Arshia Razavi

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Education & Training

University of Calgary — Alberta, Canada
M.Sc. Physics and Astronomy (GPA: 3.85/4.00) — Fall 2022–Presernt

- Thesis: "Learning and Stabilizing Memories in Spiking Neural Networks"
- Supervisor: Dr. Javier Orlandi

Sharif University of Technology — Tehran, Iran
B.Sc. Physics (GPA: 17.71/20) — Fall 2017–Summer 2022

Young Scholars Club (YSC) — Tehran, Iran
Theoretical and Experimental Physics — Fall 2016–Summer 2017

- Preparation Courses for IPhO (International Physics Olympiad)

Research Experience

University of Calgary — Alberta, Canada
Supervisor: Dr. Javier Orlandi — 2022—Present

- Research Project: *Learning and Stabilizing Memories in Spiking Neural Networks*
  - Developed and tested spiking and firing-rate neural networks to understand stable memory representations in the face of synaptic instability.
  - Worked with large-scale Allen Institute datasets of visual cortex recordings using AllenSDK API in Python

Sharif University of Technology — Tehran, Iran
Supervisor: Dr. Saman Moghimi Araghi — 2021

- Review and Computational Study: *Hybrid-Type Synchronization Transitions in Complex Networks*
  - Analyzed and replicated simulation results using computational tools to understand the dynamics of synchronization transitions in coupled Kuramato oscillators network.
- Journal Club: *Developments of Physics in the 20th century*
  - Organized and participated in a student-led journal club reviewing key groundbreaking papers in quantum mechanics and relativity.

Scientific Publications

Arshia Razavi, Javier Orlandi. *Learning and Stabilizing Memories in Spiking Neural Networks* (in preparation)

Poster Presentations

Learning and Stabilizing Memories in Recurrent Spiking Neural Networks — November, 2024

- Computational Neuroscience Research Day, University of Calgary

Learning and Stabilizing Memories in Noisy Recurrent Spiking Neural Networks — June, 2024

- Network Science Conference, Quebec City, Canada

Learning and Stabilizing Memories in Noisy Recurrent Spiking Neural Networks June, 2024

– Hotchkiss brain Institute Research Day, University of Calgary

Universality of Drifting Representations in Mouse Cortex May, 2023

– First Computational Neuroscience Annual Meeting, University of Calgary

Teaching Experience

Teaching Assistant at the University Of Calgary Fall 2022- Current

Classical Mechanics II, Statistical Mechanics I, Electricity and Magnetism, Introduction to Electromagnetism, Introduction to optics and waves, Modern Physics Lab

Teaching Assistant at the Sharif University of Technology 2020–2021

Electrodynamics (I,II), Special Relativity, Introduction to Cosmology, Electromagnetic I

Teacher Member of Physics Olympiad Committee at Young Scholars Club (YSC) 2018–2021

Teaching in National Summer School of Physics olympiad

Teacher, Farzanegan and Besat High Schools 2017–2022

Taught advanced physics topics and prepared students for the National Physics Olympiad competition, focusing on problem-solving skills and conceptual understanding.

Skills

Python (Pandas, SciLearn, PyTorch), MATLAB, C/C++, Mathematica, LaTeX, GitHub

Honors and Awards

Poster Presentation Prize Winner, Hotchkiss Brain Institute Computational Neuroscience Research Day 2024

PHAS Internal Award (800 CAD), University of Calgary 2023

International Graduate Tuition Award (6000 CAD), University of Calgary 2022-2024

Entrance Scholarship (1500 CAD), University of Calgary 2022

Full-Tuition Fellowship, Undergraduate Studies, Sharif University of Technology 2017-2022

Silver Medal, International Physics Olympiad (IPhO 2017) 2017

Gold Medal, National Olympiad of Astronomy and Astrophysics 2016

Silver Medal, National Olympiad of Astronomy and Astrophysics 2015

Member, National Elite Foundation 2015

Extracurricular

Graduate Representative Council Member, PHAS DGA, University of Calgary 2023–2024

Represented graduate student interests in council meetings to discuss academic and departmental initiatives.

Council Member, Sharif University of Technology Climbing Group 2018–2021

Organized and participated in monthly climbs

Member, Physics and Computer Engineering Department Futsal Teams 2018–2019

Participated in departmental futsal tournaments and contributed to team spirit and sportsmanship.