Ido Haber

ihaber@wisc.edu, 608-354-7172
1010 E Washington Apt 721, Madison, WI 53703
Portfolio Website: idossha.github.io

Education - University of Wisconsin - Madison

PhD in Neuroengineering   September 2023 – Present
Focus: EEG Signal Processing, Transcranial Temporal Interference Stimulation, FEM Modeling

MSc in Biomedical Engineering   December 2023
Focus: Neural Plasticity, Electrophysiology

BSc in Neurobiology & Psychology   December 2021

Academic Experience - University of Wisconsin-Madison

Researcher, Center of Sleep and Consciousness – Department of Psychiatry   September 2022 – Present

- Developed and maintain TI-Toolbox an open-source software used throughout the world for clinical modeling of tTIS
- Responsible for head modeling and development of stimulation protocols on a DARPA funded clinical study
- Perform frequent HD-EEG data analysis in MATLAB (EEGLAB) and Python (MNE, YASA)
- Deliver tTIS to human subjects using kHz frequencies in clinical settings

Researcher, Hai's Lab - Department of Biological Engineering   January 2021 – Present

- Investigate the effects of 5HT2A receptor agonists on the behavior of neural cultures
- Simulated behavior of magnetoelectric nanoparticles in COMSOL Multiphysics
- 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

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, **I. Haber**, *et al.*, "Enhancement of Sleep Slow Wave Activity using Transcranial Electrical Stimulation with Temporal Interference", doi: https://doi.org/10.1101/2025.08.11.25333452.
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.

Skills

- Modeling: SimNIBS, Gmsh, LTspice, Sim4Life, COMSOL Multiphysics, Altium Designer
- Programming: Python, MATLAB, Bash, Lua, JavaScript, HTML, CSS
- Tech: Git, Docker, CircleCI, Electron, TMUX, VIM, Unix, Windows, Google Analytics, Looker Studio
- Neuroscience: Freesurfer, FSL, MRtrix3, EEGLAB, Brainstorm, MNE, YASA, Nilearn
- in vitro: MEA recording, Calcium Imaging, Protein labeling
- Other: Inkscape, Blender, 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
- Contributor to the source code – developed a feature to ease clinical translation of electrode placement
- Assisting members of the community with the codebase

NVIM – Hyperextensible Vim-based test editor   January 2024 - Present
- Developed a method that allows a complete MATLAB scripting and debugging from the terminal
- Developed a plugin that allows for convenient environment control and direct execution of Python scripts

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:

Assoc. Prof. Aviad Hai PhD
University of Wisconsin-Madison
Department of Biomedical Engineering
Department of Electrical and Computer Engineering
1550 Engineering Drive
Madison, WI, 53706
ahai@wisc.edu

Professor Giulio Tononi PhD
University of Wisconsin-Madison
Department of Psychiatry
Director of the Wisconsin Institute for Sleep and Consciousness
6001 Research Park Blvd
Madison, WI, 53719
gtononi@wisc.edu

Asst. Prof. Stephanie Jones PhD
University of Wisconsin-Madison
Department of Psychiatry
Assistant Director of the Wisconsin Institute for Sleep and Consciousness
6001 Research Park Blvd
Madison, WI, 53719
sjones2@wisc.edu