Madineh **Sedigh-Sarvestani**

Post-doc Fellow · Max Planck Florida Institute for Neuroscience

msarvestani@gmail.com | msarvestani.com

"Understanding the visual system without borders."

Education

Computational Neuroscience in Vision — *CSHL Labs* — *2014*

PhD Biomedical Engineering — *Penn State University* — *2008-2013*

BS Engineering — *Harvey Mudd College* — *2001-2005*

Research Experience

Max Planck Florida Institute for Neuroscience — *PI: David Fitzpatrick*

Post-doc Fellow — *Fall 2017 - present*

- Chronic calcium imaging in awake tree shrews to study the functional organization of visual cortex.

University of Pennsylvania — *PI: Diego Contreras*

Post-doc Fellow — *2014 - Fall 2017*

- Electrophysiology in anesthetized cats to study thalamocortical circuits in the visual system.
- Evolution of epileptiform activity in the cat visual cortex.

Penn State University — *PI: Bruce Gluckman*

Graduate Student — *2008-2014*

- Modeling of sleep and epilepsy circuits, algorithm development for automated sleep and seizure classification.
- Chronic recordings in freely moving rodents to study sleep and seizure relationship.

Walter Reed Army Institute of Research

Research Engineer I — *2007-2008*

- Algorithm development for automated seizure classification.

Biostar West

Research Associate — *2005-2007*

- Hydrogel design for functional differentiation of stem cells.
- Design and implementation of a wearable EKG device, EKG analysis algorithm development.

Awards & Funding

NIH-NEI Small Conference Grant (R13) — *2020-21*

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

COSYNE Travel grant — *2015,2016*

Travel grant for Gordon Conference on Thalamocortical Interactions — *2011*

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

Best Poster Award at 6th International Workshop on Seizure Prediction — *2013*

Best Poster Award at 4th International Workshop on Seizure Prediction — *2009*

Publications

A sinusoidal transform of the visual field in cortical area V2. *bioRxiv*

M. Sedigh-Sarvestani, KS Lee, R Satterfield, N Shultz, D. Fitzpatrick. *2020*

Thalamocortical synapses in the cat visual system are weak and unreliable. *eLife*

M. Sedigh-Sarvestani, L.A. Palmer, D. Contreras. *e41925, 2019.*

Inhibition in simple cell receptive fields is broad and OFF-subregion biased. *J Neurosci*

M.M. Taylor, **M. Sedigh-Sarvestani**, L.A. Palmer, D. Contreras. *38(3):595-612, 2018.*

Spatiotemporal evolution of focal epileptiform activity from surface and laminar field recordings in cat neocortex. *J Neurophysioli*

H. Bink, **M. Sedigh-Sarvestani**, I. Fernandez-Lamo, L. Kini, H. Ung, D. Kuzum, F. Vitale, B. Litt, D. Contreras. *119(6):2068-81, 2018.*

Intracellular, in vivo, dynamics of thalamocortical synapses in visual cortex. *J Neurosci*

M. Sedigh-Sarvestani, L. Vigeland, I. Fernandez- Lamo, M.M. Taylor, L.A. Palmer, D. Contreras. *37(21):5250-5262, 2017.*

Seizures and brain regulatory systems: Consciousness, sleep, and autonomic systems. *J Clin Neurophysiol*

M. Sedigh-Sarvestani, H. Blumenfeld, T. Loddenkemper, L.M. Bateman. *32(3):188-93, 2015.*

α2-adrenergic stimulation of the VLPO destabilizes the anesthetic state. *J Neurosci*

H. S. McCarren, M. R. Chalifoux, B. Han, J. T. Moore, Q. C. Meng, N. Baron-Hionis, **M. Sedigh-Sarvestani**, D. Contreras, S. G. Beck, M. B. Kelz. *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. *J Neurosci*

M. Sedigh-Sarvestani, I. Fernanzdez-Lamo, A. Jaegle, M.M. Taylor. *34(34):11177-9, 2014.*

REM sleep precedes seizure onset in the TeTX model of temporal lobe epilepsy. *J Neurosci*

M. Sedigh-Sarvestani, G.I. Thuku, S. J. Schiff, S. L. Weinstein, B.J. Gluckman. *34(4):1105-14, 2014.*

Reconstructing mammalian sleep dynamics with data assimilation. *PLoS Comp Biol*

M. Sedigh-Sarvestani, S.J. Schiff, B.J. Gluckman. *8(11):e1002788, 2012.*

Data assimilation of glucose dynamics for use in the intensive care unit. *IEEE Eng Med Biol Soc*

M. Sedigh- Sarvestani, D.J. Albers, B.J. Gluckman. *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.*

Teaching and Organizing

Co-Organizer for Tree Shrew Uses Meeting *2020-2021*

Executive Committee and Organizer for Neuromatch Academy *2020*

Co-Instructor, CSHL Neural Data Science *2019*

TA for CSHL Neural Data Science summer course at CSHL. *2015,17*

Invited Talks

Vanderbilt University (Virtual), Neuroscience Brown Bag Seminar. A sinusoidal transformation of the visual field is the basis for striped maps in V2.	*Feb 2021*
University of Miami (Virtual), 4th Annual Neural Engineering Symposium. A sinusoidal transformation of the visual field	*Oct 2020*
Weill Cornell Medicine (Virtual), Frontiers in Neuroscience Seminar Series. Rethinking maps in the visual system.	*Sept 2020*
University of Alabama, Vision Science Research Center Visiting Scholars Program Seminar Series. Specialized visuotopic maps anchor the functional organization of higher visual areas.	*Jan 2020*
Multichannel Recording Workshop @ SFN, Hosted by Thomas Recording. Characterizing the thalamocortical circuit in the cat visual cortex.	*Oct 2017*
University of Pennsylvania Small Circuits and Behavior Meeting, Understanding thalamocortical circuitry in the early visual pathway.	*Aug 2014*