Lucas H. Kaplan

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EDUCATION

Duke University (Durham, NC)   Expected Completion: Dec. 2024
Continuing Studies Program
Courses Included: Algorithms and Data Structures, Introduction to the Design and Analysis of Algorithms, Introduction to Computer Systems, Embedded Medical Devices

University of Maryland, Honors College (College Park, MD)   GPA: 3.99
B.S., *summa cum laude*, Electrical Engineering   Graduation: May 2023
Specialization: Computer Engineering

Awards and Programs
Banneker/Key Merit Scholarship
Four-year, full ride scholarship awarded to the top 2% of incoming students at the University of Maryland
Department of Electrical and Computer Engineering Chair's Award   Feb. 2023
Design Cultures & Creativity: Technology Focused Living Learning Program   Citation Received: May 2020

SKILLS

Software: C, C++, Python, Java, MATLAB, Altium, HFSS, Advanced Design System, Verilog/VHDL, SPICE, Linux/Unix, Assembly, Fusion 360, Git, Bash Scripting, OpenCV, Zephyr, RTOS, UART, I2C, SPI, Bluetooth
Hardware: FPGA, Logic Analyzer, Microcontrollers (Arduino, Raspberry Pi), Oscilloscope, Analog Circuit Prototyping, Soldering, Additive Manufacturing

TECHNICAL EXPERIENCE

Grill Lab, Duke University (Durham, NC) | *Research Associate*   Aug. 2023 – Present
- Conceptualized and developed a Python codebase to automate the creation of finite element method (FEM) models of the carotid sinus region, expediting model creation from days to minutes
- Compiled a Python repository to automate the calculation of activation thresholds from FEM models, reducing computation time from hours to minutes
- Synthesized a review of relevant literature on the ultrastructure and biophysics of the carotid sinus nerve

Power Systems Branch, NASA (Greenbelt, MD) | *ESES III Engineering Intern*   June 2022 – Aug. 2022
- Designed and assembled ultra-low power analog LED pulse driver for use in emergency environments using Altium Designer
- Implemented a Python automation for oscilloscope testing, enhancing the reliability of flight electronics for the Geospace Dynamics Constellation mission
- Constructed custom magnetic transformers with 3D resin printer for use in the high voltage bias supply for the CORE project

Antenna Section, U.S. Naval Research Laboratory (Washington, DC) | *Research Intern*   Aug. 2021 – Jan. 2022
- Utilized a High Frequency Electromagnetic Simulation Software (HFSS) to investigate antenna arrays for use in high-speed satellite communication and autonomous vehicle radar systems

Laboratory for MicroTechnologies, University of Maryland (College Park, MD) | *Robotics Research Intern*   May 2020 – Sep. 2020
- Composed a 26-page systematic review on the capabilities of medical robotic systems to complete an abdominal examination
- Presented review and conceptualized abdominal examination kiosk to the head of the UMD Medical Robotics & Equipment Lab

RELEVANT PROJECTS

Embedded Face Detection System | GitHub   Mar. 2023 – May 2023
- Collaborated with 3 students to develop a machine learning face detection system in C++ based on the Viola-Jones algorithm, which executed on a Raspberry Pi with an F-score of 0.93
- Designed and tested the image read actor using the C++ Filesystem library and the dataflow graph using the UMD LIDE library

Over Sand Vehicle (OSV) Project | GitHub   Aug. 2019 – Dec. 2019
- Jointly headed a group of 8 students to construct an autonomous OSV, powered by an Arduino Uno microcontroller, which successfully navigated through an obstacle field to the target water pool
- Fabricated the water collection and depth recognition module utilizing a MakerBot Replicator+ 3D-printer
- Presented an official design proposal to A. James Clark School of Engineering faculty

OTHER INTERESTS AND ACTIVITIES

Robotics, Embedded Systems, Neural Prosthetics, Space Systems, Piano, Soccer, Football, Ultimate Frisbee