

Shiva FARASHAHI, Ph.D.

Machine Learning | Data Science

shiva.farashahi@gmail.com

I am a highly driven Machine learning and Data scientist, with 8+ years of applying statistical and machine learning tools in academic and industry settings. Proficient in statistical analysis of large datasets, applying machine learning and model-driven approaches, as well as scripting languages including Python.

EMPLOYMENT

- 6/2022-Present** Senior Machine Learning Engineer
Harbinger Health, Flagship Pioneering, MA, USA
- 10/2019-6/2022** Flatiron Research Fellow
Center for Computational Neuroscience, Flatiron Institute, NY, USA

EDUCATION

- 9/2014-8/2019** Ph.D. in Computational Neuroscience
Department of Psychological and Brain Sciences, Dartmouth College, NH, USA
- 9/2011-6/2013** M.S. in Biomedical Engineering
School of ECE, University of Tehran, Tehran, Iran
- 9/2007-9/2011** B.S. in Control systems Engineering
Department of EE, Ferdowsi University of Mashhad, Khorasan, Iran

PROJECTS

- 6/2022-Present** **Enhanced feature selection for cancer classification**
- Using deep learning approaches, analyzed genomic and epigenomic data to extract interpretable and informative features for cancer classification.
- 10/2019-6/2022** **Continual representation learning under noise**
- Explored stability of learned representations in a biologically plausible feedforward Neural Network during noisy continual learning.
 - Using machine learning approaches, analyzed large neural recordings from rodents to probe stability of learned sensory representations.
- 9/2009-9/2011** **Learning generalizable representations in Reinforcement Learning**
- Integrated a Recurrent Neural Network (RNN) into a Reinforcement Learning framework to allow for learning of generalizable representations.
 - Using machine learning approaches, analyzed behavioral data to explore computations behind learned generalizable representations in primates.
- 9/2007-9/2009** **Meta-learning in animals and artificial agents**
- Developed a model-based meta-learning model and explored its behavior in various Reinforcement Learning tasks.
 - Using machine learning approaches, analyzed large neural recordings from primates to investigate neural mechanisms behind meta-learning.

DATA ANALYTICS SKILLS

Programming	Python, Pandas, Scikit-Learn, SciPy, NumPy, TensorFlow, SQL, MATLAB
Machine/Statistical Learning	Regression, Classification, Clustering, Latent variable/Dimensionality reduction models, Ensemble methods, Reinforcement Learning, Deep Learning, Time-series analysis
Additional	Study design and measurement (Power analysis, A/B testing, Experimental design), Biophysical modeling of brain dynamics

SELECTED PUBLICATIONS (Citations ~ 330)

9. **Farashahi S**, Soltani A (2021). Computational mechanisms of distributed value representations and mixed learning strategies, *Nature Communications*, 12, 7191.
8. Friedrich J, Golkar S, **Farashahi S**, Genkin A, Sengupta AM, Chklovskii D (2021). Neural optimal feedback control with local learning rules. *Advances in Neural Information Processing Systems*, 34.
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, Lee D, Soltani A (2017). Feature-based learning improves adaptability without compromising precision. *Nature Communications*, 8(1), 1-16.
3. **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.
2. Bahrami F, **Farashahi S** (2017), How do we navigate our way to places?. *Computational Models of Brain and Behavior*, 357-372.
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.

REFERENCES

Alireza Soltani, Ph.D.

Associate Prof. of Psychological and Brain Sciences
Department of Psychological and Brain Sciences
Dartmouth College
6207 Moore Hall, Hanover, NH, USA 03755
alireza.soltani@dartmouth.edu

Daeyeol Lee, Ph.D.

Bloomberg Distinguished Prof. of Neuroscience
The Solomon H. Snyder Department of Neuroscience
Johns Hopkins University
3400 N Charles St, Baltimore, MD, USA 21218
daeyeol@jhu.edu