

Mehrdad Kashefi

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Professional Experience	Western University , London, ON, Canada Postdoctoral Research Fellow Advisors: Dr. Andrew Pruszynski, Dr. Jörn Diedrichsen	2026 - now
Education	Western University , London, ON, Canada <i>Ph.D. Neuroscience</i> Thesis Title: “Neural Basis of Sequential Actions” Advisors: Dr. Andrew Pruszynski, Dr. Jörn Diedrichsen Defense date: November 7th, 2025	2020 - 2025
	Iran University of Science and Technology (IUST) , Tehran, Iran <i>M.S. Electrical Engineering - Bioengineering</i>	2017 - 2020
	Lorestan University , Lorestan, Iran <i>B.S. Electrical Engineering - Electronics</i>	2013 - 2017
Awards	COSYNE Presenters Travel Grant–USD \$500 Neural Control of Movement (NCM) Travel Award International Ontario Graduate Scholarship–CAD \$15,000 Best Oral Presentation at Neuroscience Research Day, Western University Neuroscience Program Travel Award, Western University–CAD \$500	2025 2024 2023 2023 2022
Publications		
Preprints	[2] Neupane S., Kashefi M. , Kersten R., Pruszynski J.A., Grahn J., Michaels J. “Reward-driven emergence of auditory pattern encoding in the primate motor system”, bioRxiv 10.64898/2026.01.29.702435	
	[1] Kashefi M. , Michaels J., Kersten R., Lau J., Diedrichsen J., Pruszynski J.A. “Compositional neural dynamics during reaching”, bioRxiv 10.1101/2025.09.04.674069	
Published	[12] Diedrichsen J., Kashefi M. , Nazerzadeh A., Pruszynski J.A. “Online planning of sequential actions”, Trends in Cognitive Sciences, 2026	
	[11] Bina MMH., Kashefi M. , Daliri M.R., “DeCLFPNet: Decoding Continuous Movement Parameters from Local Field Potentials with Band-Filtered Convolutional-LSTM”, Array, 2026	
	[10] Panjehpour A., Kashefi M. , Diedrichsen J., Pruszynski J.A. “Sequence preparation is not always associated with a reaction time cost”, Journal of Neurophysiology, 2025	
	[9] Michaels J., Kashefi M. , Zheng J., Codol O., Weiler J., Kersten R., Lau, J., Gribble P., Diedrichsen J., Pruszynski J.A. “Sensory expectations shape neural population dynamics in motor circuits”, Nature, 2025	
	[8] Kashefi M. , Diedrichsen J. [†] , Pruszynski J.A. [†] “Motor sequence learning involves better prediction of the next action and optimization of movement trajectories”, Journal of Neuroscience, 2025 († := Co-senior authors)	

- [7] Shahbazi M., Ariani G., **Kashefi M.**, Pruszynski J.A., Diedrichsen J., “Neural correlates of online action preparation”, *Journal of Neuroscience*, 2024
- [6] **Kashefi M.**, Reschechtko S., Ariani G., Shahbazi M., Alice Tan, Diedrichsen J., Pruszynski J.A. “Future movement plans interact in sequential arm movements”, *eLife*.94485.1,2024
- [5] Chung B., Zia M., Thomas K., Michaels J., Jacob A., Pack A., Williams M., Nagapudi K., Teng L., Arrambide E., Ouellette L., Oey N., Gibbs R., Anschutz P., Lu J., Wu Y., **Kashefi M.**, Oya T, Kersten R, Mosberger A., O’Connell S, Wang R., Marques H, Rita P. Mendes A., Lenschow C., Kondakath G., Kim J., Olson W.,Quinn K., Perkins P., Gatto G., Thanawalla A., Coltman S., Kim T., Smith T., Binder-Markey B., Zaback M., Thompson C., Giszter S., Person A., Goulding M., Azim E., Thakor N., O’Connor D., Trimmer B., Lima S., Carey M., Pandarinath C., Costa R., Pruszynski A., Bakir M., Sober S. “Myomatrix arrays for high-definition muscle recording”, *eLife*.88551.1, 2023
- [4] Codol O., Michaels J. A, **Kashefi M.**, Pruszynski J.A., Gribble P. “MotorNet: a Python toolbox for controlling differentiable biomechanical effectors with artificial neural networks”, *eLife*.88591.1, 2023
- [3] Codol O., **Kashefi M.**, Forgaard C.J., Galea J.M., Pruszynski J.A., Gribble P. “Sensorimotor feedback loops are selectively sensitive to reward”, *eLife* 12:e81325, 2023
- [2] Ahmadi A.* , **Kashefi M.***, Shahrokhi H, Nazari M.A., “Computer aided diagnosis system using deep convolutional neural networks for ADHD subtypes”, *Biomedical Signal Processing and Control*, 2021 (* := equal contribution)
- [1] **Kashefi M.**, Daliri M.R., “A stack LSTM structure for decoding continuous force from local field potential signal of primary motor cortex (M1)”, *BMC bioinformatics*, 2021

Conference

Talks

- Kashefi M.**, Michaels J. A, Diedrichsen J., Pruszynski J.A., “Motor cortical dynamics during reaching connect posture-specific attractors”, *Neural Control of Movement (NCM)*, Panama City, Panama, 2025
- Kashefi M.**, Diedrichsen J., Pruszynski J.A., “A compositional solution for sequence learning”, *Neural Control of Movement (NCM)*, Dubrovnik, Croatia, 2024 (Online)
- Kashefi M.**, Diedrichsen J., Pruszynski J.A., “Is motor learning merely anticipation?”, *Neuroscience Research Day (NRD)*, London, Canada, 2023

Posters

- Kashefi M.**, Michaels J. A, Diedrichsen J., Pruszynski J.A., “Motor cortical dynamics during reaching connect posture-specific attractors”, *Cosyne*, Montreal, Canada, 2025
- Kashefi M.**, Diedrichsen J., Pruszynski J.A., “Is there more to sequence learning than better anticipation?”, *Neural Control of Movement (NCM)*, Victoria, Canada, 2023
- Kashefi M.**, Ariani G., Diedrichsen J., Pruszynski J.A., “Planning multiple future actions in sequential reaching”, *Neural Control of Movement (NCM)*, Dublin, Ireland, 2022

Invited talks

- Kashefi M.**, “Compositional neural dynamics during reaching”, Shine Lab, University of Sydney, October 2025 (Online)
- Kashefi M.**, “Motor cortical dynamics during reaching connect posture-specific attractors”, Chinese institute for brain research, July 2025 (Online)

Kashefi M., “Future movement plans interact in sequential arm movements”, Motor control Group, West Virginia University, December 2024 (Online)

Teaching

Mentorship	Armin Panjehpour (PhD, Western University, 2023-) Alice Tan (BSc, Western University, 2022-2023)	
Workshop	Introduction to Machine Learning, Brainhack Western	2021
TA	Physiology and Pharmacology Laboratory, Western University Computational Neuroscience, IUST Electronic Circuits, IUST	2021 2019-2020 2018

Professional Service

Peer review	Nature Human Behaviour (#1) — Current Biology (#1) — JNeuroscience (#1) — eLife (#2)	
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Outreach

Thames Valley Science and Engineering Fair, London, ON, CA Judge for Grade 4-12 Science Engineering Fair	2021-2026
Mentorship Committee, Society of Neuroscience Graduate Students, Western Mentoring first-year graduate students in the neuroscience program.	2022
Python Camp, IUST Introductory python course for middle school students	2019
Executive Committee Member, ICBME , IUST 26th International Iranian Conference on Biomedical Engineering (ICBME)	2019

Referees

Dr. Andrew Pruszynski Associate Professor, Canada Research Chair in Sensorimotor Neuroscience Western University Email: andrew.pruszynski@uwo.ca	
Dr. Jörn Diedrichsen Professor, Western Research Chair for Motor Control and Computational Neuroscience Western University Email: jdiedric@uwo.ca	
Dr. Jonathan Michaels Assistant Professor York University Email: jmichae@yorku.ca	