SHAMESEDDIN ALSHORMAN

Calgary, Canada

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https://www.linkedin.com/in/alshorman-shams-7016 | ⓘ orcid.org/0000-0003-3313-506X | ℝ https://www.researchgate.net/profile/Shameseddin-Alshorman | 🎓

Shameseddin Alshorman

Biography

PhD candidate in Mechanical and Manufacturing Engineering at the University of Calgary, specializing in fluid dynamics, aerodynamics, and computational modeling. Passionate about advancing innovative solutions in physical fluid dynamics and vortex flow analysis. Dedicated to research that bridges theoretical understanding and practical engineering applications.

Education

University of Calgary   *Calgary, Canada*

Department of Mechanical & Manufacturing Engineering   *Jan 2025 - Jan 2029*

- PhD Candidate.

Yarmouk University   *IRBID, JORDAN*

Higher diploma in Curriculum for Teaching Mathematics   *Sep 2022 - Sep 2023*

- I studied the necessary skills, including the use of manipulatives, virtual environments, computer algebra systems, and ICT.

Al Al-Bayt University   *MAFRAQ, JORDAN*

Master of Science Mathematics   *Sep 2019 - Aug 2021*

- I got my Master's in Mathematics and published my thesis in abstract algebra titled: Finite Groups in Which Every Commutator Element is Central.
- Specialized in abstract algebra, and published several research papers in my field. I am also one of the first in my class.

Al Al-Bayt University   *MAFRAQ, JORDAN*

Bachelor of Science Mathematics   *Sep 2016 - Sep 2019*

- I got my BA in Mathematics, and I got honors upon graduation for being one of the top graduates in my class.

Work Experience

Al-Motaqadimah Schools – Smart Learning   *Riyadh, Saudi Arabia*

STEAM Teacher and Math Teacher   *May 2024 - December 2024*

- Teach advanced mathematics to higher-grade students and develop innovative STEAM activities to enhance critical thinking and problem-solving skills.

Al-Zaytoonah University of Jordan   *AMMAN-JORDAN*

Research Assistant (RA)   *September 2022 - February 2024*

- Writing and publishing specialized scientific research in mathematics within the mathematics department at the university and supervising, checking, and amending student research in the department.

Innovation and Entrepreneurship Center for Educational Consultations   *AMMAN-JORDAN*

Head manager   *Since June 2022*

- The Innovation and Entrepreneurship Center for Educational Consultations I-ecec was founded in 2022 as a non-governmental, non-profit organization and academic educational consultations center.

ARID SCIENTIFIC LTD   *MALAYSIA, UK.*

Mathematics Researcher   *Since January 2022*

- The General Secretariat of the ARID platform for Arabic-speaking scholars, experts, and researchers grant me the official ARID Scientific membership with the researcher's ID number, according to the terms and conditions.

AL WATAN AL ARABI SCHOOL   *AMMAN-JORDAN*

Mathematics teacher   *The first semester of 2023/2024*

- I was working as a mathematics teacher for high school students.

Skills

Mathematical Expertise

- Fractional Analysis: In-depth understanding and research experience in fractional calculus and analysis.

- Abstract Algebra: Strong foundation and advanced knowledge in abstract algebra, including group theory and ring theory.

Programming and Technical Tools

- – Programming Languages: Familiarity with Python, C++, MATLAB.
- – Mathematical Software: Proficient in using Gap, Mathematica, and SPSS.

Additional Skills

- – Time Management: Effective organization and time management skills for balancing academic research and managerial responsibilities. Also, I'm a quick learner, and adaptable to new technologies, methodologies, and environments.

1 Dissertations and Research papers

1.1 Master thesis (Abstract Algebra)

Groups in Which the Commutator Subgroup is Cyclic
  Shameseddin, Alshorm
  International Conference on Mathematics and Computations, 2022

Finite Groups In Which Every Commutator Element Is Central
  Shameseddin Alshorm, Khaled Al-sharo
  Mathematics Department (2021) p. 34. Al al-Bayt University. http://dx.doi.org/10.13140/RG.2.2.33517.10727, 2021

1.2 Journal Articles

Comparative Analysis of Bilinear Time Series Models with Time-Varying and Symmetric GARCH Coefficients: Estimation and Simulation
  Ma'mon Abu Hammad, Rami Alkhateeb, Nabil Laiche, Adel Ouannas, **Shameseddin Alshorm**
  Symmetry 16.5 (2024) p. 581. MDPI, 2024

Theoretical analysis of a class of φ-Caputo fractional differential equations in Banach space
  Ma'mon Abu Hammad, Oualid Zentar, **Shameseddin Alshorm**, Mohamed Ziane, Ismail Zitouni
  AIMS Mathematics 9.3 (2024) pp. 6411–6423. 2024

Novel Insights into Estimation of Bilinear Time Series Models with Exponential and Symmetric Coefficients
  Mamon Abu Hammad, Nabil Laiche, Omar Alomari, Huthaifa Abuhammad, **Shameseddin Alshorm**
  Symmetry 16.4 (2024) p. 405. MDPI, 2024

Two Energy groups Neutron Diffusion Model in Spherical Reactors
  Iqbal Batiha, Mohammed Shqair, Mohammed HE Abu-Sei'leek, **Shameseddin Alshorm**, SA Abd El-Azeem, Shaher Momani
  Results in Nonlinear Analysis 7.2 (2024) pp. 160–173. 2024

A simple harmonic quantum oscillator: fractionalization and solution
  Iqbal M Batiha, Iqbal H Jebril, Abeer A Al-Nana, **Shameseddin Alshorm**
  Mathematical Models in Engineering 10.1 (2024) pp. 26–34. Extrica, 2024

Numerical Approach for Solving Incommensurate Higher-Order Fractional Differential Equations
  Iqbal M Batiha, Iqbal H Jebril, **Shameseddin Alshorm**, Mazin Aljazzazi, Shawkat Alkhazaleh
  Nonlinear Dynamics and Systems Theory 24.2 (2024) p. 123. 2024

On Generalized Matrix Mittag-Leffler Function
  Iqbal M Batiha, Iqbal H Jebril, **Shameseddin Alshorm**, Nidal Anakira, Shawkat Alkhazaleh
  IAENG International Journal of Applied Mathematics 54.3 (2024) pp. 576–580. 2024

HANDLING SYSTEMS OF FRACTIONAL STOCHASTIC DIFFERENTIAL EQUATIONS USING MODIFIED FRACTIONAL EULER METHOD
  IQBAL M BATIHA, IQBAL H JEBRIL, **Shameseddin Alshorm**, ABEER A AL-NANA, SHAWKAT ALKHAZALEH, SHAHER MOMANI
  Global and Stochastic Analysis 11.1 (2024). 2024

Conformable Fractional Inverse Gamma Distribution
  Mamon Abu Hammad, **Shameseddin Alshorm**, Sondos Rasem, Lena Abed
  Nonlinear Dynamics and Systems Theory 24.2 (2024) p. 159. 2024

A Numerical Implementation of Fractional-Order PID Controllers for Autonomous Vehicles
  Iqbal M Batiha, Osama Y Ababneh, Abeer A Al-Nana, Waseem G Alshanti, **Shameseddin Alshorm**, Shaher Momani
  Axioms 12.3 (2023) p. 306. MDPI, 2023

SEMI-ANALYTICAL SOLUTION TO A COUPLED LINEAR INCOMMENSURATE SYSTEM OF FRACTIONAL DIFFERENTIAL EQUATIONS
  Iqbal M Batiha, Nashat Alamarat, **Shameseddin Alshorm**, OY Ababneh, Shaher Momani
  (2023). 2023

Solvability and Dynamics of Superlinear Reaction Diffusion Problem with Integral Condition
  Iqbal M Batiha, Zainouba Chebana, Taki-Eddine Oussaeif, Adel Ouannas, **Shameseddin Alshorm**, Amjed Zraiqat
  IAENG International Journal of Applied Mathematics 53 (2023) pp. 113–121. 2023

Some results on zeros of the monic polynomial of the Frobenius companion matrix
  Iqbal M Batiha, Iqbal Jebril, **Shameseddin Alshorm**, Abeer A Al-Nana

Adv. Fixed Point Theory 13 (2023) Article–ID. 2023

Numerical Solutions of Stochastic Differential Equation Using Modified Three-Point Fractional Formula
Iqbal M Batiha, Shaher Momani, **Shameseddin Alshorm**, Adel Ouannas
2023 International Conference on Fractional Differentiation and Its Applications (ICFDA), 2023

The n-Point Composite Fractional Formula for Approximating Riemann–Liouville Integrator
Iqbal M Batiha, **Shameseddin Alshorm**, Abdallah Al-Husban, Rania Saadeh, Gharib Gharib, Shaher Momani
Symmetry 15.4 (2023) p. 938. MDPI, 2023

Modified 5-point fractional formula with Richardson extrapolation
Iqbal M Batiha, **Shameseddin Alshorm**, Iqbal Jebril, Amjed Zraiqat, Zaid Momani, Shaher Momani
AIMS Math 8 (2023) pp. 9520–9534. 2023

Numerical solution for incommensurate system of fractional order differential equations
Iqbal M Batiha, **Shameseddin Alshorm**, Amjed Zraiqat, Mohammad Alia, Iqbal Jebril
2023 International Conference on Information Technology (ICIT), 2023

Handling a Commensurate, Incommensurate, and Singular Fractional-Order Linear Time-Invariant System
Iqbal M Batiha, Omar Talafha, Osama Y Ababneh, **Shameseddin Alshorm**, Shaher Momani
Axioms 12.8 (2023) p. 771. MDPI, 2023

Common Fixed Point Theorem in Non-Archimedean Menger PM-Spaces Using CLR Property with Application to Functional Equations
Iqbal M. Batiha, Leila Ben Aoua, Taki-Eddine Oussaeif, Adel Ouannas, **Shameseddin Alshorm**, Iqbal H. Jebril, Shaher Momani
IAENG International Journal of Applied Mathematics 53 (2023) pp. 360–368. 2023

Numerical Solution for Fractional-Order Mathematical Model of Immune-Chemotherapeutic Treatment for Breast Cancer Using Modified Fractional Formula
Mamon Abu Hammad, Iqbal H Jebril, **Shameseddin Alshorm**, Iqbal M Batiha, Nancy Abu Hammad
International Journal of Analysis and Applications 21 (2023) pp. 89–89. 2023

A Numerical Scheme for Dealing with Fractional Initial Value Problem
Batiha Iqbal, Bataih Anwar, Al-Nana Abeer, **Shameseddin, Alshorm**, Jebril Iqbal, Zraiqat Amjed
International Journal of Innovative Computing, Information and Control 19.3 (2023) pp. 763–774. Kyushu Tokai University, 2023

Decomposition of Complete Multigraph into Wheel Graphs for Cyclic Triple System
KHALED AHMAD MATARNEH, MOWAFAQ OMAR AL-QADRI, ABDALLAH AL-HUSBAN, RAJA'I ALDIABAT, **Shameseddin Alshorm**
WSEAS Transactions on Mathematics 22 (2023) pp. 950–960. 2023

Handling systems of incommensurate fractional order equations using improved fractional Euler method
Shameseddin Alshorm, Iqbal M Batiha, Iqbal Jebril, Amer Dababneh
2023 International Conference on Information Technology (ICIT), 2023

A brief review about fractional calculus
I Batiha, M **Shameseddin Alshorm**, I Jebril, Mamon Abu Hammad
Int. J. Open Probl. Compt. Math 15.4 (2022). 2022

A numerical confirmation of a fractional-order COVID-19 model's efficiency
Iqbal M Batiha, Ahmad Obeidat, **Shameseddin Alshorm**, Ahmed Alotaibi, Hajid Alsubaie, Shaher Momani, Meaad Albdareen, Ferjeni Zouidi, Sayed M Eldin, Hadi Jahanshahi
Symmetry 14.12 (2022) p. 2583. MDPI, 2022

Modified three-point fractional formulas with Richardson extrapolation
Iqbal M Batiha, **Shameseddin Alshorm**, Adel Ouannas, Shaher Momani, Osama Y Ababneh, Meaad Albdareen
Mathematics 10.19 (2022) p. 3489. MDPI, 2022

CONFERENCES

2021	**6th,** International Conference on Combinatorics, Cryptography, Computer Science and Computation		*Iran*
2021	**9th,** ARID International Scientific Forum ARID SCIENTIFIC LTD		*Turkey*
2022	**7 th,** International Arab Conference on Mathematics and Computations		*Jordan*
2022	**5th,** INTERNATIONAL CONFERENCE ON MATHEMATICAL AND RELATED SCIENCES		*ANTALYA, TURKEY*
2023	**6th,** Global Webinar on Applied Science, Engineering and Technology		*Online*
2023	**ICFDA 2023,** THE INTERNATIONAL CONFERENCE ON FRACTIONAL DIFFERENTIATION AND ITS APPLICATIONS		*UAE*
2023	**The 1st,** Scientific Conference for Graduate Students		*Jordan*
2023	**8 th,** International Arab Conference on Mathematics and Computations		*Jordan*
2023	**7th,** Global Webinar on Applied Science, Engineering and Technology		*Online*
2023	**12 th,** International Scientific Forum		*Jakarta-Indonesia*
2023	**11 th,** International Conference on Information Technology		*Jordan*
2024	**TENORS,** Kick-off meeting & Recruitment event		*France*

Reviewer at the following journal

Since 2024 **(MDPI),** mathematics, Fractal and Fractional   *Basel, Switzerland*
Since 2023 **(GLM),** General Letters in Mathematics   *Jordan*
Since 2022 **(IJOPCM),** International Journal of Open Problems in Computer Science and Mathematics *Jordan*
Since 2022 **(ICSRS),** International Center for Scientific Research and Studies   *Jordan*
Since 2022 **(IJOPCA),** International Journal of Open Problems in Complex Analysis   *Jordan*
Since 2022 **(NFAA),** Nonlinear Functional Analysis and Applications   *KOREA*
Since 2022 **(JAMI),** Journal of Applied Mathematics and Informatics   *KOREA*

Reviewer at the following conferences

2023 **The 1st**, Scientific Conference for Graduate Students   *Jordan*
2023 **8 th**, International Arab Conference on Mathematics and Computations   *Jordan*
2023 **11 th**, International Conference on Information Technology   *Jordan*
2022 **7 th**, International Arab Conference on Mathematics and Computations   *Jordan*

Organizing Conference Committee

2023 **The 1st**, Scientific Conference for Graduate Students at AL-ZAYTOONAH UNIVERSITY OF JORDAN   *Jordan*

Editor at the following journal

Since 2023 **(GLM),** General Letters in Mathematics (GLM) Email: editorglm@refaad.com DOI: 10.31559/GLM ISSN 2519-9277 (Online) ISSN 2519-9269 (Print) Freq. : Quarterly   *Jordan*

Instructor of the following software

MATLAB   Giving a Matlab course for 60 hours in the Mathematics Department, Al Zaytoonah University of Jordan.   2022
Mathematica Giving a Mathematica course for 60 hours in the Mathematics Department, Al Zaytoonah University of Jordan. 2023

CONFERENCES PAPER

2021 **ON A CLASS OF FINITE GROUPS WITH RESTRICTION ON COMMUTATOR**, 6th, International Conference on Combinatorics, Cryptography, Computer Science and Computation,   *Iran*

2021 **Finite Groups In Which Every Commutator Element Is Central**, 9th, ARID International Scientific Forum ARID SCIENTIFIC LTD   *Turkey*

2022 **Groups in which the commutator subgroup is cyclic**, 7th, International Arab Conference on Mathematics and Computations   *Jordan*

2022 **A study of numerical solutions for a family of multi-term fractional-order integrodifferential equations**, 5th, INTERNATIONAL CONFERENCE ON MATHEMATICAL AND RELATED SCIENCES   *ANTALYA, TURKEY*

2023 **Analytic functions defined by Ruscheweyh derivative**, 6th, Global Webinar on Applied Science, Engineering and Technology   *Online*

2023 **Numerical Solutions of Stochastic Differential Equation Using Modified Three-Point Fractional Formula**, ICFDA 2023, THE INTERNATIONAL CONFERENCE ON FRACTIONAL DIFFERENTIATION AND ITS APPLICATIONS   *United Arab Emirates*

2023 **A Historical Preliminary Definitions Review of Fractional Calculus**, The 1st, Scientific Conference for Graduate Students   *Jordan*

2023 **1-Numerical Solution for Fractional-order Glioblastoma Multiforme Model. 2-Solving Fractional Order Monkeypox Model by New Numerical Methods. 3-Stochastic Population Growth Model Using Three-Point Fractional Formula.**, 8 the, International Arab Conference on Mathematics and Computations   *Jordan*

2023 **Using the Lyapunov Method, Fractional Discrete Chaotic Systems can be Synchronized**, 7th, Global Webinar on Applied Science, Engineering and Technology   *Online*

2023 **1-Handling Systems of Incommensurate Fractional Order Equations Using Improved Fractional Euler Method, 2-Numerical Solution for Incommensurate System of Fractional Order Differential Equations Using MFEM**, 11 the, International Conference on Information Technology   *Jordan*

Review Activities

Nonlinear Functional Analysis and Applications (NFAA) *KOREA*

(51767) 7 Kyungnamdaehak-ro, Masanhappo-gu, Changwon-si, Gyeongsangnam-do, Republic of Korea *2022-2023*

- Solvability For a Class of FDEs with Some (e1,e2, θ)-nonlocal anti periodic conditions and another Class of KdVBE Type.

Journal of Applied Mathematics and Informatics (JAMI) *KOREA*

60332, 70 Hannam-Ro, Daedeok-Gu, Daejeon 34430, KOREA *2022-2023*

- A Study on Invariant, Existence and Uniqueness of the Global Solution for Tridiagonal Reaction-diffusion Systems.
- Pollution Detection for the Singular Linear Parabolic Equation.

The 11th International Conference on Information Technology (ICIT 2023) *Jordan*

Al Zaytoonah University of Jordan, *2023*

- Review for paper #1570908343 "Properties of Conformable Fractional Half-Normal Distribution"
- Review for paper #1570918435 "Exact Solution of Carleman Type Equation Using Tensor Product Technique"
- Review for paper #1570920054 "On Alpha-Homogeneous Fractional Differential Equations"
- Review for paper 1570913505 "Application to Conformable α-Log-Normal Distribution"

Annals of Mathematics and Physics *USA*

AMP (ISSN: 2689-7636) *2023*

- Manuscript Title: NEW PRIME NUMBER THEORY, Manuscript No: AMP-23-RA-236
- Manuscript Title: The conclusion of the infinite hotel problem, Manuscript No: AMP-23-LE-239
- Manuscript Title: The closed field of imaginary number i, Manuscript No: AMP-23-LE-238
- Manuscript Title: Analyzing Riemann's hypothesis, Manuscript No: AMP-23-RA-243-FA
- Manuscript Title: New definition of singular integral operator, Manuscript No: AMP-23-RA-246

General Letters in Mathematics (GLM) *Jordan*

OI: 10.31559/GLM ISSN 2519-9277 (Online) ISSN 2519-9269 (Print) Freq. : Quarterly *2022-2023*

- Optimal Follow-Up Designs for Fractional Partial Differential Equations with Application to a Convection-Advection Model.

MDPI *Switzerland*

Mathematics, Axioms *2023*

- Manuscript ID: mathematics-2484284 "Analysis of Caputo Fractional Order Co-infection COVID-19 and Influenza SEIR Epidemiological by Laplace Adomain Decomposition Method"
- Manuscript ID: fractalfract-2973139 "Novel Estimations of Hadamard-Type Integral Inequalities for Raina's Fractional Operators"
- Manuscript ID: mathematics-3040783 "Robust Invariance Conditions of Uncertain Linear Discrete Time Systems Based on Semidefinite Programming Duality"

Languages

English Professional proficiency
Arabic Native speaker

References

Loai Alzoubi Professor, Department of Mathematics Faculty of Science, Al al-Bayt University, **loai67@aabu.edu.jo**
Khaled Al-sharo Professor, Department of Mathematics Faculty of Science, Al al-Bayt University, **sharo_kh@yahoo.com**

References available upon request.