

Jacob A. Likins

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Executive Summary

Passionate Electrical and Computing Engineer with cross-functional experience seeking opportunities to contribute to highly technical problem-solving in robotics, autonomous systems, and high-performance software architecture.

Education

Olin College of Engineering | *Needham, MA* | *Sep 2024 - Present*

Electrical and Computing Engineering | *Bachelor of Science* | *Expected Graduation May 2028*

- **Relevant Coursework:** Microelectronic Circuits, Signals, Computer Architecture, Software Design, Integrated Engineering Design, Linear Algebra, Calculus I, II, and III, MATLAB, Discrete, Project Management
- Recipient of Olin Merit Scholarship

Governor's School of Mathematics and Science | *Hartsville, SC* | *High School* | *May 2024*

- **Relevant Coursework:** Writing in STEM, Electromagnetism, Robotics, Engineering Disciplines, AP Chemistry

Experience

Asensus Surgical Robotics (Subsidiary of Karl Storz) | Electrical Engineering Intern | *Morrisville, NC* | *May 2026 – Aug 2026*

- Engineered and debugged custom PCBs designed in **Altium** to manage inrush current on robotic arms, ensuring **IEC 60601** compliance for deployment.
- Integrated embedded firmware for STM32 microcontroller to drive haptic feedback from **EtherCAT**, establishing **I2C** communication with peripheral driver
- Designed complex hardware schematics in **Altium**, balancing power delivery and footprint constraints

Formula SAE, Olin Electric Motor | Electrical & Software Co-Lead, Senior Engineer | *Needham, MA* | *Sep 2024 – Present*

- Architected a modular **C** firmware monorepo using **Bazel/Build System** for a distributed network of STM32 microcontrollers, streamlining the vehicle's build process.
- Integrated YAML-based automation into the **build pipeline** to standardize CAN bus initialization across all hardware nodes with a truth DBC file, improving **code maintainability** and **deployment speed**.
- Built **custom bootloader** enabling over the air flashing of STM32 chips via CAN protocol.
- Contributed to high-voltage battery PCBs in **KiCad**, including an **isoSPI**-based **BMS** controller and 6 segment power thermistor boards for cell voltage and thermal data.
- Worked on control PCBs for safe **startup/shutdown sequencing** and redundant pedal sensing, using CAN to transmit torque commands to the motor controller.
- Led a 24-member electrical and firmware team through the design, construction, and testing of a Formula SAE electric vehicle.

Olin College | Embedded Systems TA & Electrical Shop assistant | *Needham, MA* | *Jan 2026 – Present*

- Developed curriculum and graded assignments to teach students the fundamentals of microcontroller firmware, **toolchains**, **RTOS**, and **GDB**.
- Maintained testing equipment, including **oscilloscopes**, **DMMs**, and **logic analyzers**, and conducted technical tool training.

Web Development | Freelancer | *Greenville, SC* | *May 2025 – Aug 2025*

- Built a contractor website with **HTML/CSS/JS** that generated 185 sessions and 6+ leads within 90 days.
- Developed **user centric** site architectures, making it easier for users to access core business services.

Clemson University Center for Automotive Research | Research Intern | *Greenville, SC* | *May 2023 – Jul 2023*

- Created an autonomous robot utilizing **SolidWorks**, VEX components, and **C++** for precise motor and sensor control.
- Simulated robot in NVIDIA's **Isaac Simulator** to train robot for manipulating objects

Projects

- Multiplayer Typing Game: Created a **Python**-based multiplayer typing game with Pygame and **TCP sockets** for real-time, **low-latency** host-client communication.
- Hardware RISC-V Processor: Architected and implemented a **RISC-V** processor directly onto an **FPGA** with **System Verilog**
- Resistor Sorter: Designed an **AVR-based** PCB for a 14-bin sorter, using 16:1 multiplexers, **ADCs**, and a Raspberry Pi UI to drive 13 actuators.

Key Skills

Tools: Bazel/Build systems, STM32Cube, Git, KiCad/Altium, Oscilloscopes, Logic Analyzers, LTSpice Simulation

Software\Firmware Languages: C/C++, Python, System Verilog, MATLAB, Java