Amin Nejatbakhsh

Curriculum Vitae

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EDUCATION

2017–Now **Ph.D. Student in Theoretical Neuroscience**,
Columbia University.

2017–2019 **M.A. & M.Phil in Theoretical Neuroscience**,
Columbia University.

- Courses: Sparse Representations and High Dimensional Geometry (J. Wright), Deep Generative Models (J.P. Cunningham), Foundations of Graphical Models (D. Blei), Advanced, Machine Learning (J.P. Cunningham), Introduction to Theoretical Neuroscience (L.F. Abbott), Computational Statistics (L. Paninski), Statistics for Neuroscientists (L. Paninski), Survey of Neuroscience (F. Polleux), Advanced Theoretical Neuroscience (K.D. Miller)
- GPA: 3.77/4

2011–2016 **B.Sc. in Computer Engineering, Minor in Pure Mathematics**,
Sharif University of Technology.

- Thesis: Design and implementation of a voice recognition system based on the rat's auditory system, under the supervision of Prof. M. Soleymani-Baghshah (19.8/20).
- Courses: Medical Neuroscience (L.E. White), Biomath (A. Abbasian), Neuroscience (R. Lashgari), Synapses, Neurons and Brains (I. Segev), Computational Neuroscience (R. Rao), Machine Learning (H.R. Rabiee), Modern Information Retrieval(M. Soleymani), Machine Learning (A. Ng)
- GPA: 17.07/20 (3.6/4)

2007–2010 **Diploma in Physics and Mathematics Discipline**,
Allameh Tabatabaei High school.

FIELDS OF INTEREST

Computational and Systems Neuroscience.

Statistics and Dynamical Systems.

Machine Learning and Neural Networks.

RESEARCH EXPERIENCE

Current **Graduate Research**.

- Developed methods for extracting neural trajectories and neural signals from volumetric videos of transgenic C-elegans under the supervision of Prof. L. Paninski (work in progress).
- Developed online algorithms for fast extraction of calcium imaging data from light field images under the supervision of Prof. L. Paninski.

2017–2018 **Data Analyst**.

- Analyzed LFP and spiking data to study the effect of probabilistic cues on the attention network. Co-supervised by Prof. J. Gottlieb and Prof. R. Lashgari.

2015–2017 **Research Assistant in Brain Engineering Research Center at IPM**.

- Designed and implemented an experimental design and data collection system (more info).
- Ran a distributed computing system on the computers in the lab for parallel computing.
- Analyzed LFP signals to cluster V1 neurons.

PRESENTATIONS

Fall 2017 **Society for Neuroscience (SfN)**, *Poster Session*, Washington, D.C.
- M. Nejatbakhshesfahani, N. C. Foley, H. R. Nasrabadi, V. Davoodnia, E. Zabeh, R. Lashgari, J. Gottlieb. "Expected value correlates with reduction in alpha-beta power in monkey dorsolateral prefrontal and inferior parietal lobe".
- J. Doostmohammadi, H. Shabani, M. Nejatbakhshesfahani, A. Yoonessi, R. Lashgari. "Response variability of V1 neurons in awake primate".

HONORS AND AWARDS

2015 **Gold Medal**, *in 22nd International Mathematical Competition (IMC)*, Blagoevgrad.

2015 **Gold Medal**, *in 39th Iranian Mathematical Society Competition (IMS)*, Yazd.

2014 **Ranked 3/7**, *in 13th International German Open Robocup*, Magdeburg.
- Member of Paaydar Team in 3D Soccer Simulation League.

2014 **Ranked 2/6**, *in 3rd National Sharifcup Competition*, Tehran.
- Leader of Paaydar Team in Traffic Control League.

2010 **Gold Medal**, *in 28th Iranian National Mathematical Olympiad (INMO)*, Tehran.

2009 **Silver Medal**, *in 27th Iranian National Mathematical Olympiad (INMO)*, Tehran.

TEACHING EXPERIENCE

Summer 2017 **Instructor of Computational Neuroscience Workshop**.

Spring 2016 & Fall 2015 **Teaching Assistant for Engineering Probability and Statistics**, Instructor: Prof. H. Rabiee.

Fall 2015 **Teaching Assistant for Modern Information Retrieval**, Instructor: Prof. M. Soleymani-Baghshah.

Spring 2013 **Teaching Assistant for Linear Algebra**, Instructor: Prof. A. Ranjbar-Motlagh.

Summer 2015 **Instructor of iOS Application Development Workshop**.

2009–Now **Instructor of Mathematical and Informatics Olympiad**.

WORKING EXPERIENCE

Fall 2015 **Employee of Software Development**, *Torob Company*.
- Developed an automatic feature extraction and clustering system (Python, sickit-learn)

2012–2014 **Employee of Mobile Application Development**, *Hasin Company*.
- Developed Taaghche and Gramophone iOS Applications (Objective-C)

PROFESSIONAL DEVELOPMENT

Fall 2016 **Three-day Hands-on fMRI Workshop**.
- The common preprocessing and analysis methods on structural and functional MRI data using Freesurfer application was covered by Dr. M. Vaziri and Dr. R. Rajimehr.

Fall 2016 **Two-week International IBRO School on Brain Mapping**.
- Physics, theories, technologies, and analysis of brain imaging techniques such as fMRI, EEG, fNIRS, TMS, and tDCS was covered by instructors such as Prof. R. Savoy, Prof. N. Muggleton.

Spring 2016 **Three-day Stereology Course**.
- The three-dimensional interpretation (such as the computation of the volume or finding neurons and synapses) of two-dimensional cross sections of brain tissue was covered by Prof. J. Nyengaard.

2015–2017 **Weekly Computational Neuroscience Journal Clubs**.
- Weekly paper reading sessions was held at IPM by Prof. A. Abbasian in which a wide range of the theories in computational neuroscience such as predictive coding theory, graph theory, topology, point process, and dynamical systems were discussed.

PROFESSIONAL SKILLS

Neuroscience	Fieldtrip, Freesurfer, Psychtoolbox, Brian SNN Simulator
Programming	Python, Matlab, Java, C, C++, Javascript, Prolog, Objective-C, Verilog
Web	Django, NodeJS, CSS, HTML
Typesetting	LaTeX, Microsoft Office

LANGUAGES

Persian	Native
English	Fluent
Azerbaijani	Familiar

EXTRACURRICULAR ACTIVITIES

Spring 2015	**Gold Medal**, in Sharif University Basketball Championships Competition.
Fall 2014	**Technical Staff**, in Association Computing Machinery (ACM-ICPC) Competition.
2011–2017	Member of Sharif University Mountain Climbing Group