Shiva Farashahi

Curriculum Vitae
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Flatiron Institute,
Simons Foundation,
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EMPLOYMENT

Flatiron Research Fellow, Neuroscience group — 10/2019-present
Center for Computational Biology, Flatiron Institute, Simons Foundation, NY, USA

EDUCATION

Ph.D. in Psychological and Brain Sciences — 9/2014-9/2019
Department of Psychological and Brain Sciences, Dartmouth College, NH, USA

Methods in Computational Neuroscience course — 7/2018-8/2018
Marine Biology Laboratory, MA, USA

M.S. in Electrical Engineering-Biomedical Engineering — 9/2011-6/2013
School of ECE, University of Tehran, Tehran, Iran

B.S. in Electrical Engineering-Control — 9/2007-9/2011
Department of EE, Ferdowsi University of Mashhad, Khorasan, Iran

PUBLICATIONS

Manuscripts under Review and in Preparation

3. **Farashahi S**, Nomof J, Aslami Z, Soltani A (in preparation). Learning from reward feedback in high-dimensional environments.
2. Soltani A, **Farashahi S**, Izquierdo A (in preparation). A circuit level model of reward learning under uncertainty.
1. **Farashahi S**, Xu J, Wu SW, Soltani A (under review). Learning arbitrary stimulus-reward associations for naturalistic stimuli involves transition from learning about features to learning about objects.

Peer-reviewed Publications

7. **Farashahi S**, Donahue C, Hayden B, Lee D, Soltani A (2019). Flexible combination of reward information across primates. *Nature Human Behaviour*, 3(11), 1215-1224.
6. **Farashahi S**, Azab H, Hayden B, Soltani A (2018). On the flexibility of basic risk attitudes in monkeys. *Journal of Neuroscience*, 38(18), 4383-4398.
5. **Farashahi S**, Ting CC, Kao CH, Wu SW, Soltani A (2018). Dynamic combination of sensory and reward information under time pressure. *PLOS Computational Biology*, 14(3):e1006070.
4. **Farashahi S**, Rowe K, Aslami Z, Gobbini MI, Soltani A (2018). Influence of learning strategy on response time during complex value-based learning and choice. *PLOS ONE*, 13(5):e0197263.
3. **Farashahi S**, Rowe K, Aslami Z, Lee D, Soltani A (2017). Feature-based learning improves adaptability without compromising precision. *Nature Communications*, 8(1), 1-16.
2. **Farashahi S**, Seo H, Donahue C, Khorsand P, Lee D, Soltani A (2017). Metaplasticity as a neural substrate for adaptive learning and choice under uncertainty. *Neuron*, 94(2), 401-414.
1. Soltani A, Khorsand P, Guo CZ, **Farashahi S**, Liu J (2016). Neural Substrates of Cognitive Biases during Probabilistic Inference. *Nature Communications*, 7(1), 1-14.

Book Chapters

1. Bahrami F, **Farashahi S** (2017), How Do We Navigate Our Way to Places?. *Computational Models of Brain and Behavior*, 357-372.

CONFERENCE POSTERS

12. **Farashahi S**, Nomof V, Aslami Z, Soltani A, Learning from reward feedback in high-dimensional environments, SfN, San Diego, USA, Nov 3-7, 2018.
11. **Farashahi S**, Rowe K, Aslami Z, Gobbini MI, Soltani A, Pattern of response time reveals the construction of reward value during adaptive learning and choice, SfN, Washington DC, USA, Nov 11-15, 2017.
10. **Farashahi S**, Rowe K, Aslami Z, Lee D, Soltani A, Removing the curse of dimensionality: a trade-off between adaptability and precision, SfN, San Diego, USA, Oct 12-16, 2016.
9. P. Khorsand, **Farashahi S**, Soltani A, Adaptability-precision trade off: a metaplasticity study, SfN, San Diego, USA, Oct 12-16, 2016.
8. **Farashahi S**, Rowe K, Aslami Z, Lee D, Soltani A Hierarchical selection, reward-dependent metaplasticity, and choice under uncertainty, CoSyNe, Salt Lake City, USA, Feb 25-28, 2016.
7. Chu E, Harris L, Lee V, **Farashahi S**, Soltani A, Influence of value-dependent endogenous signals on saccadic choice, SfN, Chicago, USA, Oct 17-21, 2015.
6. **Farashahi S**, Seo H, Lee D, Soltani A, Metaplasticity and choice under uncertainty, CoSyNe, Salt Lake City, USA, Mar 4-8, 2015.
5. **Farashahi S**, Lienard J, Ingram S, Dimitrov A, Model of dynamics of intracellular chloride based on fluorescent imaging, CNS, Quebec City, Canada, 2014.
4. Mohammadi M, **Farashahi S**, Mahdavi A, Bahrami F, Allocentric Spatial Navigation Impairment in Schizophrenic Subject: A Model-based Study, ICEE, Tehran, Iran, May 10-14, 2015.
3. **Ghaani-Farashahi S**, Bahrami F, Modeling Alzheimer's disease deficits in place field representation, ICIS, Tehran, Iran, Feb 26-28, 2013.
2. **Ghaani-Farashahi S**, Bahrami F, Does Deficits in Place Field Formation Cause Spatial Navigation Impairment in Alzheimer's Disease?, ICBME, Tehran, Iran, Dec 18-20, 2013.
1. **Ghaani-Farashahi S**, Bahrami F, Modeling place field formation considering recurrent connections in CA3 and STDP, ICEE, Mashhad, Iran, May 14-16, 2013.

INVITED TALKS

Flatiron Institute, Simons Foundation, NY	11/2018
Center for Neural Science, NYU, NY	10/2018
Society for Neuroscience (SfN), Nano-Symposium, IL	10/2015

SERVICE

Reviewer of Philosophical Transactions of the Royal Society B	6/2020-present
Reviewer of PLOS One Journal	4/2020-present
Reviewer of NeuroImage Journal	1/2020-present
Reviewer of CoSyNe conference	2019
Reviewer of PLOS Computational Biology Journal	11/2018-present

HONORS AND AWARDS

William M. Smith Promise Award in the Brain Sciences, Dartmouth College	6/2019
Marie A. Center Award for Excellence in Research, Dartmouth College	6/2018
Neukom prize for outstanding graduate research, Dartmouth College	6/2017
Neukom travel grant to present at the SfN, Dartmouth College	5/2015-2017
Graduate Fellowship grant, Dartmouth College	09/2014-09/2019
Merit abstract award at 21st Iranian Conf. Electrical Engineering, ICEE	5/2013

RESEARCH EXPERIENCE

Machine/Statistical Learning: Regression, Generalized Linear Mixed Effects, Bayesian Statistics, Reinforcement Learning, Deep Learning, Clustering, Dimension Reduction

Optimization Methods: Genetic Algorithm, Particle Swarm Optimization, Ant Colony Optimization, Game theory, ANFIS

Computational Neuroscience: Biological neural modeling, Generalized linear models of neural spike data, fMRI data analysis, eye-tracking hardware and software (EyeLink)

PROGRAMMING SKILLS

C/C++, Python, R, MATLAB, Bash
Neuron, XPPAUT
psychtoolbox
PSpice, LABVIEW, Protel, Proteus, ORCAD, CodeVision AVR, Bascom AVR

TEACHING EXPERIENCE

Teaching Assistant

Experimental Design and Methodology (Dartmouth College)	Fall 2017
Systems Neuroscience with Laboratory (Dartmouth College)	Spring 2016
Introduction to Neuroscience (Dartmouth College)	Winter 2015
Probability and Statistics (Washington State University)	Spring 2014
Dynamical Systems in Neuroscience (University of Tehran)	Spring 2013

Student Advising

Jane Xu (Dartmouth College)	Fall 2018
May Nguyen (Dartmouth College)	Spring 2018
Zohra Aslami Chu (Dartmouth College)	Fall 2017
Emily Chu (Dartmouth College)	Fall 2016
Katherine Rowe (Dartmouth College)	Fall-Spring 2016

REFERENCES

Dmitri Chklovskii (dchklovskii@flatironinstitute.org)
Neuroscience Group Leader, CCB, Flatiron Institute

Alireza Soltani (alireza.soltani@dartmouth.edu)
Assistant Professor of Psychological and Brain Sciences, Dartmouth College

Daeyeol Lee (daeyeol@jhu.edu)
Professor of Neuroscience and Psychological and Brain Science, Johns Hopkins University