

Ido Haber

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Portfolio Website: idossha.github.io

Education - University of Wisconsin - Madison

PhD in Neuroengineering

Focus: EEG, Signal Processing, Temporal Interference Stimulation, FEM Simulations

September 2023 – Present

MSc in Biomedical Engineering

Focus: Neural Plasticity, Electrophysiology

December 2023

BSc in Neurobiology & Psychology

December 2021

Academic Experience - University of Wisconsin-Madison

Researcher, Center of Sleep and Consciousness – Department of Psychiatry

September 2022 – Present

- Perform frequent HD-EEG data analysis in MATLAB, EEGLAB, MNE, YASA
- Deliver TES using temporal interference at kHz frequencies in clinical settings
- Researcher on a high pace DARPA funded clinical study

Researcher, Hai's Lab - Department of Biological Engineering

January 2021 – Present

- Simulated behavior of magnetoelectric nanoparticles in COMSOL Multiphysics
- Investigate the effects of 5HT2A receptor agonists on the behavior of neural cultures
- Plated neuronal cultures for calcium imaging, MEA recordings, protein labeling, and protocol optimization

Graduate Teaching Assistant – Psych 225, Research Methods - Department of Psychology

August 2022 – May 2023

- Provided support for professors by holding office hours, teaching two labs a week, and exam proctoring
- Facilitated hands-on tasks in classroom while optimizing student's learning
- Delivered feedback on writing assignments as part of Communication B coursework

Undergraduate Research Assistant, Barnes Lab - Department of Kinesiology

May 2018 - May 2019

- Researched the effect of aging and lifestyle on cerebral blood flow regulation in humans and its association to age related diseases
- Analyzed changes in CBF in response to chemical and metabolic stressors pre & post administration of cyclooxygenase inhibitors

Industry Experience

Collaborator – Z43 & ITIS Foundation, Zurich, Switzerland

June 2024

- Collaborated on hardware and software solutions for advanced temporal interference stimulation
- Hardware discussions regarding inter-modulation artefacts due to system non-linearities
- Software collaboration FEM, tissue segmentation, lead-fields, quasi-static approximation

Business Consultant, Video Editor, Content Creator - Effectivate, Tel Aviv, Israel

May 2020 - July 2022

- Conducted literature research and UX testing for the R&D team
- Increased sales and significantly lowered cost per lead in three months
- Created content for the marketing division using Final Cut Pro, Photoshop, Mailchimp
- Worked closely with the CEO on future business decisions - Manager of business development in the United States

Project Manager & National Expansion Committee Member - TAMID Group, Madison, WI

September 2019 - December 2020

- Advised top universities across the United States during their beta process on a student national team
- Lead teams of business-oriented UW students in pro bono consulting cases for innovative Israeli startups
- Utilized strong communication and leadership skills by facilitating instruction from company executives to team members

Publications

1. **I. Haber**, A. Jackson, A. Thielscher, A. Hai, and G. Tononi, “TI-Toolbox: An Open-Source Software for Temporal Interference Stimulation Research”, doi: <https://doi.org/10.1101/2025.10.06.680781>.
2. E. L. Schaeffer *et al.*, “Enhancement of Sleep Slow Wave Activity using Transcranial Electrical Stimulation with Temporal Interference”, doi: <https://doi.org/10.1101/2025.08.11.2533452>.
3. I. Bok, **I. Haber**, X. Qu, and A. Hai, “In silico assessment of electrophysiological neuronal recordings mediated by magnetoelectric nanoparticles,” *Sci Rep*, vol. 12, no. 1, p. 8386, May 2022, doi: [10.1038/s41598-022-12303-4](https://doi.org/10.1038/s41598-022-12303-4).

Skills

- Modeling: SimNIBS, Gmsh, LTspice, Sim4Life, COMSOL Multiphysics, Altium Designer
- Programming: Python, MATLAB, Bash, Lua, HTML, CSS
- Tech: Git, Docker, CircleCI, TMUX, VIM, Unix architecture, Windows
- Neuroscience: Freesurfer, FSL, MRtrix3, EEGLAB, Brainstorm, MNE, YASA,
- in vitro: MEA recording, Calcium Imaging, Protein labeling
- Other: Adobe Illustrator, Inkscape, GIMP, TouchDesigner, Ableton Live, Final Cut Pro, MyBusiness CRM, OverLeaf
- Languages - Hebrew (Native)

Open Source

SimNIBS – Simulation of Non-invasive Brain Stimulation

January 2024 - Present

- Assisting members of the community with the codebase
- Contributor to the source code – developed a feature to ease clinical translation of electrode placement
- Developed TI-Toolbox a SimNIBS wrapper for clinical translation of temporal interference research

NVIM – Hyperextensible Vim-based test editor

January 2024 - Present

- Developed a MATLAB plugin that integrates with NVIM and TMUX allowing a complete workflow from the terminal
- Developed a Python environment manager allowing virtual environment control and code execution

Leadership Experience

National Athlete & Swim Instructor - Israeli National Swimming Team, UW Madison Varsity Team

April 2010 - October 2019

- Israeli record holder in 400m free and 800m free relays from 2014 - 2019
- Volunteered to engage children with disabilities in water activities
- Learned the importance of diligence, goal setting and dedication
- Balanced more than 20 hours of weekly practice in addition to competition, travel, and schoolwork

Air Force Sergeant - Israeli Defense Force, Haifa, Israel

October 2014 - August 2017

- Worked in a small team to facilitate communication inside the base
- Developed personal characteristics - work ethic, critical thinking, attention to details, and work under pressure
- Honorably discharged as a sergeant

References:

Professor Aviad Hai PhD

University of Wisconsin-Madison

Department of Biomedical Engineering

Department of Electrical and Computer Engineering

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Professor Giulio Tononi PhD

University of Wisconsin-Madison

Department of Psychiatry

Director of the Wisconsin Institute for Sleep and Consciousness

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Stephanie Jones PhD

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Assistant Director of the Wisconsin Institute for Sleep and Consciousness

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