

CONTACT
INFORMATION

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SUMMARY

I use math and data to understand complex systems like the brain and neural networks. I create new statistical methods to handle noisy data and provide clearer, more insightful representations.

PROFESSIONAL
EXPERIENCES

Research Associate | Western University, Canada **08/2023 - Present**

- Implemented recurrent neural network (RNN) models that replicate task generalization
- Explored task generalization by analyzing high-dimensional neural network activity

Graduate Researcher | Western University, Canada **01/2021 - 07/2023**

- Managed 4 international research projects, yielding 6 research articles
- Presented findings at 4 international conferences with support from competitive travel awards
- Developed and implemented experimental devices for sensorimotor research
- Implemented a new statistical model evaluation pipeline for multivariate brain data analysis (Matlab & Python)
- Secured over \$50,000 CAD in funding through competitive university awards
- Supervised graduate and undergraduate researchers
- Instructed courses and conducted workshops in data science, statistics, and neural networks

Undergraduate Researcher | Sharif University, Iran **01/2018 - 12/2020**

- Designed and implemented a geometry-aware metric for enhanced analysis of multivariate data
- Developed innovative weight initialization schemes for Convolutional Neural Networks, boosting training efficiency and network performance
- Authored papers and delivered presentations in various invited talks
- Instructed courses and crafted assignments in causal inference, deep learning, and theoretical machine learning

Data Science Intern | Digikala.com, Iran **06/2019 - 09/2019**

- Conducted causal time-series analyses to assess the impact of advertisements on purchases
- Delivered biweekly presentations, effectively communicating data insights to representatives

EDUCATION

Ph.D., Computational Neuroscience | Harvard University, USA **09/2023 - Present**

- Currently on a leave of absence

MSc, Computational Neuroscience | Western University, Canada **01/2021 - 08/2023**

BSc, Electrical Engineering | Sharif University, Iran **09/2016 - 07/2020**

PUBLICATIONS

* *Shared first authorship.*

Love, K., ..., **Shahbazi, M.**, Smoulder, A., 2023. Highlights from the 32nd Annual Meeting of the Society for the Neural Control of Movement. *Journal of neurophysiology*.

* Ariani, G., * **Shahbazi, M.**, Diedrichsen, J., 2023. Cortical areas for planning sequences before and during movement. *bioRxiv*.

Shahbazi, M., Ariani, G., Kashefi, M., Pruszynski, J., Diedrichsen, J., 2023. Neural correlates of online action preparation. *bioRxiv*.

Kashefi, M., Reschechtko, S., Ariani, G., **Shahbazi, M.**, Diedrichsen, J., Pruszynski, J., 2023. Interaction of multiple future movement plans in sequential reaching. *bioRxiv*.

* **Shahbazi, M.**, * Shirali, A., Aghajan, H. and Nili, H., 2021. Using distance on the Riemannian manifold to compare representations in brain and in models. *NeuroImage*.

Diedrichsen, J., Berlot, E., Mur, M., Schütt, H.H., **Shahbazi, M.** and Kriegeskorte, N., 2021. Comparing representational geometries using whitened unbiased-distance-matrix similarity. *Neurons, Behavior, Data analysis, and Theory*.