

# Madineh Sedigh-Sarvestani

POST-DOC FELLOW · MAX PLANCK FLORIDA INSTITUTE FOR NEUROSCIENCE

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## 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

### 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

*Trends in Cognitive Sciences*

25(7):535-538, 2021

### A bright future for the tree shrew in neuroscience research: Summary from the inaugural Tree Shrew Users Meeting.

E SAVIER, **M SEDIGH-SARVESTANI**, R WIMMER, D FITZPATRICK.

*Zoological Research*

In press, 2021

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

**M SEDIGH-SARVESTANI**, KS LEE, R SATTERFIELD, N SHULTZ, D FITZPATRICK.

*bioRxiv*

under revision, 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.

### $\alpha$ 2-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 FERNANDEZ-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.

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

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<b>Lead Organizer for Tree Shrew Users Meeting</b>	<i>2020-present</i>
<b>Chief Instructions Officer, Neuromatch Academy</b>	<i>2021</i>
<b>Executive Committee Member, Neuromatch Academy</b>	<i>2020</i>
<b>Co-Instructor, CSHL Neural Data Science Summer Course</b>	<i>2019</i>
<b>TA, CSHL Neural Data Science Summer Course</b>	<i>2015,17</i>

## Invited Talks

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<b>Monash University (Virtual)</b> , Sensory and Systems Neuroscience Group Seminar. A sinusoidal transformation of the visual field is the basis for striped maps in V2.	<i>Mar 2021</i>
<b>Vanderbilt University (Virtual)</b> , Neuroscience Brown Bag Seminar. A sinusoidal transformation of the visual field is the basis for striped maps in V2.	<i>Feb 2021</i>
<b>Allen Institute (Virtual)</b> , Saskia deVries Group Meeting. Organization of higher order visual areas.	<i>Feb 2021</i>
<b>University College London (Virtual)</b> , BehavioNeuro Talks. Organization of higher order visual areas.	<i>Dec 2021</i>
<b>University of Miami (Virtual)</b> , 4th Annual Neural Engineering Symposium. A sinusoidal transformation of the visual field.	<i>Oct 2020</i>
<b>Weill Cornell Medicine (Virtual)</b> , Frontiers in Neuroscience Seminar Series. Rethinking maps in the visual system.	<i>Sept 2020</i>
<b>University of Alabama</b> , Vision Science Research Center Visiting Scholars Program Seminar Series. Specialized visuotopic maps anchor the functional organization of higher visual areas.	<i>Jan 2020</i>
<b>University of Virginia</b> , Cang Lab. Extrastriate visual system of the tree shrew.	<i>June 2019</i>
<b>Multichannel Recording Workshop @ SFN</b> , Hosted by Thomas Recording. Characterizing the thalamocortical circuit in the cat visual cortex.	<i>Oct 2017</i>
<b>University of Pennsylvania Small Circuits and Behavior Meeting</b> , Understanding thalamocortical circuitry in the early visual pathway.	<i>Aug 2014</i>