Imaging Annual Meeting. 29-30 Sep 2018, Buffalo, New York, USA.
511. LA Souto Maior, M Bento, **R Frayne**. Adversarial Variational Autoencoder for Visualizing & Interpreting Deep Features of Brain Aging. ISMRM Machine Learning Workshop, 25-28 Oct 2018, Washington, DC, USA.
512. AM Danko, R Souza, **R Frayne**. Carotid Artery Lumen-Wall Segmentation Using Multi-Contrast Images. ISMRM Machine Learning Workshop, 25-82 Oct 2018, Washington, DC, USA.
513. R Souza, M Bento, **R Frayne**. Fully connected neural networks for reconstruction of undersampled MR images. XXVI Congresso Brasileiro de Engenharia Biomédica (CBEB), 21-25 Oct 2018, Búzios, Rio de Janeiro, Brazil.
514. M Bento, R Souza, M Salluzzi, **R Frayne**. Quality control framework for large MR datasets: Automated approaches to outlier detection. XXVI Congresso Brasileiro de Engenharia Biomédica (CBEB), 21-25 Oct 2018, Búzios, Rio de Janeiro, Brazil.
515. M Saluzzi, DG Gobbi, **R Frayne**, L Rittner, M Pinheiro Bento, R Medeiros de Souza. Mini-course: Advanced techniques for medical image processing. XXVI Congresso Brasileiro de Engenharia Biomédica (CBEB), 21-25 Oct 2018, Búzios, Rio de Janeiro, Brazil.
516. M Bento, R Souza, **R Frayne**. Multicenter imaging studies: automated approach to evaluating data variability and the role of outliers. Brazilian Symposium on Computer Graphics and Image Processing (SIBGRAPI), 29 Oct -1 Nov 2018, Foz do Iguaçu, Paraná, Brazil.
517. R Souza, M Bento, **R Frayne**. Investigation of fully connected neural networks for reconstruction of MR images. Brazilian Symposium on Computer Graphics and Image Processing (SIBGRAPI), 29 Oct -1 Nov 2018, Foz do Iguaçu, Paraná, Brazil.
518. M Goubran, K Zukotynski, S Adamo, C Bocti, M Borrie, H Chertkow, **R Frayne**, F Gao, R Hsiung, A Kiss, R Laforce, M Noseworthy, M Ozzoude, F Prato, J Ramirez, J Sahlas, C Scott, E Smith, V Sossi, S Strother, R Swartz, J-C Tardif, A Thiel, J-P Soucy, SE Black. Relationship between amyloid uptake, white matter microstructure and cognitive performance in patients with significant white matter

disease. VAS•COG 2018, 14-17 Nov 2018, Hong Kong.

519. AE Beaudin, C McCreary, EL Mazerolle, A Zwiers, A Charlton, **R Frayne**, Z Ismail, B Pike, EE Smith. Pilot Study of Cerebrovascular Reactivity to Carbon Dioxide in Patients with Cerebral Amyloid Angiopathy (CAA). VAS•COG 2018, 14-17 Nov 2018, Hong Kong.
520. H van den Brink, A Zwiers, AR Switzer, A Charlton, CR McCreary, BG Goodyear, **R Frayne**, GJ Biessels, EE Smith. Cortical microinfarcts on 3T MRI in cerebral amyloid angiopathy: progression over one year and relations with other MRI markers. VAS•COG 2018, 14-17 Nov 2018, Hong Kong.
521. M Bento, LAM Souto, CR McCreary, M Salluzzi, **R Frayne**. Machine learning analysis of white matter hyperintensity origin. VAS•COG 2018, 14-17 Nov 2018, Hong Kong.
522. K Zukotynski, V Gaudet, P Kuo, S Adamo, M Goubran, C Scott, C Bocti, M Borrie, H Chertkow, **R Frayne**, R Hsiung, R Laforce, MD Noseworthy, FS Prato, JD Sahlas, EE Smith, V Sossi, A Thiel, J-P Soucy, J-C Tardif, SE Black. Random forests of amyloid PET may pinpoint key brain regions predictive of MoCA score. Book of Abstracts Human Amyloid Imaging, 16-18 Jan 2019, Miami, Florida, USA.
523. M Reid, C McDougall, N Forkert, **R Frayne**, S Coutts, R Gupta Sah, CD d'Esterre, P Barber: The association between decreased cerebral blood flow in transient ischemic attack patients and cognition. International Stroke Conference, 6-8 Feb 2019, Honolulu, Hawai'i, USA..
524. M. Bento, R Souza, M Salluzzi, **R Frayne**. Reliability of computer-aided diagnosis tools with multi-center MR data-sets: Impact of Training Protocol. *Proc SPIE 10950, Medical Imaging 2019: Computer-Aided Diagnosis.* 16-19 Feb 2019, San Diego, CA, USA.
525. A Danko, R Souza, R Frayne. Multi-contrast carotid lumen-wall segmentation using deep learning. Imaging Network Ontario, 28-29 March 2019, London, Ontario, Canada.
526. S Kalra, C Beaulieau, H Briemberg, A Dionne, N Dupre, D Eurich, **R Frayne**, A Genge, S Graham, C Hanstock, A Ishaque, J Keith, L Korngut, D Mah, C Shoesmith, O Srivastava, B Steele, A Wilman, H Yang, Y Yunusova, L Zinman. The Canadian ALS neuroimaging consortium (CALSNIC). American Academy of Neurology, 4-10 May 2019, Philadelphia, Pennsylvania, USA.
527. R Souza, **R Frayne**. W-net: A hybrid compressed sensing MR reconstruction model. International Society for Magnetic Resonance in Medicine, 11-16 May 2019, Montreal, Quebec, Canada.
528. A Danko, R Souza, **R Frayne**. Towards domain-invariant carotid artery lumen-wall segmentation using adversarial networks. International Society for Magnetic Resonance in Medicine, 11-16 May 2019, Montreal, Quebec, Canada.
529. LA Souto Maior Neto, M Bento, DG Gobbi, **R Frayne**. Variational vs adversarial autoencoders for visualization and interpretation of deep learning features of brain aging. International Society for Magnetic Resonance in Medicine, 11-16 May 2019, Montreal, Quebec, Canada.
530. X Wang, CR McCreary, M Salluzzi, **R Frayne**. Repeatability of T2 Relaxation Measurements over a four-year period. International Society for Magnetic Resonance in Medicine, 11-16 May 2019, Montreal, Quebec, Canada.
531. K Zukotynski, V Gaudet, P Kuo, S Adamo, M Goubran, C Scott, C Bocti, M Borrie, H Chertkow, **R Frayne**, R Hsiung, R Laforce, MD Noseworthy, FS Prato, DJ Sahlas, EE Smith, V Sossi, A Thiel, J-P Soucy, J-C Tardif, SE Black. Non-Binary Approaches for Classification of Amyloid Brain PET. 2019 IEEE 49th International Symposium on Multiple-Valued Logic (ISMVL) 21-23 May 2019. Fredericton, New Brunswick, Canada.
532. RM Souza, RM Lebel, **R Frayne**. Hybrid, dual domain, cascade of convolutional neural networks for magnetic resonance image reconstruction. 2nd International Conference on Medical Imaging with Deep Learning, 8-10 July 2019, London, UK.
533. A Danko, R Souza, **R Frayne**. Deep learning for domain-invariant MR carotid artery wall segmentation Society for Magnetic Resonance Angiography, 27-30 Aug 2019, Nantes, France.
534. RM Souza, **R Frayne**. A hybrid frequency-domain/image-domain deep network for magnetic resonance image reconstruction. Brazilian Symposium on Computer Graphics and Image Processing (SIBGRAPI), 28-31 Oct, Rio de Janerio, RJ. Brazil.
535. RM Souza, O Lucena, L Rittner, R Lotufo, **R Frayne**. Brain extraction network trained with ``silver standard'' data and fine-tuned with manual annotation for improved segmentation. Brazilian Symposium on Computer Graphics and Image Processing (SIBGRAPI), 28-31 Oct, Rio de Janerio, RJ. Brazil.
536. K Zukotynski, V Gaudet, P Kuo, S Adamo, M Goubran, C Scott, C Bocti, M Borrie, H Chertkow, **R Frayne**, R Hsiung, R Laforce, MD Noseworthy, FS Prato, JD Sahlas, EE Smith, V Sossi, A Thiel, J-

P Soucy, J-C Tardif, SE Black. Associations of amyloid deposition and FDG uptake in aging and cognitively impaired elders with and without moderate to severe periventricular white matter hyperintensities. Human Amyloid Imaging, 15-17 Jan 2020, Maimi, Florida, USA.

537. K Zukotynski, V Gaudet, P Kuo, S Adamo, M Goubran, C Scott, C Bocti, M Borrie, H Chertkow, **R Frayne**, R Hsiung, R Laforce, MD Noseworthy, FS Prato, JD Sahlas, EE Smith, V Sossi, A Thiel, J-P Soucy, J-C Tardif, SE Black. The use of random forests to identify brain regions on amyloid and FDG PET associated with MoCA score, American College of Nuclear Medcine, Tampa, FL, 23-25 Jan 2020.
538. KTN Duarte, DG Gobbi, **R Frayne**, MAG de Carvalho. Graph-based representation of 3D brain volume for Alzheimer's disease analysis. Imaging Network of Ontario, 26-27 March 2020, Toronto, Ontario, Canada.
539. W Loos, R Souza, RM Lebel, **R Frayne**. Brain structure volume analysis after accelerated MR imaging. Imaging Network of Ontario, 26-27 March 2020, Toronto, Ontario, Canada.
540. R Souza, WS Loos, **R Frayne**. Multi-channel magnetic resonance image reconstruction challenge. Medical Imaging with Deep Learning, 6 - 8 July 2020, Montréal, QC, Canada. Virtual Meeting.
541. KJ Chung, R Souza, **R Frayne**, T-Y Lee. Low-dose CT enhancement network with a perceptual loss function in the spatial frequency and image domains. Medical Imaging with Deep Learning, 6 - 8 July 2020, Montréal, QC, Canada. Virtual Meeting.
542. KJ Chung, R Souza, **R Frayne**, T-Y Lee. Comparison of loss functions in dual-domain convolutional neural networks for low-dose CT enhancement. American Association of Physicists in Medicine 12-16 July 2020, Virtual Meeting. (*Best in Physics - Imaging*)
543. AE Beaudin, CR McCreary, EL Mazerolle, M Gee, B Sharma, A Subotic, A Zwiers, E Cox, K Nelles, A Charlton, **R Frayne**, Z Ismail, C Beaulieu, GC Jickling, R Camicioli, B Pike, EE Smith. Spatial differences in cerebrovascular reactivity to carbon dioxide between patients with cerebral amyloid angiopathy (CAA) and healthy controls. 7th International Cerebral Amyloid Angiopathy Conference, 1-3 Oct 2020, Banff, Alberta, Canada, Virtual Meeting.
544. AE Beaudin, CR. McCreary, EL Mazerolle, B Sharma, A Subotic, A Zwiers, E Cox, A Charlton, **R Frayne**, Z Ismail, GB Pike, Eric E. Smith. Relationship between Cerebrovascular Reactivity to Carbon Dioxide and Cognitive Function in Cerebral Amyloid Angiopathy (CAA) 7th International Cerebral Amyloid Angiopathy Conference, 1-3 Oct 2020, Banff, Alberta, Canada, Virtual Meeting.
545. S Housh, AE Beaudin, CR McCreary, EL Mazerolle, B Sharma, A Subotic, A Zwiers, E Cox, A Charlton, **R Frayne**, Z Ismail, GB Pike, EE Smith. Cerebrovascular reactivity to carbon dioxide in patients with cerebral amyloid angiopathy and Alzheimer's disease. 7th International Cerebral Amyloid Angiopathy Conference, 1-3 Oct 2020, Banff, Alberta, Canada, Virtual Meeting.
546. J Ramirez, K Zukotynski F Gao, V Gaudet, PH Kuo, S Adamo, M Goubran, CJM Scott, C Bocti, M Borrie, H Chertkow, **R Frayne**, R Hsiung, R Laforce, MD Noseworthy, FS Prato, DJ Sahlas, EE Smith, V Sossi, A Thiel, J-P Soucy, J-C Tardif, SE Black. Cerebral microbleeds and MRI-visible perivascular spaces, lacunes, cognition, and amyloid PET status, in patients with significant white matter disease. 7th International Cerebral Amyloid Angiopathy Conference, 1-3 Oct 2020, Banff, Alberta, Canada, Virtual Meeting.
547. B Varatharajah, M Geed, CR McCreary, A Beaudin, A Zwiers, R Sekhon, A Charlton, Z Ismail, **R Frayne**, R Camicioli, EE Smith. Gait dysfunction in CAA and its association with markers of CAA severity. 7th International Cerebral Amyloid Angiopathy Conference, 1-3 Oct 2020, Banff, Alberta, Canada, Virtual Meeting.

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