



Hamed Shabani

Ph.D. Student, Neural Information Processing program,
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Education

- 2017–2021 **Ph.D. in Computational Neuroscience**, *University of Tübingen*.
Dissertation *Classifying retinal ganglion cells for bionic vision*
supervisor Dr. Daniel Rathbun, Prof. Eberhard Zrenner (Collaboration with UNSW, Sydney)
tasks Electrical stimulation of mouse retina.
- 2013–2016 **M.S. in Biomedical Engineering**, *Shahed University*, Tehran, GPA=17.41 (out of 20).
Dissertation *EEG signals chaotic behavior analysis in order to detect drowsiness*
supervisor Dr. Mohammad Mikaili
tasks Collecting and analysing EEG data of human subjects with Matlab.
- 2009–2011 **B.S. in Electrical Engineering**, *Bahonar Technical College of Shiraz*, GPA=15.11 (out of 20).
Final project *Matlab compatible Electrocardiogram*
tasks Building electronic circuits.

Research Experience

- Oct 2019 **University of New South Wales, Sydney**, Visiting doctoral student.
○ Project 1: Comparing patch-clamp versus extracellular recordings of retina ganglion cells to electrical stimulation.
○ Project 2: Noise correlation analysis of retina patch-clamp recordings for electrical stimulation.
advisors Dr. Mohit Shivdasani, Dr. Rathbun, Dr. Hosseinzadeh
tasks Developed Matlab codes to analyze and visualize patch clamp recordings.
- 2015–2017 **Brain Engineering Center (IPM)**, *Tehran*, Research Assistant.
○ Project 1: Response variability in visual cortex
○ Project 2: Encoding pleasant and unpleasant expression of the architectural window shapes
advisor Dr. Reza Lashgari (Collaboration with Alonso lab at State University of New York)
tasks Analyzed human EEG and e-phys data recorded from non-human primates.

Teaching Experience

- SS 2020 Mentoring Master students at HTWK Leipzig. Define, guide, and evaluation of the final projects of Pattern recognition course.
- SS 2019 Mentoring Medtech Master students in Implantology course, Tübingen.

Workshops and Abstracts

- Oct 3-5, 2021 *Eye and the chip conference*. Detroit, Michigan (Accepted as platform presentation).
- Aug 2-21, 2021 **Online summer school**, *NeuroMatch Academy three weeks Deep Learning course*
- Oct 12-14, 2020 **Online workshop**, *UCL Neuropixels Course*,
- March 13, 2019 **Workshop**, *Research Funding and Grant Writing*, DZNE Tübingen.
- Dec 28, 2016 **Workshop**, *Spike data analysis*, Neuroscience Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
- Dec 13-14, 2019 **Oral presentation**, MEA-based classification of retinal ganglion cells for bionic vision, Shabani H, Sadeghi M, Hosseinzadeh M, Zrenner E, Rathbun D. *Artificial vision Conference*, Aachen, Germany (Travel Award).

- Sep 17-22, 2019 **Poster presentation**, Multi-Electrode recording for classification of retinal ganglion cells for bionic vision, Shabani H, Sadeghi M, Hosseinzadeh Z Zrenner E Rathbun D., *Bernstein Conference*, Berlin, Germany.
- April 27, 2019 **Poster presentation**, *Multi-Electrode recording for classification of retinal ganglion cells for bionic vision*, Shabani H, Sadeghi M, Hosseinzadeh Z Zrenner E Rathbun D., Arvo Conference, Vancouver, Canada (Travel grant).
- March 7, 2018 **Poster presentation**, New Horizons in Vision and Hearing Research symposium, Physiological Classification of Mouse Retinal Ganglion Cells for Retinal Implants, Institute for Ophthalmic Research, Tuebingen, Germany .

Skills and Interests

Electrophysiology, Spike sorting, Neural stimulation, Retina dissection, EEG data collection.
Setup and troubleshooting experimental rig, Low noise biomedical amplifiers.
Signal processing and large scale neural data analysis.
Python, MATLAB.
Arduino and Microcontrollers, PCB design and Soldering

Languages

English, German (B1), Persian (native).

Publications in preparation

- [1] **Shabani H**, Zrenner E, Rathbun D, Hosseinzadeh Z. Characterizing electrical input filters of ganglion cell types in mouse retina. In prep.

Publications

- [1] **Shabani,H**, Zrenner E, Rathbun D, and Hosseinzadeh Z. Classification of pseudocalcium visual responses from mouse retinal ganglion cells. *Visual Neuroscience (Accepted)*, 2021.
- [2] Naghibi Rad P, Shahroudi AA, **Shabani H**, and Lashgari R. Encoding Pleasant and Unpleasant Expression of the Architectural Window Shapes: An ERP Study. *Frontiers in Behavioral Neuroscience*, 13:186, 2019.
- [3] Rathbun DL, Ghorbani N, **Shabani H**, Zrenner E, and Hosseinzadeh Z. Spike-triggered average electrical stimuli as input filters for bionic vision—a perspective. *Journal of Neural Engineering*, 15(6):063002, 2018.
- [4] **Shabani H**, Mikaili M, and Noori SMR. Assessment of recurrence quantification analysis (RQA) of EEG for development of a novel drowsiness detection system. *Biomedical Engineering Letters*, 6(3):196–204, 2016.

References

[Prof. Eberhart Zrenner](#)

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[Dr.Daniel Rathbun](#)

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[Dr.Zohreh Hosseinzadeh](#)

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[Dr. Mohit shivdasani](#)

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Links

[Webpage](#)

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