Madineh **Sedigh-Sarvestani**

POST-DOC FELLOW · MAX PLANCK FLORIDA INSTITUTE FOR NEUROSCIENCE

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

bioRxiv

2020

Thalamocortical synapses in the cat visual system are weak and unreliable.
M. Sedigh-Sarvestani, L.A. Palmer, D. Contreras.

eLife

e41925, 2019.

Inhibition in simple cell receptive fields is broad and OFF-subregion biased.
M.M. Taylor, **M. Sedigh-Sarvestani**, L.A. 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 Neurophysioli

119(6):2068-81, 2018.

Intracellular, in vivo, dynamics of thalamocortical synapses in visual cortex.
M. Sedigh-Sarvestani, L. Vigeland, I. Fernandez- Lamo, M.M. Taylor, L.A. 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, L.M. Bateman.

J Clin Neurophysiol

32(3):188-93, 2015.

α2-adrenergic stimulation of the VLPO destabilizes the anesthetic state.
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.

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, M.M. Taylor.

J Neurosci

34(34):11177-9, 2014.

REM sleep precedes seizure onset in the TeTX model of temporal lobe epilepsy.
M. Sedigh-Sarvestani, G.I. Thuku, S. J. Schiff, S. L. Weinstein, B.J. Gluckman.

J Neurosci

34(4):1105-14, 2014.

Reconstructing mammalian sleep dynamics with data assimilation.
M. Sedigh-Sarvestani, S.J. Schiff, B.J. Gluckman.

PLoS Comp Biol

8(11):e1002788, 2012.

Data assimilation of glucose dynamics for use in the intensive care unit.
M. Sedigh- Sarvestani, D.J. Albers, B.J. Gluckman.

IEEE Eng Med Biol Soc

Conf Proceedings, 2012.

Analyzing large data sets acquired through telemetry from rats exposed to organophosphorous compounds.
M. De Araujo Furtado, A. Zheng, **M. Sedigh-Sarvestani**, L. Lumley, S. Lichtenstein, D. Yourick.

J Neurosci Meth

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

University of Miami, 4th Annual Virtual Neural Engineering Symposium. A sinusoidal transformation of the visual field

Oct 2020

Weill Cornell Medicine, 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

University of Virginia, JC Cang Lab. Functional architecture of tree shrew extrastriate cortex.

June 2019