# Armin Panjehpour *Feb 21, 2001*

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University of Western Ontario • London, Canada

## Research Interests

Systems Neuroscience - Computational Neuroscience - Cognitive Sciences - Signal Processing - Neural Networks

## Education

University of Western Ontario — London, Canada
**M.Sc. degree in Neuroscience** — *Starting Sep 2023*
Research Assistant under supervision of Prof. Andrew Pruszynski & Prof. Jorn Diedrichsen

Sharif University of Technology — Tehran, Iran
**Bachelor degree in Electrical Engineering / Biomedical Engineering major** — *2019 – 2023*
GPA 17.60/20 - Expected graduation: Spring 2023
- Sharif University is ranked 1st in Iran based on QS Ranking

National Organization for Development of Exceptional Talents (Nodet) — Isfahan, Iran
**High school diploma degree in Mathematics and Physics** — *2017 – 2019*

- Nodet is a highly selective collection of schools. Admission is only offered to a few ($< 1\%$ of applicants) through a highly competitive evaluation process which is largely based on problem solving, math and scientific skills.

## Selected Research Experiences

- IPM School of Cognitive Sciences — Institute for Research in Fundamental Sciences - Tehran, Iran
**Research Assistant** — *July 2022 – March 2023*

Investigating whether visual search parameters and efficiency of the search are encoded by the single neurons of the prefrontal cortex of macaque monkeys using single elecetrode recordings
Under supervision of Prof. Ali Ghazizadeh

- Prof. Hamid Aghajan's Neuroscience Lab — Sharif University of Technology - Tehran, Iran
**Research Assistant** — *July 2021 – July 2022*

Investigating spatio-temporal pattern of neural oscillations (traveling waves) in human cortex during brain entrainment using EEG data acquisition
Under supervision of Prof. Hamid Aghajan

## Research Outputs

**Research Articles**

**- Prefrontal Cortex Encodes Value Pop-out in Visual Search**
M. Abbaszadeh, **A. Panjehpour**, MA. Alemohammad, A. Ghavampour, A. Ghazizadeh

**Conference Abstracts**

**- The quality of visual entrainment correlates with forward/backward traveling wave properties in human cortex**
M. Lahijanian, **A. Panjehpour**, H. Aghajan
Alzheimer's Association International Conference 2023 - Accepted, Not published yet

## Selected Course Projects

**Neuroscience**

- **Neural Coding and Population Analysis**
  - IF and LIF spiking analysis (a point process study) [Github]
  - Analyzing the activity of a population of units in Parietal cortex [Github]
  - Noise and signal correlation and the effect of noise on encoding and decoding [Github]

- **Learning and Decision Making**
  - Reinforcement learning of a rat in the water maze [Github]
  - Classical conditioning paradigms and learning paradigms with uncertainty [Github]
  - Drift Diffusion model for evidence accumulation, MT and LIP interaction model [Github]
- **Investigation of Cortical Traveling Waves in Array dataset**
  - Analyzing the activity of Local Field Potentials in Premotor Area F5 [Github]
- **Underlying Mechanisms of Feedback Alignment**
  - Analyzing the mathematics of feedback alignment in a biologically inspired network [Github]
- **Visual Attention and Visual Model**
  - Saliency maps to predict where humans look [Github]
  - Sparse representation of natural images which is matched with receptive fields of simple cells in V1 [Github]
- **Motor Neurons LFP Activity Analysis**
  - Motor cortex neurons encode different types of kinematics in Reach-to-Grasp task [Github]

**Medical Signal Processing**

- **EEG signal classification** [Github]
  - Feature extraction, feature selection, and classification using neural networks and genetic algorithms

## Skills

**Programming/ Computing Skills:** • Matlab • Python • Pytorch • EEGLab • C/C++ • HTML/CSS
**Other Skills:** • Git • LaTeX • Pyschtoolbox • Arduino
**Language Skills:** • Persian (*mother tongue*) • English (*TOEFL 99*)

## Professional & Community Activities

**Teaching Assistant**

- Advanced Topics in Neuroscience – M.Sc. course – Prof. Ali Ghazizadeh — Spring 2023
- Foundations of Neuroscience – B.Sc. course – Prof. Ali Ghazizadeh — Fall 2023
- Computational Intelligence – B.Sc. course – Prof. Sepideh Hajipour — Fall 2023
- Signals and Systems – B.Sc. course – Prof. Arash Amini — Spring 2022
- Neuroscience of Learning and Cognition – M.Sc. course – Prof. Hamid Aghajan — Fall 2021 - Fall 2022

**Sharif Neuroscience Symposium**

- Executive team Head of SNS 2023 — November 2022 - March 2023
- Executive team member of SNS 2021 — November 2020 - March 2021

**Resana's Annual Conference on Technology** [EE Dept. Sharif University of Technology]

- Head manager of ReACT 2021 — August 2021 - January 2022
- Executive team member of ReACT 2020 — October 2020 - December 2021

**EE Dept. Student's Association** [Resana]

- Web Programming Workshop Instructor — June 2021 - August 2021

## Selected Academic Courses

**Graduate Courses**

• Advanced Topics in Neuroscience [20/20] • Neuroscience of Learning, Memory and Cognition [20/20] • EEG Signal Processing [17.2/20]

**Undergraduate Courses**

• Foundations of Neuroscience [19.5/20] • Computational Intelligence [16.3/20] • Signals and Systems [18.5/20] • C++ Programming [19.9/20] • Medical Signal & Image Processing Lab [19.2/20] • Principles of Biomedical Engineering [17/20] • Linear Algebra [16/20] • Parallel Programming [N.S] • Neruoscience Lab [N.S]

## Honors and Awards

**Mathematics and Physics University Entrance Exam** 2019 – Ranked 95 among 144,000 participants

**Three Gold Medals in Province Volleyball Competitions** 2017 - 2019