Madineh **Sedigh-Sarvestani**

POST-DOC FELLOW · MAX PLANCK FLORIDA INSTITUTE FOR NEUROSCIENCE

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"Understanding the visual system without borders."

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

Research Experience

Max Planck Florida Institute for Neuroscience   *PI: David Fitzpatrick*
POST-DOC FELLOW   *2018 - 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 - 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.

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   *2016*

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.

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

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

Inhibition in simple cell receptive fields is broad and OFF-subregion biased.
M.M. Taylor, **M Sedigh-Sarvestani**, LA Palmer, D Contreras.

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.

Intracellular, in vivo, dynamics of thalamocortical synapses in visual cortex.
M Sedigh-Sarvestani, L Vigeland, I Fernandez- Lamo, MM Taylor, LA Palmer, D Contreras.

Seizures and brain regulatory systems: Consciousness, sleep, and autonomic systems.
M Sedigh-Sarvestani, H Blumenfeld, T Loddenkemper, LM Bateman.

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.

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.

REM sleep precedes seizure onset in the TeTX model of temporal lobe epilepsy.
M Sedigh-Sarvestani, GI Thuku, SJ Schiff, SL Weinstein, BJ Gluckman.

Reconstructing mammalian sleep dynamics with data assimilation.
M Sedigh-Sarvestani, SJ Schiff, BJ Gluckman.

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

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.

Teaching and Organizing

Co-Organizer for Tree Shrew Users Meeting	*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*

Invited Talks

Monash University (Virtual), Sensory and Systems Neuroscience Group Seminar. A sinusoidal transformation of the visual field is the basis for striped maps in V2.	*Mar 2021*
Vanderbilt University (Virtual), Neuroscience Brown Bag Seminar. A sinusoidal transformation of the visual field is the basis for striped maps in V2.	*Feb 2021*
Allen Institute (Virtual), Saskia deVries Group Meeting. Organization of higher order visual areas.	*Feb 2021*
University College London (Virtual), BehavioNeuro Talks. Organization of higher order visual areas.	*Dec 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*
University of Virgina, Cang Lab. Extrastriate visual system of the tree shrew.	*June 2019*
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*