SOFIA KARDOIK

(512) 591-3501 | kardonik@umich.edu | Ann Arbor, MI

EDUCATION

University of Michigan — **Ann Arbor, MI**
Ph.D. Student in Electrical and Computer Engineering — *Expected Graduation: May 2028*
Signal Processing and Machine Learning in Biomedical Imaging — *GPA: 3.89/4.00*

University of Texas — **Austin, TX**
Bachelor's of Science in Electrical and Computer Engineering — *May 2023*
GPA: 3.75/4.00

SKILLS

Programming Languages: Python, Julia, MATLAB, C/C++, ARM Assembly
Tools: Linux, Git, Keil, Jupyter Notebook
Languages: fluent in Russian, some understanding of Hebrew

RESEARCH EXPERIENCE

fMRI Research Lab — **January 2024 – Present**

- Conducted an extensive literature review on denoising techniques in fMRI using techniques in probability theory, under the supervision of Dr. Doug Noll and Dr. Jeff Fessler

Computational Sensing and Imaging Research Lab — **September 2021 – May 2023**

- Undergraduate researcher working under Dr. Jon Tamir
- Generated motion corrupt brain images using linear rotation and translation methods in k-space for data driven retrospective motion correction
- Exploring effects of mixed precision training on MRI reconstruction problems

REU Smart and Connected Communities; Undergraduate Researcher — **June 2021 – August 2021**

- National Science Foundation funded undergraduate research. Explored human perception-based recognition of maritime vessel activities.

CONFERENCE PROCEEDINGS

Levac, B., Kumar, S., Kardonik, S., Tamir, J., "FSE Compensated Motion Correction for MRI Using Data Driven Methods", 25th International Medical Image Computing and Computer Assisted Intervention, 2022, https://doi.org/10.48550/arXiv.2207.00656

WORK EXPERIENCE

Aurora Flight Sciences, A Boeing Company; Software Engineering Intern — **May 2022 – August 2022**

- Built a flight simulator and interface for data collection of a commercial flight to research pilot's fatigue
- Wrote a UI in Python to visualize a pilot's gaze around the flight simulator
- Conducted a literature review of ML models that use heart rate variability, blinking rate, and workload to detect fatigue during a prolonged flight

Uhnder, Inc.; Software Intern — **June 2020 – August 2020**

- Calibrated and tested different versions of radars that are sent to clients for industry use
- Revised python code for the company's expanding software updates
- Trained new technicians on calibration procedure and wrote a guide for employees to follow

PROJECTS

Senior Design

- Designing a network of non-invasive wearable sensors to detect and monitor dehydration and heat stroke
- Using ECG, galvanic skin response, and body temperature sensors

Final Embedded Systems Project

- Implemented a game from scratch called "Binary Expansion Hero" on a microcontroller board to mimic the popular game "Guitar Hero": https://www.youtube.com/watch?v=58gajYndY4E

EXTRACURRICULARS

Women in Electrical and Computer Engineering (WECE)

- Attended networking gatherings with ECE faculty to learn about their experience in academia
- Sought connections with other distinguished graduate women in the field

UMich Club Tennis

- Successfully secured membership at a top 10 nationally ranked tennis club, demonstrating strong technical skill and strategic gameplay
- Built a supportive network with fellow club members while fostering a community of sportsmanship

Relevant Coursework: Machine Learning, Optimization in Signal Processing and ML, Matrix Methods for Signal Processing, Probability and Random Processes, Medical Imaging Systems, Real-Time Digital Signal Processing, Algorithms, Operating Systems, Computer Architecture, Digital Image Processing, Embedded Systems, Discrete Math