Eli Foerst

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EXPERIENCE

Project Lead April 2022 - Present
Open Project Space Project, Institute of Electrical & Electronics Engineers at UCLA *Los Angeles, CA*

- Instructed and mentored 80+ undergraduate students on electrical engineering fundamentals to curate progression into the field through a series of 7 projects including a final capstone.
- Organized the purchase of hundreds of electrical components for student projects using appropriate trade studies to foster long-term financial stability for emergency funding and project socials.
- Taught topics such as component data sheets, button debouncing, motor and IR sensor calibration, SPI/I2C communication, two's complement, binary addition with logic gates, bluetooth-serial communication (HC-05 and UART), PID control, and more.

Stockroom Supervisor September 2021 - Present
UCLA Samueli School of Engineering & Sciences *Los Angeles, CA*

- Coordinated scheduling, distribution, training, and communication among assistants and lab associates whilst maintaining stock of over 10,000 electrical components, including 20+ waveform generators and oscilloscopes.
- Resolved complications with lab components and allotted time for product repair: Included repair of digital multimeters via soldering, wire and fuse replacement.

Electrical Engineering Intern July 2022 - September 2022
NASA Jet Propulsion Laboratory (JPL) *Pasadena, CA*

- Streamlined STM process at JPL by creating an automated, safe, and accurate PCB attachment using Altium Designer.
- Implemented Kelvin Resistance models for continuity, voltage, and impedance measurements across hardware.
- Conducted trade studies to evaluate component performance including wireless communication, voltage regulation, and signal multiplexing and analyzed break-out-box technical diagrams for hardware implementation.
- Developed multiplexer switch identifier algorithm utilizing extended voltage range and pull-ups integrated into a Microsoft Excel driven user interface.
- Designed a comprehensible printed circuit board for reuse across JPL-provided 124-pin break-out-boxes and developed software for model-based control with included schematic drawings, status reports, and materials lists.
- Implemented switch operation using SPI communication with C/C++ while connecting to host device serially via Bluetooth Classic and Python.

PROJECTS

Open Project Space Capstone | *C/C++, Arduino IDE, Breadboarding* September 2021 - June 2022

- Collaborated with a team of engineers to calibrate and design a hand-following car using PID control, IC Motor Operation with H-Gate IC, and ultrasonic sensing.

SunSCREEN (Idea Hacks 2021) | *C++, Arduino IDE, Soldering* January 2022

- Developed and hand-soldered a UV light-tracking outerwear attachment using C programming languages with constraints of volume reduction and global integration.

EDUCATION

University of California, Los Angeles (UCLA) September 2021 - June 2025
Bachelor of Science in Electrical Engineering *Los Angeles, CA*

- Relevant Coursework: Programming, Linear Algebra, Applications & Differential Equations, Introductory Circuit Analysis, Mechanics & Magnetism. Circuit Theory, Digital Signal Processing, Electricity & Magnetism.

SKILLS

Languages: C++, C, Python, NI Multisim, MATLAB
Software: Altium Designer, AutoCAD, Microsoft Excel, Vernier Graphical Analysis, Visual Studio, Xcode
Technical Skills: PCB Design, CAD, Soldering, Multimeters, Waveform Generators, Oscilloscopes, Breadboarding