# 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)

## Skills

**Programming:** Python (NumPy, Pandas, SciPy, PyTorch), C++, MATLAB, Mathematica
**Statistical Tools:** Optimization, Monte Carlo Methods, Time Series Analysis, Machine Learning
**Computational Methods:** Stochastic Processes, Differential Equations, Numerical Methods
**Tools:** Github, LaTeX

## 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

## Honors and Awards

**PHAS (Physics and Astronomy) Symposium Poster Prize Winner**, University of Calgary 2025

**Alberta Graduate Excellence Scholarship (AGES) (11000 CAD)** 2025

**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 (9000 CAD)**, University of Calgary 2022-2025

**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

## 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.*

## References


**Javier Orlandi**
*Physics and Astronomy*
University of Calgary

**Saman Moghimi**
*Physics*
Sharif University of Technology

**Claudia Gomes da Rocha**
*Physics and Astronomy*
University of Calgary