

# NEDA SHAHIDI

Kellnerweg 4, 37077 Göttingen, Germany | +49 551 3851 352 | nshahidi@dpz.eu

*Objective* My goal is understanding the neural correlates of decision making. In particular, examining the dynamics of neural populations, involved in planning goal-directed behaviors, as well as understanding how the general physiological state of beings impacts the quality of their decisions.

## RESEARCH EXPERIENCE

### Sensory Motor Group

*German primates Center, Göttingen, Germany*

Aug 2020-  
now

- Representation of space and others in the fronto-parietal network during foraging
- Design and implementation of an exploration platform for behavioral and neural recording from free-roaming rhesus macaques.

### Gollisch Lab

*Dept. of Ophthalmology, Universitätsmedizin Göttingen, Göttingen, Germany*

Aug 2018-  
Aug 2020

- Generalization of encoding models of retinal ganglion cells across species and stimuli

### Dragoi Lab

*Dept. of Neurobiology and Anatomy, Univ. of Texas, Houston, Texas*

Jan 2012-  
July 2018

- Neural correlates of foraging strategy in prefrontal cortex of free-moving macaques
- Enhancement of perceptual accuracy and the relevance of coordinated spikes
- Multi-site micro-stimulation of cortical neurons in various frequency bands

### Felleman Lab

*Dept. of Neurobiology and Anatomy, Univ. of Texas, Houston, Texas*

Sep 2011-  
Dec 2011

- Response characteristics of area V2 and V4 of macaque brain using information theory

### Priebe Lab

*Dept. of Neurobiology, The Univ. of Texas at Austin, Austin, TX*

Nov 2010-  
Aug 2011

- Classification of simple and complex neurons in cat primary visual cortex, using whole-cell patch clamp recording

### Seidemann Lab

*Center for Perceptual Systems, The Univ. of Texas at Austin, Austin, TX*

Sep 2009-  
Oct 2010

- The effect of attention on the neuronal activities of primary visual cortex, using voltage sensitive dye imaging
- The training curve of a macaque for an attention-based detection task

### RoboSoccer(Stone) Lab

*Dept of Computer Sciences, The Univ. of Texas at Austin, Austin, TX*

Sep 2006-  
Aug 2010

- Response delayed policy for autonomous intersection management
- A mixed reality framework for autonomous intersection management
- Obstacle avoidance of Sony Ibo robots using infra-red sensors

### System Control Lab

*Dept of Electrical and Computer Eng, Univ. of Tehran*

Jun 2002-  
Aug 2005

- Controlling a DC motor using a network model of Amygdala and Orbito-frontal cortex
- Self-adaptive memetic algorithms for path planning of mobile robots

## EDUCATION

### Ph.D. in Neuroscience

*University of Texas, Health Science Center at Houston, Houston, Texas*

Adviser: Prof. Valentin Dragoi

Dissertation title: population codes and their correlates in decision making

Sep 2011-  
July 2018

### M.Sc. in Electrical Engineering

*The University of Texas at Austin, Austin, Texas*

Adviser: Prof. Peter Stone

Thesis title: Response delayed policies for autonomous intersection management

May 2007-  
Aug 2010

### B.Sc. in Electrical Engineering

*University of Tehran, Tehran, Iran*

Adviser: Prof. Caro Lucas

Thesis title: Application of memetic algorithms to the path planning of mobile robots

Aug 1999-  
May 2004

## INVITED LECTURES

Population Coding of strategic variables during foraging in free-moving macaques

*Neuromatch virtual conference*

2020

Population coding and its correlates in decision making

*Institute for Research in Fundamental Sciences, Tehran, Iran*

2019

Representation of the 'rules of the game' in prefrontal cortex of free-moving monkeys

*Neuroscience program retreat, Navasota, Texas*

2017

Higher-order coordination of visual cortical activity enhances perceptual accuracy

*Gulf Coast Conference, Houston, Texas*

2016

Neural correlates of decision making: When population is more than individuals

*Neuroscience program new retreat, Galveston, Texas*

2015

## TEACHING EXPERIENCE

### Teaching Assistant

*Texas Advanced Computing Center, Univ. Texas at Austin*

Graduate level "Parallel Computing" and "Scientific and Technical Computing"

Fall 2009  
Spring 2010

### Lab Teaching and Mentoring

*Dept of Electrical and Computer Eng., Univ. of Texas at Austin*

Under-graduate level "Electronic Lab"

Fall 2007  
Spring 2009

### Teaching Assistant

*Dept of Electrical and Computer Eng., Univ. of Tehran*

Under-graduate level "Computer Architecture" and "Digital Logic Circuits"

Spring 2002  
Fall 2002  
Spring 2003

## REFERENCES

*will be provided upon requests.*

## PUBLICATIONS

### *Journal*

- Milton R., **Shahidi N.**, Dragoi V., "Dynamic states of population activity in prefrontal cortical networks of freely-moving macaque", *Nature Communication*, 2020
- **Shahidi N.**, Schrater P., Wright A., Pitkow X., Dragoi V., "Population coding of strategic variables during foraging in freely-moving macaques", *bioRxiv*, 2019

- **Shahidi N.**, Andrei A.R., Hu M., Dragoi V., “Higher-order coordination of cortical activity modulates perceptual accuracy”, *Nature Neuroscience*, 2019

#### *Dissertation*

- **Shahidi N.**, "Population codes and their correlates in decision " (2018). *UT GSBS Dissertations and Theses (Open Access)*. 888

#### *Conference and in preparation*

- **Shahidi N.**, Rozenblit F., Khani M.H., Schreyer H.M., Gollisch T., Filter-based models of suppression in retinal ganglion cells: generalization across species and stimuli, *in preparation*
- Kumar A., Wu Z., **Shahidi N.**, Dragoi V., Pitkow X., Schrater P., Interring latent states from foraging behavior, Cognitive Computational Neuroscience (CCN), New York, NY, 2017
- **Shahidi N.**, Hu M., Andrei A.R., Dragoi V., Behaviorally relevant information is revealed in synchrony of triplets and quartets but not pairs, Computational and System Neuroscience extended abstract in COSYNE meeting, Salt Lake City, UT, 2015
- **Shahidi N.**, Hu M., Andrei A.R., Dragoi V., Changes in laminar synchrony in V1 reflect perceptual decisions, Society for Neuroscience (SfN) meeting, San Diego, CA, 2013 and extended abstract in COSYNE meeting, Salt Lake City, UT, 2013
- **Shahidi N.**, Priebe N., Ferster D., “A unimodal distribution of linear and nonlinear spatial responses in primary visual cortex” SfN meeting, Washington, DC, 2011
- Au T.Z., **Shahidi N.**, Stone P., “Enforcing Liveness in Autonomous Traffic Management,” Proceedings of the Twenty-Fifth Conference on Artificial Intelligence, August 2011
- **Shahidi N.**, Au T.Z., Stone P., “Batch Reservations in Autonomous Intersection Management,” extended abstract, in proceeding of Autonomous Agents and Multi-Agent Systems (AAMAS), Taipei, Taiwan, 2011
- **Shahidi N.**, Esmaeilzadeh H., Abdollahi M., Lucas C., “Memetic Algorithm Based Path Planning for a Mobile Robot,” Inter. J of Information Technology, Vol. 1, Num. 4, 2004
- **Shahidi N.**, Esmaeilzadeh H., Abdollahi M., Ebrahimi E., Lucas C., “Self-Adaptive Memetic Algorithm: An Adaptive Conjugate Gradient Approach,” Proceedings of 2004 IEEE Conference on Cybernetics and Intelligent Systems (CIS), Singapore, 2004