Madineh **Sedigh-Sarvestani**

Post-doc Fellow · Max Planck Florida Institute for Neuroscience

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Assistant Professor, Neurobiology & Behavior *July 2023- present*

Cornell University

Freeman Hrabowski Scholar *April 2024-present*

Howard Hughes Medical Institute

Post-doc Fellow *2018 - 2022*

Max Planck Florida Institute for Neuroscience, w/ David Fitzpatrick

Post-doc Fellow *2014 - 2017*

University of Pennsylvania, w/ Diego Contreras & Larry Palmer

Graduate Student *2008-2014*

Penn State University, w/ Bruce Gluckman

Research Engineer I *2007-2008*

Walter Reed Army Institute of Research, w/ Debra Yourick

Research Associate *2005-2007*

Biostar West, w/ Liz Orwin & Shenda Baker

Education

Summer Workshop on Dynamic Brain *Friday Harbor*

Aug 2016

Computational Neuroscience in Vision *CSHL Labs*

July 2014

PhD Biomedical Engineering *Penn State University*

Aug 2013

BS Engineering *Harvey Mudd College*

May 2005

Awards & Funding

E. Matilda Ziegler Foundation for the Blind Research Grant *2024-2026*

HHMI Freeman Hrabowski Scholarship *2024-2029*

NIH-NEI Small Conference Grant (R13) for Tree Shrew Discovery Meeting *2020-22*

NIH-NEI Post-doctoral training fellowship (F32) *2015-19*

NIH-NINDS Pre-doctoral training fellowship (F31) *2010-2013*

Publications

Structural and functional evidence supports re-defining mouse higher order visual areas into a single area V2. *bioRxiv*

Declan Rowley, **M Sedigh-Sarvestani**. *2024.10. 10.617533, 2024*

What & Where: Location-dependent feature sensitivity as a canonical organizing principle of the visual system.
M Sedigh-Sarvestani, D Fitzpatrick.
Frontiers in Neural Circuits
16, 834876, 2022

DeBruyn and Casagrande manuscripts on tree shrew retinal ganglion cells as a basis for cross-species retina research.
T Norton, E Savier, **M Sedigh-Sarvestani**.
Visual Neuroscience
39, E001, 2022

Sinusoidal transformation of the visual field is the basis for periodic maps in V2.
M Sedigh-Sarvestani, KS Lee, R Satterfield, N Shultz, D Fitzpatrick.
Neuron
109 (24): 4068-4079.e6, 2021

A bright future for the tree shrew in neuroscience research: Summary from the inaugural Tree Shrew Meeting.
E Savier, **M Sedigh-Sarvestani**, R Wimmer, D Fitzpatrick.
Zoological Research
42(4): 478-81, 2021

Neuromatch Academy: Teaching Computational Neuroscience with global accessibility.
T van Viegen, A Akrami, K Bonnen, E DeWitt, A Hyafil, H Ledmyr, GW Lindsay, P Mineault, JD Murray, XPitkow, A Puce, **M Sedigh-Sarvestani**, C Stringer, T Achakulvisut, E Alikarami, MS Atay, E Batty, JC Erlich, BV Galbraith, Y Guo, AL Juavinett, MR Krause, S Li, M Pachitariu, E Straley, D Valeriani, E Vaughan, M Vaziri-Pashkam, ML Waskom, G Blohm, K Kording, P Schrater, B Wyble, S Escola, MAK Peters
TiCS
25(7):535-538, 2021

Thalamocortical synapses in the cat visual system are weak and unreliable.
M Sedigh-Sarvestani, LA Palmer, D Contreras.
eLife
e41925, 2019.

Inhibition in simple cell receptive fields is broad and OFF-subregion biased.
M.M. Taylor, **M Sedigh-Sarvestani**, LA Palmer, D Contreras.
J Neurosci
38(3):595-612, 2018.

Spatiotemporal evolution of focal epileptiform activity from surface and laminar field recordings in cat neocortex.
H. Bink, **M Sedigh-Sarvestani**, I Fernandez-Lamo, L Kini, H Ung, D Kuzum, F Vitale, B Litt, D Contreras.
J Neurophysiol
119(6):2068-81, 2018.

Intracellular, in vivo, dynamics of thalamocortical synapses in visual cortex.
M Sedigh-Sarvestani, L Vigeland, I Fernandez- Lamo, MM Taylor, LA Palmer, D Contreras.
J Neurosci
37(21):5250-5262, 2017.

Seizures and brain regulatory systems: Consciousness, sleep, and autonomic systems.
M Sedigh-Sarvestani, H Blumenfeld, T Loddenkemper, LM Bateman.
J Clin Neurophysiol
32(3):188-93, 2015.

α2-adrenergic stimulation of the VLPO destabilizes the anesthetic state.
HS McCarren, MR Chalifoux, B Han, JT Moore, QC Meng, N Baron-Hionis, **M Sedigh-Sarvestani**,D Contreras, SG Beck, MB Kelz.
J Neurosci
34(49): 16385-16396, 2014.

Second order receptive field properties of simple and complex cells support a new standard model of thalamocortical circuitry in V1.
M Sedigh-Sarvestani, I Fernanzdez-Lamo, A Jaegle, MM Taylor.
J Neurosci
34(34):11177-9, 2014.

REM sleep precedes seizure onset in the TeTX model of temporal lobe epilepsy.
M Sedigh-Sarvestani, GI Thuku, SJ Schiff, SL Weinstein, BJ Gluckman.
J Neurosci
34(4):1105-14, 2014.

Reconstructing mammalian sleep dynamics with data assimilation.
M Sedigh-Sarvestani, SJ Schiff, BJ Gluckman.
PLoS Comp Biol
8(11):e1002788, 2012.

Data assimilation of glucose dynamics for use in the intensive care unit.
M Sedigh- Sarvestani, DJ Albers, BJ Gluckman.
IEEE Eng Med Biol Soc
Conf Proceedings, 2012.

Analyzing large data sets acquired through telemetry from rats exposed to organophosphorous compounds. *J Neurosci Meth*

M De Araujo Furtado, A Zheng, **M Sedigh-Sarvestani**, L Lumley, S Lichtenstein, D Yourick. *184(1):176-83, 2009.*

Invited Talks

Montreal Neuro AI 2024 *October 2024*

FASEB, Retinal Neurobiology and Visual Processing *June 2024*

UT Austin, Neuroscience Seminar Series *April 2024*

U Penn, MindCORE Vision Seminar Series *March 2024*

Cornell University, Biomedical Engineering Seminar Series *Feb 2024*

University of Michigan, Vision Research Seminar *Sept 2023*

Vanderbilt University, Department of Psychology Brown Bag Seminar Series *Nov 2022*

Bernstein Conference, Major transitions in cortical circuit evolution Workshop (Berlin, Germany) *Sept 2022*

Animal Behavior Society, Presidential Symposium (Virtual) *July 2022*

University of Rochester (Virtual) *Jan 2022*

University of Oxford/World-Wide Neuro (Virtual) *Jan 2022*

University of Virginia (Virtual) *Dec 2021*

Monash University (Virtual) *Mar 2021*

Vanderbilt University (Virtual) *Feb 2021*

Allen Institute (Virtual) *Feb 2021*

University College London (Virtual) *Dec 2020*

University of Miami 4th Annual Neural Engineering Symposium *Oct 2020*

Weill Cornell Medicine (Virtual) *Sept 2021*

University of Alabama. Vision Science Research Center Visiting Scholars Program Seminar *Jan 2020*

University of Virginia. Department of Psychology *June 2019*

Society for Neuroscience, hosted by Thomas Recording *Oct 2017*

University of Pennsylvania *Aug 2014*

Teaching, Organizing, Board Membership

Lecturer, CSHL Computational Neuroscience in Vision *2024*

Cornell Neurotech Advisory Group *2024-Present*

Co-organizer for Tree Shrew Discovery Meetings *2020-present*

Chief Instructions Officer, Neuromatch Academy *2021*

Executive Committee Member, Neuromatch Academy *2020*

Co-Instructor, CSHL Neural Data Science Summer Course *2019*

TA, CSHL Neural Data Science Summer Course *2015,17*

SAT tutor: Summit Education (Maryland) and Ivy Tutoring (Los Angeles) *2005-2008*

Mentoring and Outreach

Cornell Biology Scholars Program First-Year Seminar: Lecture on career trajectory and overview of research. Cornell University, Ithaca, NY *Feb 2024*

Cornell Neuroscience Initiative Accessible Neuroscience lecture on sensory system to group of k-5 educators. Cornell University, Ithaca, NY *Oct 2023*

Panelist and discussion leader on transition to independence. Tri-Institutional Post-doc event, Scripps/FAU/MPFI, Jupiter, Florida *Jan 2023*

Lecture on leadership to a group of 6-8th graders. Junior Achievement, Woodlands Middle School, Lakeworth, Florida *Jan 2023*

Networking Session Invited Panelist. Network for Women in Science (NWIS), a mentoring and networking group led by scientists from Max Planck Florida Institute for Neuroscience, the Scripps Research Institute, and Florida Atlantic University *June 2022*

Neuromatch Academy. NMA is a volunteer-run globally accessible virtual summer school in computational neuroscience that has served 5000+ students. In 2020, I contributed to content development. In 2021, I led the team responsible for hiring and training 400 TAs. In 2022, I contributed to evaluation and training of TAs and contributed to a session on diversity and inclusion in neuroscience. Outside the summer school, I mentor several NMA students in Iran and Europe. *2020-present*

Max Planck Florida. I'm involved in several institute and community based initiatives at MPFI. In 2018, I was the supervisor for Solana Liu, a post-bac student and Saige Drecksler, a high-school student and have served as the post-doc mentor for graduate students at the institute. I've also given several public science talks, including one at the local high school, and have participated in many outreach efforts in the community. *2018-present*

Philadelphia Charter Schools. During the school year, I served as the science mentor for 6th and 7th grade students in Belmont Academy. During weekly class-room visit, I would work with the kids on their science fair projects. I also served as a science fair judge for the school district of Philadelphia. *2014-17*