

**Asim Ahmed, M.Sc.**

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**EXECUTIVE SUMMARY**

**Research and writing:** 2.5 years of experience conducting original electrophysiology research in Fragile X syndrome; provided technical expertise to several collaborations that resulted in a research article. Proficient in conducting literature review and writing scientific reports.

**Communication:** Confident writer with one first author and another second author publications; strong public speaker with several poster presentations and two conference presentations

**Project management and Organization:** Participated in planning and organization of symposia and student council activities, and managed an independent MSc thesis project that included, project planning, literature review, problem solving, experimentation and execution.

**Computer:** Experience with Microsoft Office, Acrobat, and data analysis tools including MATLAB, GraphPad PRISM, and basics of coding i.e. Python and R.

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**EDUCATION**

**MSc. Medical sciences** **2023- Present**  
**University of Calgary**

- Thesis: *Electroencephalography signal in a female fragile X syndrome mouse model*
- 4/4:00 CGPA

**Bachelor of Science (Biochemistry)** **2016- 2021**  
**Quaid-i-Azam University, Islamabad, Pakistan.**

- Thesis: *Study of depression associated changes in human platelets*
- 3.9/4:00 CGPA, Gold medalist distinction

**Global UGRAD Exchange Semester (Biochemistry)** **Fall 2019**  
**University of Southern Indiana, USA**

- Studied 15 credit hours, and 20 hours of community service activities
- 3.9/4:00 CGPA, Dean's list distinction

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**RESEARCH EXPERIENCE**

**MSc. Project** **2023 - Present**  
**Department of Medical Science, University of Calgary**

**Supervisor: Dr. Ning Cheng**

- Investigated the Electroencephalography (EEG) signals in Fragile X Syndrome mouse models
- Investigated the effect of PD drug treatment on EEG phenotypes in FXS mice
- Conducted EEG and LFP surgeries, recordings and analysis. Also performed behavioral tests, and statistical tests.
- Presented my research findings in research group and National seminars and meetings, as well as at the 2023 Kids Brain Health Network conference in Ottawa.
- Mentored junior students, participated in journal clubs, interacted with peers, lab members, faculty, and collaborators
- Published scientific journal articles, one first author and another as a co-author

**Undergraduate research project** **2020**  
**Department of Biochemistry, Quaid-i-Azam University, Islamabad**  
**Supervisor: Dr. Muhammad Rizwan Alam**

- Investigated the physiology of platelets aggregation in depression.
- Designed and conducted surveys to evaluate participants for mild, moderate and severe depression.

- Performed phlebotomy, platelets isolation, cell counting, and spectrophotometry to characterize platelets aggregation.
- Successfully defended honors thesis and earned 4 GPA.

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## TECHNICAL SKILLS

**EEG headset and electrodes soldering:** Made electrodes for EEG implants, including monopolar and bi-polar electrodes. Designed and soldered EEG recording chips, including EIB.

**Rodent handling and EEG surgery:** Performed EEG and Local field potential surgeries in mice. Also an expert in craniotomy, microinjections, blood sampling, animal handling and their inventory management.

**EEG recording and Behavioral tests:** Records EEG in mouse via wireless EEG recording device, in different behavioral tests, that assesses anxiety, hyperactivity, social interaction and other parameters.

**EEG analysis, and statistics:** MATLAB coding for EEG analysis and calculation of power spectral density. Followed by statistical tools including GraphPad PRISM to compare EEG power between different testing groups

**Brain isolation, histology and imaging:** Performed transcardial perfusion to isolate intact brain, followed by isolation of different brain areas for further analysis. Cryostat sectioning of target brain areas and microscopy imaging.

**Protein biochemistry and Histology:** Protein and mRNA extraction. Histology (immunohistochemistry, tissue sectioning) and fluorescence microscopy. SDS-PAGE, HPLC and Western blotting, Protein and mRNA extraction, quantification and analysis

**Phlebotomy, platelets isolation and counting:** Performed phlebotomy for undergraduate research project, followed by platelets isolation via centrifugation, and counting in microscope, and spectrometry for aggregation analysis

**Basic wet lab techniques:** Making of chemical solutions, pipetting, western blot, centrifugation, microscopy, rodent injections, and laboratory inventory management.

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## AWARDS RECEIVED

- Alberta Children Hospital Research Institute Graduate Scholarship, CAD 45000\$ 2023 - 2025
- William H. Davies Graduate Scholarship, University of Calgary, CAD 3000\$ Fall 2023
- Global UGRAD Exchange Program, University of Southern Indiana, USD 45000\$ Fall 2019
- Dean's List Distinction, University of Southern Indiana, USA Fall 2019
- Gold medalist, Undergraduate degree, QAU Islamabad. 400,000 PKR 2016 - 2021

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## PUBLICATIONS

- **Ahmed A**, Rasheva V, Bae M, Murari K, Cheng N. Changes in Electroencephalography signals in a juvenile female Fragile X Syndrome mouse model. bioRxiv. 2024:2024.04. 04.588163.  
Bae MY, Wang B, Abdullah A, **Ahmed A**, Ilyas R, Rasheva V, et al. Exploring the Dynamics of Social Interactions During the Juvenile Stage in a Mouse Model of Fragile X Syndrome. bioRxiv. 2024:2024.03. 03.583140

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## LEADERSHIP EXPERIENCE

**Industry outreach director**

**08/2024 - Present**

**Neuro-Innovate network (NIN), University of Calgary**

- Building industry partnership for NIN in neurotech industry and guiding current graduate students for industry career opportunities
- Managing multiple stakeholders including researchers, and graduate students from academia and industry leaders to bridge gap between them, and helping researchers in commercialization

process

**Co-Chair** **08/2023 – 06/2024**  
**Medical Science Student association (MDSC – SA), University of Calgary**

- Organized many academic and extra-curricular events. Alongside that, I worked side by side with the Chair and Events team, for event planning and execution.
- Represented MDSC-SA in the meetings with bigger body of graduate student association and voiced out student's concerns to administration and provost.

**Teaching fellow 2020** **2020 - 2022**  
**Teach for Pakistan, Islamabad**

- Taught grade 3, 4 and 5, Math and Science in an under-resourced community school.
- Designed and implemented a community partnership project to help student's communities for better learning outcomes of students.
- Managed multiple stakeholders including school staff, parents, and community leaders to implement learning programs for students.

**Executive Board Member** **09/2021 – Present**  
**International Alumni Advisory Council, University of Southern Indiana (USI), USA**

- Working with alumni office of USI and other executive members to design and implement programs for international alumni for their career development.
- Fundraised through alumni activities for providing scholarships and grants for current USI international students.

**Event planner and coordinator** **2024**  
**TAKMIL Canada, Calgary**

- Coordinated for a TAKMIL fundraising event, that included event planning, management and emceed for the event.

**International Students' representative** **Fall 2019**  
**Student Government Association (SGA), University of Southern Indiana, USA**

- Represented and voiced international student's concerns, and suggestion to SGA.
- Designed and implemented programs for international students to maximize their university experience, especially if they feel homesick, or struggle in their academics or cultural adaptation
- Participated in weekly meetings of SGA that included student's representatives, staff and President.

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## Conferences and Presentation

**Ahmed A**, Rasheva V, Bae M, Murari K, Cheng N. Electroencephalography signals in female Fragile X Syndrome mouse model. Canadian College of Neuropsychopharmacology annual meeting, Calgary, Canada. 2024. Poster.

**Ahmed A**, Rasheva V, Bae M, Murari K, Cheng N. Changes in Electroencephalography signals in a juvenile female Fragile X Syndrome mouse model. Kids Brain Health Network, Ottawa, Canada. 2023. Poster.

**Ahmed A**, Rasheva V, Bae M, Murari K, Cheng N. Changes in Electroencephalography signals in a juvenile female Fragile X Syndrome mouse model. Alberta Children Hospital Research Institute, Banff, Alberta, Canada. 2023. Poster.