Philip I. Kuhle

Atlanta, GA | (360) 550-1002 | pkuhle@gatech.edu | pkuhle.github.io | US Citizen

Objective

Driven and reliable electrical engineer with a strong embedded systems foundation seeking an internship position for the summer of 2024. Experience in a fast-paced startup environment and the defense industry. Particular interest in electrical hardware design, avionics, control systems, and robotics.

Education

Georgia Institute of Technology | Atlanta, GA

M.S. in Electrical and Computer Engineering *August 2024 – May 2025*

B.S. in Electrical Engineering, GPA: 3.83 *August 2020 – May 2024*

Skills

Programming: Python, C++, C

Hardware: STM32, ARM mbed, oscilloscope, waveform generator, logic analyzer, soldering, digital circuits, analog circuits, FPGAs, VHDL, optical instrumentation, manual machining

Software: Altium Designer, STM32CubeMX, STM32CubeIDE, MATLAB, Linux developer environment, Git, ANSYS EDT, Quartus Prime, Autodesk Inventor, Inventor CAM, Microsoft Office, Jira, Confluence

Communication: Project management, technical writing and reports, presentations

Experience

Gecko Robotics | Pittsburgh, PA *May 2023 – August 2023*

Electrical, Firmware, and Integration Engineer Intern

- Designed a system to detect when a wall climbing robot loses magnetic adhesion to industrial assets
- Used Altium to design a PCB interfacing three Hall-effect sensors and an STM32F3 microcontroller
- Wrote firmware in C to poll sensors using I2C and to send data over USB to the robot's onboard computer
- Effectively collaborated with mechanical engineers to ensure proper integration of all components
- Adhesion detection feature will be rolled out to Gecko's entire robotic fleet because of its impact on robot safety

Georgia Tech Experimental Rocketry | Atlanta, GA *January 2023 – Present*

GNC and Avionics Engineer

- Researched IMU and GPS architectures to inform sensor selection for a two-staged rocket
- Modified extended Kalman filter to implement a dynamic time step to handle unpredictable data acquisition
- Contributing to designing avionics stack components such as sensors and the flight computer

Georgia Tech Research Institute | Atlanta, GA *May 2021 – July 2021*

Optical Engineer Intern

- Engineered an optical system to perform homodyne scanning holography, a form of digital holography
- Led construction of an interferometer to generate a Fresnel zone plate (FZP) interference pattern with adjustable frequency to be scanned over an object
- Controlled a motorized two-axis mirror using MATLAB to automatically adjust scanning region size, collect and organize photodetector data, and digitally reconstruct the object point-by-point
- Results used to test if homodyne scanning holography could be used in a concept LiDAR system

AI Virtual Assistant (AVA) Lab | Atlanta, GA *January 2022 – July 2022*

Undergraduate Research Assistant

- Researched under Dr. Larry Heck to develop a digital humanoid virtual assistant
- Contributed to implementation of a pipeline to generate realistic facial animations on a digital avatar given a speech input using Python
- Developed a web service to stream .mp4 files to view facial animations in real time using NGINX
- Work being used to develop the realistic avatar of a next-generation virtual assistant