Jacob Keller

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Education

Olin College of Engineering – Needham, MA May 2028

- BS, Electrical and Computer Engineering
- Relevant Coursework: Modeling and Simulation (**MATLAB**), Linear Algebra

Experience

Integration Engineer, Olin Formula SAE Electric – Needham, MA Sept 2024 – Present

- Collaborated with 60+ members to design and build an electric vehicle for the Formula SAE competition
- Developed **Python** wireless telemetry software to transmit serialized CAN data via UART radio frequency communication, enabling real-time vehicle diagnostics and monitoring while driving for the first time in team history
- Created documentation covering setup, troubleshooting, and software integration for wireless telemetry system

Information Technology Helpdesk Staff, Olin College – Needham, MA Sept 2024 – Present

- Delivered technical support to a diverse user base of 450+ students, faculty, and staff, developing clear communication protocols for complex troubleshooting procedures
- Diagnosed and resolved hardware/software issues across multiple operating systems and laptop configurations

Team Captain, Vex Robotics – Tustin, CA Aug 2020 – May 2024

- Led a 6-person engineering team to international qualification at VEX Robotics World Championship
- Optimized meeting structure to prioritize driving practice, increasing robot scoring by 35% in competition
- Integrated independent robot subsystems into the final robot assembly using **OnShape** CAD software

Rock Climbing Coach, Sender One Climbing Gym – Santa Ana, CA Jun 2023 – Mar 2024

- Taught 150+ youth (ages 6-12) fundamental rock climbing skills, emphasizing safety and enjoyment
- Created new activities and improved existing activities to enhance the recreational team curriculum

Projects

Pedestrian Detection Algorithm, https://kiwiaviation.github.io/ped Dec 2024

- Developed an algorithm to detect the presence of a person in an image using principal component analysis (PCA)
- Achieved 78% classification accuracy, demonstrating PCA's effectiveness in improving computational efficiency while maintaining reasonable accuracy for pedestrian detection
- Presented findings through a professional academic poster

Carbon Dioxide Measurement Station, https://kiwiaviation.github.io/co2 Aug 2024

- Built a low-cost solar-powered device for measuring carbon cycling in scientific research
- Prototyped and refined electronic design through breadboard testing and final soldered assembly
- Developed **Python** software for an ESP32 microcontroller using PWM, SPI, I2C, and UART protocols to interface with environmental sensors, a real-time clock, and a linear actuator, while storing collected data on a microSD card

Custom LED Controller, https://kiwiaviation.github.io/led Aug 2021

- Designed and built a custom device to control an LED strip using an Arduino microcontroller
- Developed **C++** software to convert analog potentiometer signals into digital RGB and brightness values

Skills

Software: Python, C++, MATLAB

Tools: Git, Linux, OnShape, Solidworks