

Jacob Keller

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Education

Olin College of Engineering – Needham, MA

May 2028

- BS, Electrical and Computer Engineering
- GPA: 4.0
- Relevant Coursework: Software Systems (**C**), Software Design (**Python**), Electronics, Modeling and Simulation (**MATLAB**), Principles of Integrated Engineering, Linear Algebra, Multivariable Calculus, Differential Equations

Experience

EV Engineering Intern, Formosa EV – Orange, CA

Mar 2025 – Aug 2025

- Employee #6 at startup designing modern EV conversion components
- Designed high-voltage bus bars and sheet metal brackets in **Onshape** for motor, battery, and radiator integration.
- Flashed and tested firmware updates on MCU/SoC processors, documenting errors to support development team
- Adapted classic car systems (e.g., throttle linkage) to modern electronic controls, reducing cost with 3d printed parts

Low Voltage Lead, Olin Formula SAE Electric – Needham, MA

May 2025 – Present

- Led team of 4 engineers across 9 projects within the car's Low Voltage system. Created a new vehicle dashboard to provide drivers with real-time vehicle status and unified throttle and brake boards into a single custom PCB

Integration Engineer

Sept 2024 – May 2025

- Developed embedded firmware in **C** for ATmega16M1 microcontroller: implemented CAN bus messaging, ADC readings, SPI-driven display and IO expander, and cooling control (PWM). Controls team's power distribution unit
- Created **Python** wireless telemetry system: serialized CAN messages, transmitted via UART radio, then deserialized and displayed in existing CAN dashboard, enabling drive-time diagnostics for the first time in team history

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 as a Dell Certified Technician
- Created clear communication protocols for complex troubleshooting procedures
- Diagnosed and resolved hardware/software issues across multiple operating systems and laptop configurations

Projects

Pedestrian Detection Algorithm, jacobkeller.me/ped

Dec 2024

- Built a **MATLAB** 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, jacobkeller.me/co2

Aug 2024

- Designed 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

Skills

Programming: C, Python, MATLAB

Software: Git, Linux, OnShape, Solidworks, KiCAD

Tools: 3D Printing, Welding (handheld laser)

Recognitions

Eagle Scout