

Shahabeddin Vahdat, PhD

Assistant Professor
Director of Stroke Neuro-Recovery Lab
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Education

- **Doctor of Philosophy, McGill University, Montreal, Canada**
2008 - 2012; with Drs. T. Milner and D. Ostry, Kinesiology; Motor Neuroscience
Thesis title: “Training-induced Plasticity in Resting-state Sensory and Motor Networks”
- **Master of Science, Sharif University of Technology, Tehran, Iran**
2005 - 2008; Biomedical Engineering
Thesis title: “Analysis and Modeling of Motor Synergies in Human Motor Control”
- **Bachelor of Science, University of Tehran (UT), Tehran, Iran**
2001 - 2005; Electrical Engineering – System Control
Project title “Development of a Robust Brain Extraction Algorithm in Structural MRI”

Professional Experience

- **Assistant Professor, University of California Riverside, CA, USA**
2024 - Present – Department of Bioengineering; Director of Stroke Neuro-Recovery Lab (SNL)
- **Assistant Professor, University of Florida, Gainesville, FL, USA**
2019 - 2024 – Department of Applied Physiology and Kinesiology, College of Health and Human Performance; Director of Sensorimotor Plasticity Lab (SPL)
- **Postdoctoral Fellow, Stanford University, Stanford, CA, USA**
2017 - 2019; with Profs. Gary Steinberg, Lee, Department of Neurosurgery, and Department of Neurology and Neurological sciences
Project: Neurotreatment and pathophysiology of ischemic stroke
- **Postdoctoral Fellow, University of Montreal, Montreal, QC, Canada**
2012 - 2017; with Prof. Julien Doyon, Functional Neuroimaging Unit, CRIUGM
Project: Spinal cord functional neuroimaging and electrophysiology

- **Visiting Scientist, McGill University, Montreal, Canada**

2012 - 2016; with Prof. David Ostry

Project: Neuroimaging of perceptual learning after stroke

Grant Funding

- **Pending, R01 grant NIH-NINDS:** “Lateralized Reticulospinal Imbalance in Post-Stroke Spasticity: Mechanism and Subacute Treatment”. Principal investigator, 2027–2032, \$3,926,923 USD
- **Pending, R01 grant NIH-NINDS:** “BioGel therapy promotes angiogenesis and functional recovery after ischemic stroke”. Co-Principal investigator (PIs: Noshadi, Obenaus, Vahdat) 2027–2032, \$5.26 million USD
- **NS131227, R01 grant NIH-NINDS:** “The function of descending and ascending pathways in spastic hypertonia and hyperreflexia after stroke”. Principal investigator, 2023-2028, \$1,880,441 USD.
- **1R01DK140233, R01 grant NIH-NIDDK:** “Urothelial Cells and Sensory Signaling” Co-Investigator (PI: Mickle) 2024-2029, \$3,046,919.00 USD, (UCR subcontract: \$141,520).
- **23K07, Discovery Science grant, James & Esther King Biomedical Research Program, Florida Department of Health:** “The function of Spinal cord-Brain pathways in Spasticity after stroke”. Principal investigator; 2023-2026, \$565,489 USD.
- **UCR, WCGEC Energy Seed Research Grant Seed Project in WCGEC:** “3D Direct Writing of Biodegradable and Biocompatible Soft Miniaturized Energy Storage Devices: Fundamental Design and Operational Characteristics” Co-PI (PIs: Noshadi, Vahdat) 07/2025-12/2025, \$12,000 USD.
- **BRAIN Center Neural Injury Award, University of Florida.** “The function of ascending sensory and descending motor pathways in hyperreflexia and hypertonia in spastic hemiplegic stroke” Principal investigator; 2022-2023, \$30,000 USD
- **Brain and Spinal Cord Injury Research Trust Bridge Funds, Center for Respiratory Research and Rehabilitation (CRRR), University of Florida.** “Spinal cord circuit function in health and stroke” Principal investigator; 2020-2021, \$48,000 USD
- **APK Research Investment Grants, Center for Exercise Science, University of Florida,** “Spinal cord circuit function and interaction with the brain in stroke recovery” Principal investigator, (PIs: Shahabeddin Vahdat, Stephen Coombs); 2020-2022, \$23,300 USD
- **Heart and Stroke Foundation of Canada Grants-in-Aid (GIA):** “Robot-assisted modulation of post-stroke motor-network connectivity: from basic science to clinical application”. Co-applicant (PI: Alexander Thiel, David Ostry), 2016-2018; 213,000 CAD
- **Oxford-McGill Neuroscience Collaboration Grant:** “Connectivity and communicability in the sensorimotor network during motor learning following stroke”. Co-applicant (PI: Theodore Milner, McGill; Charlotte Stagg, Oxford), 2012-2014 ; 24,000 CAD

Peer-Reviewed Publications

1. Jindal V, Grudny M, Wilkes B, M, **Vahdat S** (2026) “Cortical and subcortical activations in response to optogenetic excitation of glutamatergic neurons in lateral rostral medulla”, *Under review in iScience*; https://papers.ssrn.com/sol3/papers.cfm?abstract_id=7447805
2. **Vahdat S***, Landelle C, Lungu O, De Leener B, Doyon J, Baniasad F (2026) “FASB fMRI: an integrated processing pipeline for Functional Analysis of simultaneous Spinal cord-Brain fMRI”, *Under review in Imaging Neuroscience*, doi: 10.21203/rs.3.rs-3889284/v1.
*Corresponding author
3. Jindal V, Veizaj J, Schuler Z, de Jesus E, Wesson DW, Vaillancourt D, **Vahdat S** (2026) “Brain-wide activations related to forepaw force control identified by behaving mouse fMRI”, *eNeuro*, 2026 Jul 31. doi: 10.1523/ENEURO.0106-26.2026
4. Kaul S, Liu L, Candelario-Jalil E, **Vahdat S** (2026) “Ischemic injury to primary motor and premotor cortices is linked to hyperreflexia in mice”, *Neurobiology of Disease*, 222 (2026) 107354. doi: 10.1016/j.nbd.2026.107354.
5. Jindal V, Grudny M, Wesson DW, Vaillancourt D, **Vahdat S** (2026) “Medullary and C3-C4 propriospinal pathways underlying mammalian forelimb movement control”, *Proceedings of National Academy of Sciences (PNAS)*, 123(5):e2518217123. doi: 10.1073/pnas.2518217123.
6. Ricchi I, Santoro A, Kinany N, Landelle C, Khatibi A, **Vahdat S**, Doyon D, Barry R, Van De Ville D (2026), “Spine-Prints: Transposing Brain Fingerprints to the Spinal Cord”, *Imaging Neuroscience*, <https://doi.org/10.1162/IMAG.a.1128>
7. Banerjee, R., Kaptan, M., Tinnermann, A., Khatibi, A., Dabbagh, A., Büchel, C., Kündig, C. W., Law, C. S. W., Pfyffer, D., Lythgoe, D. J., Tsivaka, D., Van De Ville, D., Eippert, F., Muhammad, F., Glover, G. H., David, G., Haynes, G., Haaker, J., Brooks, J. C. W., ... Cohen-Adad, J. (2025). EPISeg: Automated segmentation of the spinal cord on echo planar images using open-access multi-center data. *Imaging Neuroscience*. <https://doi.org/10.1162/imag.a.98>
8. Mobarak-Abadi, M., Mahmoudi-Aznaveh, A., Dehghani, H., Zarei, M., **Vahdat S**, Doyon, J., Khatibi, A. (2024). DeepRetroMoCo: deep neural network-based retrospective motion correction algorithm for spinal cord functional MRI. *Frontiers in Psychiatry*, 15. <https://doi.org/10.3389/fpsy.2024.1323109>
9. Kinany N, Khatibi A, Lungu O, J Finsterbusch, Büchel C, Marchand-Pauvert V, Van De Ville D, **Vahdat S**, Doyon J (2023) “Decoding cerebro-spinal signatures of human behavior: Application to motor sequence learning” *NeuroImage* 275, 120174
10. Farrens A J, **Vahdat S**, Sergi F (2023) “Changes in resting state functional connectivity associated with dynamic adaptation of wrist movements” *Journal of Neuroscience*, JN-RM-1916-22.
11. Khatibi A*, **Vahdat S***, Lungu O, Finsterbusch J, Büchel C, Cohen-Adad J, Marchand-Pauvert V, Doyon J (2022) “Brain-spinal cord interaction in long-term motor sequence learning in human: an fMRI study”, *NeuroImage*, 2022.119111. **Equal contribution*

12. Chiang T, **Vahdat S**, Pendharkar AV, Harvey S, Uchino H, Cao Z, Kim A, Choy MK, Chen H, Lee HJ, Cheng MY, Lee JH, Steinberg GK (2022) “Optogenetic Stimulation Effects On Cortico-thalamic Circuit Plasticity After Stroke”, **Stroke**, 53 (Suppl_1), ATMP117
13. Choy MK, Dadgar-Kiani E, Cron G, Duffy B, Schmid F, Edelman BJ, Asaad M, Chan RW, **Vahdat S**, Lee JH (2022) “Repeated hippocampal seizures lead to brain-wide reorganization of circuits and seizure propagation pathways” **Neuron**, Jan 19;110(2):221-236.e4
14. **Vahdat S**, Pendharkar AV, Chiang T, Harvey S, Uchino H, Cao Z, Kim A, Choy MK, Chen H, Lee HJ, Cheng MY, Lee JH, Steinberg GK (2021) “Brain-wide neural dynamics of post-stroke recovery induced by optogenetic stimulation”, **Science Advances**, 7, eabd9465
15. Landelle C, Lungu O, **Vahdat S**, Kavounoudias A, Marchand-Pauvert V, De Leener B, Doyon J, (2021) “Investigating the human spinal sensorimotor pathways through functional magnetic resonance imaging”, **NeuroImage**, Dec 15;245:118684
16. Babadi S, **Vahdat S**, Milner T (2021) “Neural substrates of muscle co-contraction during dynamic motor adaptation”, **Journal of Neuroscience**, JN-RM-2924-19.
17. **Vahdat S**, Khatibi A, Lungu O, Finsterbusch J, Christian B, Cohen-Adad J, Marchand-Pauvert V, Doyon J (2020) “Resting-state brain and spinal cord networks in humans are functionally integrated”, **PLoS Biology**, 2020 Jul; 18(7): e3000789.
18. Cheng MY, **Vahdat S**, Pendharkar AV, Harvey S, Chiang T, Lee HJ, Lee JH, Steinberg G (2020) “Brain-wide circuit dynamics of post-stroke recovery after optogenetic stimulation”, **Stroke**, 51 (Suppl_1), A177-A177
19. **Vahdat S**, Darainy M, Thiel A, Ostry DJ, (2019) “A single session of robot-controlled proprioceptive training modulates functional connectivity of sensory-motor networks and improves reaching accuracy in chronic stroke”; **Neurorehabilitation & Neural Repair** Jan;33(1):70-81.
20. Darainy M, **Vahdat S**, Ostry DJ. (2019) “Neural basis of sensorimotor learning in speech motor adaptation”, **Cerebral Cortex**, 29(7):2876-2889.
21. Gros C, De Leener B, .., **Vahdat S**, .., Cohen-Adad J, (2019), “Automatic segmentation of the spinal cord and intramedullary multiple sclerosis lesions with convolutional neural networks”, **NeuroImage**, 184, 901-915
22. Bernardi NF, Van Vugt FT, Valle-Mena R, **Vahdat S**, Ostry DJ. (2018) “Error-related persistence of motor activity in resting state networks”. **Journal of Cognitive Neuroscience**, Aug 20:1-19
23. Doyon J, Gabbitov E, **Vahdat S**, Lungu O, Boutin A, (2018) “Current issues related to motor sequence learning in humans”, **Current Opinion in Behavioral Sciences**, Volume 20, April 2018, Pages 89-97
24. **Vahdat S**, Fogel S, Benali H, Doyon J. (2017) “Network-wide reorganization of procedural memory during non-REM sleep revealed by fMRI”. **eLife**, 2017; 6: e24987.

- Featured by **eLife Insight articles**: HV Ngo, BP Staresina (2017) “Sleep: Shifting memories”; *eLife* 2017;6:e30774

- Interviewed and featured by *New Scientist*: J Hamzelou (2017) “We’ve finally seen how the sleeping brain stores memories”, Magazine issue 3146

25. **Vahdat S**, Albouy G, King B, Lungu O, Doyon J, (2017) “Editorial: online and offline modulators of motor learning”. ***Frontiers in Human Neuroscience***, 11:6, doi: 10.3389
26. Sidarta, A., **Vahdat S**, Bernardi N, Ostry DJ, (2016) “Somatic and reinforcement-based plasticity in the initial stages of human motor learning” ***Journal of Neuroscience***, 16;36(46):11682-11692.
27. Maneshi M, **Vahdat S**, Grova C, Gotman J, (2016) “Validation of shared and specific independent components analysis (SSICA) for between groups comparison in fMRI”. ***Brain Imaging Methods: Frontiers in Neuroscience***, 10:417.
28. **Vahdat S**, Lungu O, Cohen-Adad J, Marchand-Pauvert V, Benali H, Doyon J, (2015) “Simultaneous brain-cervical cord fMRI reveals intrinsic spinal cord plasticity during motor sequence learning”, ***PLOS Biology***;13(6):e1002186.
Featured by PLoS Biology Synopsis: Robinson R (2015) Learning with the Spinal Cord. PLoS Biology 13(6): e1002187. Weekly Editor's Picks at PLoS Biology's homepage.
29. Thiel A, **Vahdat S**, (2015) “Structural and resting-state brain connectivity of motor networks after stroke”, ***Stroke***; 46(1):296-301.
30. Maneshi M, **Vahdat S**, Fahoum F, Grova C, Gotman J, (2014) “Specific resting-state brain networks in mesial temporal lobe epilepsy”, ***Frontiers in Neurology***; 5:127.
31. **Vahdat S**, Darainy M, Ostry DJ, (2014) “Structure of Plasticity in Human Sensory and Motor Networks Due to Perceptual Learning”, ***Journal of Neuroscience***, 34(7):2451-2463.
Featured in Neurology Today: Valeo T (2012) Human-machine Interface to Explore Neuroplasticity in Stroke, Neurology Today: 6 December 2012 – V. 12 – Issue 23 - p 36–39
32. Darainy M*, **Vahdat S***, Ostry DJ, (2013) “Perceptual Learning in Sensorimotor Adaptation”, ***Journal of Neurophysiology***, 110(9):2152-62. * **Equal contribution**
33. **Vahdat S**, Maneshi M, Grova C, Gotman J, Milner TE, (2012) “Shared and Specific Independent Components Analysis for Between-Groups Comparison”, ***Neural Computation***, 24(11):3052-90.
34. **Vahdat S**, Darainy M, Milner TE, Ostry DJ, (2011) “Functionally specific changes in resting-state sensorimotor networks following motor learning”, ***Journal of Neuroscience***; 31(47):16907-15.
Received an Editorial commentary: The Neuroscientist (2012) Does motor learning affect sensory systems? Neuroscientist, April 2012 vol. 18 no. 2 105

35. Salman B*, **Vahdat S***, Lambercy O, Dovat L, Burdet E, Milner TE, (2010) “Changes in Muscle Activation Patterns Following Robot-assisted Training of Hand Function after Stroke”, *Intelligent Robots and Systems, Proceedings of IEEE/RSJ*, P.5145-5150, DOI:10.1109/IROS.2010.5650175. * **Equal contribution**
36. Bayati H, **Vahdat S**, VosoughiVahdat B, (2009) ”Shared and Specific Synchronous Muscle Synergies Arisen from Optimal Feedback Control Theory”, *Neural Engineering, Proceeding of IEEE EMBS*, P.155-158. DOI:10.1109/NER.2009.5109258.
37. Bayati H, **Vahdat S**, VosoughiVahdat B, (2009) “Investigating the properties of optimal sensory and motor synergies in a nonlinear model of arm dynamics” *Neural Networks, Proceeding of the IJCNN*, P.272-279. DOI:10.1109/IJCNN.2009.5178941.
38. **Vahdat S**, Maghsoudi A, Hajihasani M, Towhidkhah F, Gharibzadeh S, Jahed M, (2006) “Adjustable primitive pattern generator: a novel cerebellar model for reaching movements”, *Neuroscience Letters*; 406(3):232-4.
39. Mehrtash A, **Vahdat S**, Soltanian-Zadeh H, (2006) “Fuzzy Edge Preserving Smoothing Filter Using Robust Region Growing” *Fuzzy Systems, Proceedings of IEEE on Computational Intelligence*, P.1748 – 1755, DOI: 10.1109/FUZZY.2006.1681942.

Book Chapter

- Doyon J, Albouy G, **Vahdat S**, King B, (2015) “Neural correlates of motor skill acquisition and consolidation”, In: Toga A (Eds.) *Brain Mapping: An Encyclopedic Reference*. Elsevier, ISBN: 978-0-12-397316-0.

Conference Presentations

- **Vahdat S**, Grudny M, Jindal V, “Medullary and intersegmental cervical networks underlying mammalian forelimb movement control”, *Neural Control of Movement, NCM 2026, Kobe, Japan*
- Kaul S, Liu L, Candelario-Jalil E, **Vahdat S** “Hyperreflexia correlates with primary motor and premotor lesion volumes in a mouse ischemic model of post stroke spasticity”, *Society for Neuroscience meeting, SFN 2025, San Diego*.
- Jindal V, Grudny M, Wesson DW, Vaillancourt D, **Vahdat S**, “Mapping Medullary and C3-C4 Propriospinal Pathways Underlying Mammalian Forelimb Force Control”, *Society for Neuroscience meeting, SFN 2025, San Diego*.
- Jindal V, Wesson DW, Vaillancourt D, **Vahdat S**, “Brain wide activation and connectivity analysis in awake mouse fMRI during forepaw force control”, *Society for Neuroscience meeting, SFN 2024, Chicago*.
- Grudny M, **Vahdat S**, “Propriospinal Functional Connectivity During Hand Motor Control in Humans”, *Human Brain Mapping annual meeting, OHBM 2024, Seoul*

- Jindal V, Veizaj J, Schuler Z, de Jesus E, Wesson DW, Vaillancourt V, **Vahdat S**, “Awake mouse fMRI: brain-wide activation and functional connectivity related to forepaw force control”, *Human Brain Mapping annual meeting, OHBM 2024, Seoul*.
- **Vahdat S**, Grudny M, Jindal V, “The contribution of brainstem and intersegmental spinal cord networks to upper limb force control in mice and humans”, *Neural Control of Movement, NCM 2024, Dubrovnik, Croatia*
- **Vahdat S** (chair), Sugawara SK, Marchand-Pauvert V, Doyon J, “Spinal cord and brainstem control of upper limb movements. Is it time to revisit our cortically-centered view of hand motor control and learning?” *Oral Panel Presentation, Neural Control of Movement, NCM 2024, Dubrovnik, Croatia*
- **Vahdat S**, Landelle C, Lungu O, De Leener B, Doyon J, Baniasad F “FASB: processing pipeline for Functional Analysis of simultaneous Spinal cord-Brain fMRI”, *Human Brain Mapping annual meeting, OHBM 2023, Montreal*.
- **Vahdat S**, Landelle C, Lungu O, De Leener B, Doyon J, Baniasad F “FASB: An integrated processing pipeline for Functional Analysis of simultaneous Spinal cord-Brain fMRI”, *Society for Neuroscience, SFN2022, San Diego*.
- Jindal V, Compte D, Chiang C, Wesson DW, Vaillancourt D, **Vahdat S** “fMRI in mice during learning and performance of a forelimb force control task”, *Society for Neuroscience SFN2022, San Diego*.
- Kaul S, Rana S, Mickel S, Fuller D, **Vahdat S** “Brain networks associated with selective activation of sensory afferents investigated by spinal cord optogenetic-fMRI”, *Society for Neuroscience SFN2022, San Diego*.
- Baniasad F, Avila A, Chiang C, **Vahdat S** “Practice of random patterns may outperform sequence learning in manual force control”, *Society for Neuroscience SFN2022, San Diego*.
- Chiang T, **Vahdat S**, Pendharkar AV, Harvey S, Uchino H, Cao Z, Kim A, Choy MK, Chen H, Lee HJ, Cheng MY, Lee JH, Steinberg GK, “Optogenetic Stimulation Effects On Cortico-thalamic Circuit Plasticity After Stroke” *International Stroke Conference, 2022*
- **Vahdat S**, Pendharkar AV, Chiang T, Harvey S, Uchino H, Cao Z, Kim A, Choy MK, Chen H, Lee HJ, Cheng MY, Lee JH, Steinberg GK “Brain-wide neural dynamics of post-stroke recovery induced by optogenetic stimulation”, *Brain Stimulation Conference, 2021*
- Cheng M, **Vahdat S**, Pendharkar AV, Harvey S, Chiang T, Lee HJ, Lee JH, Steinberg G “Brain-wide Circuit Dynamics of Post-stroke Recovery after Optogenetic Stimulation”, *International Stroke Conference, 2020*
- **Vahdat S**, Pendharkar AV, Harvey S, Chiang T, Lee HJ, Cheng M, Lee JH, Steinberg G “Brain wide circuit dynamics of post-stroke recovery induced by optogenetic stimulation”, *Society for Neuroscience 2019, Chicago*.
- Choy M, Duffy B, Schmid F, Edelman B, Assaad M, Chan R, **Vahdat S**, Lee JH, “Imaging individual hippocampal seizures and the long-term impact of repeated seizures”, *American Epilepsy Society (AES) annual meeting, 2019*

- **Vahdat S**, Cheng M, Ito M, Lee HJ, Steinberg G, Lee JH “Short-term brain network changes following repeated optogenetic M1 stimulation”, Nano-symposium presentation, *Society for Neuroscience 2018, San Diego*.
- **Vahdat S**, Souyer C, Lungu O, Finsterbusch J, Marchand-Pauvert V, Cohen-Adad J, Benali H, Doyon J. “Resting-state spinal cord-brain networks revealed by simultaneous fMRI”, *Human Brain Mapping annual meeting 2017, Vancouver*.
- **Vahdat S**, Sayour C, Black K, Lungu O, Benali H, Marchand-Pauvert V, Doyon J, “Inhibitory mechanisms of the human spinal cord associated with motor sequence learning”. *Nonosymposium, 46th Annual Meeting of the Society for Neuroscience, 2016, San Diego*.
- **Vahdat S**, Lungu O, Cohen-Adad J, Marchand-Pauvert V, Benali H, Doyon J, “Contribution of the Spinal Cord and its Interaction with the Brain during Motor Sequence learning”. *Human Brain Mapping annual meeting 2015, Honolulu, Hawaii*.
- **Vahdat S**, Fogel S, Benali H, Doyon J, “On-line, off-line, and sleep dependent consolidation of motor sequence learning revealed by fMRI”, *Human Brain Mapping annual meeting 2014, Hamburg Germany*.
- **Vahdat S**, Darainy M, A. Thiel A, Ostry DJ, “Plasticity in human motor system induced by somatosensory training in stroke patients”, *44th Annual Meeting of the Society for Neuroscience, Nov. 2014, Washington*.
- **Vahdat S**, Lungu O, Cohen-Adad J, Marchand-Pauvert V, Benali H, Doyon J, “Parsing out brain-spinal cord contributions to motor learning using fMRI”, *Society for the Neural Control of Movements, April 2014, Amsterdam*.
- **Vahdat S**, Lungu O, Doyon J, “Learning-dependent changes in spine-brain interaction revealed by functional magnetic resonance imaging”, *43th Annual Meeting of the Society for Neuroscience, Nov. 2013, San Diego*.
- **Vahdat S**, Ostry DJ, Darainy M, “Plasticity in motor system induced by somatosensory training”, *42nd Annual Meeting of the Society for Neuroscience, New Orleans, LA, 2012*.
- **Vahdat S**, Maneshi M, Grova C, Gotman J, Milner TE, “Shared and Specific Independent Component Analysis for Between-Group Comparison”, *19th Human Brain Mapping annual meeting 2012, Beijing China*.
- Maneshi M, **Vahdat S**, Grova C, Gotman J, “Validation of a new ICA-based method for between-group comparisons in fMRI”, *19th Human Brain Mapping annual meeting 2012, Beijing China*.
- **Vahdat S**, Darainy M, Milner TE, Ostry DJ, “Motor learning alters sensorimotor resting-state networks in the brain”, *41st Annual Meeting of the Society for Neuroscience, Washington, DC, 2011*.
- **Vahdat S**, "Brain Extraction in MRI using a novel integrated method of edge detection and region growing", *2nd annual symposium of ECE young researcher, 2004, Tehran*.
- **Vahdat S**, "Fully automatic extraction of the brain in T1-weighted MRI", *first annual symposium of ECE young researcher, 2003, Tehran*.

Academic Talks

- UC Systemwide Bioengineering Symposium (BIC), Santa Cruz, CA 2026
- The 14th Annual Southern California Systems Biology Symposium, UCR, CA 2025
- Brain-Computer Interface (BCI) - Annual NeuroTech Convention of SBMT, LA, CA 2025
- Integrative Brain Imaging Center, National Center of Neurology and Psychiatry, Tokyo 2024
- Computational Modeling & Machine Learning in Biology Workshop, ICQMB, UCR 2024
- Integrated brain imaging, National Center of Neurology and Psychiatry, Tokyo, Japan 2024
- JHBI Talk Series, Tokyo Metropolitan Institute of Medical Science, Japan 2023
- Institute for Human Neuroscience, Boys Town National Research Hospital, Nebraska 2023
- Rehabilitation Science Seminar Series - University of Florida 2022
- Workshop on Acquired Brain & Spinal Cord Injury, University of Florida 2021
- Iranian Human Brain Mapping Conference (IHBM) 2020
- Fixel Institute for Neurological Diseases, University of Florida 2019
- APK, Center of Exercise Science, University of Florida 2019
- Neuroscience program, Worcester Polytechnic Institute (WPI), MA 2019
- Center for Brain, Biology & Behavior, University of Nebraska 2018
- BME Seminar Series, Special Rehabilitation Engineering Seminar, UNC, Chapel Hill 2018
- Oral session presentation, 46th Society for Neuroscience, San Diego 2016
- CRIUGM and CAREC Scientific Day; Montreal Geriatric Institute, Montreal, QC 2016
- Conference midi; CRIUGM; University of Montreal, QC 2015
- The Feindel Brain Imaging Lecture Series; Montreal Neurological Institute; Montreal, 2015
- Montreal Resting-State fMRI Workshop, McGill University, Montreal 2014
- Oral session presentation, Human Brain Mapping annual meeting, Hamburg Germany 2014
- Oral session presentation, Society for the Neural Control of Movements, Amsterdam 2014
- Nano-symposium talk, 43rd Society for Neuroscience, San Diego 2013
- Platform presentation, Canadian Spinal Cord Conference, Halifax 2013
- Oral session presentation, Society for the Neural Control of Movements, Venice 2012

Teaching Experiences

- Lecturer: “**Intro to Neural Engineering**” (BIEN 277), Department of Bioengineering, University of California Riverside, Spring 2026
- Lecturer: “**Intro to Neuroimaging with MRI**” (BIEN 276), Department of Bioengineering, University of California Riverside, Winter 2025, Winter 2026
- Lecturer: “**Mathematical Methods for Bioengineering**” (BIEN 201), Department of Bioengineering, University of California Riverside, Fall 2024, Spring 2025, Fall 2025, Spring 2026
- Lecturer: “**Movement Neuroscience**” (APK 4144), Department of Applied Physiology and Kinesiology, University of Florida, Spring 2020, Fall 2020, Spring 2021, Fall 2021, Spring 2022, Fall 2022, Spring 2023

- Lecturer: “**Planning Motor Actions**” (APK 6206), Department of Applied Physiology and Kinesiology, University of Florida, Spring 2022
- Guest lecturer: “Biomechanics and Motor Learning”, instructor: Dr. P. Stapley, Kinesiology, McGill University, Winter 2011
- Guest lecturer: “Motor control”, instructor: Dr. T. Milner; Kinesiology, McGill, Fall 2011

Honors & Awards

- **Shu Chien Early Career Award, UC Systemwide Bioengineering Symposium 2026**, Honoring scholastic achievement, outstanding leadership, and future promise in bioengineering across the University of California campuses. <https://www.bic2026.org/shu-chien-award>
- **Canadian Institutes of Health Research (CIHR) Post-doctoral Fellowships Award**: 2016-2018; 86,000 CAD
- **Post-doctoral Fellowship Award**: SensoriMotor Rehabilitation Research Team (SMRRT; CIHR funded), 2013-2015; 80,000 CAD
- **Trainee Abstract Award**: Organization for Human Brain Mapping (OHBM) 2014, Hamburg Germany
- **Le Prix d'Excellence H. Catherine Sauerwein**: Best post-doctoral oral presentation award, CERNEC, St-Sauveur, 2014
- **Selected for Neuroscience 2012's pool of newsworthy research and hot topics**: Annual Meeting of the Society for Neuroscience (SFN) 2012, New Orleans, LA
- **J.W. McConnell Award**: McGill University, 2009-2011. Awarded for ranking in the top 5% of the college
- **Principal's & Provost's Graduate Fellowship**: McGill university, 2008

Mentorship/Supervision Experiences

- **PhD Co-supervisor (50%)**, SeyedSina Seyedi HasanAbadi, Project: “Effective connectivity methods in simultaneous spinal cord-brain fMRI”, Department of Mechanical Engineering
University of California Riverside, 2026-present
- **PhD Supervisor**, Derun Wang, Project: “Network Mechanisms of Brain and Spinal Cord Underlying Post-Stroke Spasticity”, Department of Bioengineering
University of California Riverside, 2024-present
- **PhD Supervisor**, Sushain Kaul, Project: “Behavioral, Neurophysiological, and Imaging Signatures of Spasticity Following Ischemic Stroke in Mice”, Department of Bioengineering
University of California Riverside, 2021-present
- **PhD Supervisor**, Vishwas Jindal, Project: “Brain-Wide Functional Connections with Medullary Regions Involved in Forelimb Movement Control”, Department of Applied Physiology and Kinesiology
University of Florida, 2020-2025

- **Graduate Advisor**, Fatemeh Baniasad, Department of Applied Physiology and Kinesiology, *University of Florida, 2021-2023*
- **Master Supervisor**, Erick Ojeda, project: “Quantification of Channelrhodopsin expression in mice”, APK online master program, *University of Florida, 2020- 2021*
- **Master Supervisor**, Cho Lun Chiang, Project: “Electromyographic correlates of motor learning”, Biomedical Engineering Department, *University of Florida, 2020- 2021*
- **Master Supervisor**, Sushain Kaul, Project: “Optogenetic fMRI in rodents spinal cord”, Biomedical Engineering Department, *University of Florida, 2020- 2021*
- **Master Supervisor**, Jasmine Singh, Project: “Spinal cord reflex control in human motor learning”, Biomedical Engineering Department, *University of Florida, 2020- 2021*
- **Capstone Undergraduate Supervisor**, Spoorti Chetty, UCR Honors program, *UC Riverside, 2025- present*
- **Capstone Undergraduate Supervisor**, Gennalyn Bongolan, UCR Honors program, *UC Riverside, 2025- present*
- **Undergraduate Advisor**, Madison Kelley, Rise program, *UC Riverside, 2026- present*
- **Undergraduate Advisor**, Jolin Chin, *UC Riverside, 2026- present*
- **Undergraduate Advisor**, Shirleen Lee, *UC Riverside, 2026- present*
- **Undergraduate Advisor**, Prateeka Kellepu, *UC Riverside, 2026- present*
- **Undergraduate Advisor**, Manya Srivastav, *UC Riverside, 2026- present*
- **Undergraduate Advisor**, Mareya Ghaly, *UC Riverside, 2025- present*
- **Undergraduate Advisor**, Geralynn Mendoza, *UC Riverside, 2025- present*
- **Undergraduate Advisor**, Gatsangat Kaur, *UC Riverside, 2025- present*
- **Undergraduate Advisor**, Difei Zhu, *UC Riverside, 2025- present*
- **Undergraduate Advisor**, Anh Nguyen, *UC Riverside, 2025- present*
- **Undergraduate Advisor**, Shourov Desai, Summer Bridge to Research program, *UC Riverside, 2025- present*
- **Undergraduate Advisor**, Ethan Namsang, *UC Riverside, 2025- present*
- **Undergraduate Advisor**, Mayam Raza, *UC Riverside, 2025- present*
- **Undergraduate Advisor**, Seong Kim, *UC Riverside, 2025- present*
- **Undergraduate Advisor**, Camron Kim, *UC Riverside, 2025- present*
- **Undergraduate Advisor**, Manaka Oyama, *UC Riverside, 2025- present*
- **Undergraduate Advisor**, Al Shang, *UC Riverside, 2025- present*
- **Undergraduate Advisor**, Peti Faltaoos, *UC Riverside, 2025- present*
- **Undergraduate Internship Advisor**, Adam Krupick, *University of Florida, 2025- present*
- **Undergraduate Internship Advisor**, Chris Jacob, *University of Florida, 2024- present*
- **Undergraduate Advisor**, Jason M Veizaj, *University of Florida, 2022- 2023*
- **Undergraduate Advisor**, Zoë K Schuler, *University of Florida, 2022- 2023*
- **Undergraduate Advisor**, Erika de Jesus, *University of Florida, 2022- 2023*
- **Undergraduate Advisor**, Krystina M Masihi, *University of Florida, 2022- 2023*

- **Undergraduate Advisor**, Jenavieve King, *University of Florida, 2022- 2023*
- **Undergraduate Advisor**, Sarah D Brookman, *University of Florida, 2022- 2023*
- **Undergraduate Advisor**, Anthony Avila, APK Internship, *University of Florida, 2022*
- **Undergraduate Advisor**, Jack Callaway, *University of Florida, 2020- 2022*
- **Undergraduate Advisor**, Keval Patel, *University of Florida, 2022*
- **Undergraduate Thesis Advisor**, Rushabh Shah; Summa Cum Laude – Highest Honors
University of Florida, 2021- 2021
- **Undergraduate Advisor**, Parker Smith, *University of Florida, 2021*
- **Undergraduate Advisor**, Claudia Galindo *University of Florida, 2021*
- **Undergraduate Advisor**, Caeley Reeve, *University of Florida, 2020*
- **Undergraduate Advisor**, Angli Patel, *University of Florida, 2020*
- **Undergraduate Advisor**, Kathrin Huettel, *University of Florida, 2020*
- **Master Supervisor**, Shailini Nigam, Project title: “Electromyographic correlates of motor learning”, Biomedical Engineering Department, *University of Florida, 2020*
- **Supervisor**, Rose Roberts, Project title: “Rodent motor learning and optogenetic fMRI”, Department of Applied Physiology and Kinesiology, *University of Florida, 2020*
- **Principal supervisor** of Jennifer Taing, Bachelor’s internship; Project title “Spinal cord long term plasticity revealed by fMRI”; *University of Montreal, 2016*
- **Principal supervisor** of Karine Després, Bachelor’s internship; Project title “Spinal cord inhibitory mechanisms using nerve stimulation”; *University of Montreal, 2016*
- **Principal supervisor** of Kelly Black, Bachelor’s internship; Project title “Spinal cord electrophysiological mechanisms in motor learning”; *University of Montreal, 2015*
- **PhD project advisor** of Chadi Sayour, principal supervisor Dr. Julien Doyon, *University of Montreal, 2014-2017*
- **Principal supervisor** of Vincent Cote Provencher, Bachelor’s stage, Project: “Functional imaging of spinal cord during a motor learning task” *University of Montreal, 2014*
- **Master's project advisor** of Atousa Assadi, principal supervisor Dr. Theodore Milner, *McGill University, 2014-2018*
- **PhD project advisor** of Saeed Babadi, principal supervisor Dr. Theodore Milner, *McGill University, 2013-2020*
- **Master's project consultant** of Zeinab Firouzimehr, principal supervisor Dr. Theodore Milner, *McGill University, 2009-2011*

Professional Societies

- Society for Neuroscience
- American Stroke Association
- Neural Control of Movement
- Organization for Human Brain Mapping
- International Society for Magnetic Resonance in Medicine

Editorial Activities

- **Associate Editor**, **Frontiers in Neuroimaging, Clinical Neuroimaging**
<https://www.frontiersin.org/journals/neuroimaging/editors>
- **Associate Editor**, **Frontiers in Cognition, Cognition and Movement**
<https://www.frontiersin.org/journals/cognition>
- **Review Editor**, **Frontiers in Systems Neuroscience**
<https://www.frontiersin.org/journals/systems-neuroscience>
- **Guest Associate Editor**, **Frontiers in Human Neuroscience**