BAILUN WU, EIT

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Education

University of California, Los Angeles (UCLA)　　　　　　　　　　　　　　　　　　**Los Angeles, CA**
---*B.S., Electrical Engineering*　　　　　　　　　　　　　　　　　　　　　　　　　　(Sept 2022 - Dec 2024)

- ❖ GPA: 3.53
- ❖ Honor: Dean's List (Good Standing)
- ❖ Relevant Course: Power System; Advanced Analog/Digital Circuit Design I II (High-Speed circuit design); System and Signal; Feedback System and Control; Data Structures/Algorithms; Machine Learning; Semiconductor Device Design; Nanotechnology & Nanoelectronics; Power Electronics; Digital Signal Processing (DSP); RF Circuitry/System; Image and Speech Processing; Communication and Wireless System; Optics and Laser

Certifications

Engineering in Training (EIT) Certification　　　　　　　　　　　　　　　　　　　**September 2024**
---Issued by the Board for Professional Engineers, Land Surveyors, and Geologists, License **#182862**

Technical Skills

Programming Language: Matlab; Python; Embedded C/C++; SystemVerilog; LabView; LaTeX; OpenCV; Arduino; Git; MQTT; SpeechRecog
Software: Altium; LTspice; EAGLE; PowerWorld; Microsoft Excel, Office & PowerPoint; STM32CubeIDE
Tool: Oscilloscope/Picoscope; Function Generator; Multimeter; DC Power Supplies; STM Microcontroller; 4/20 Loop Calibrator; Soldering; VNA; Logic Analyzer;
Communication Protocols : UART, I²C, SPI, RS-485/RS-232, Modbus RTU, MQTT, HART

Work Experience

ESP Safety, Inc.　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　**Santa Clara, CA**
---Electrical Test Engineer　　　　　　　　　　　　　　　　　　　　　　　　　　　　(Aug 2025 - Present)

- ❖ Designed, developed, tested, and integrated test equipment to aid production and troubleshooting of gas detectors
- ❖ Conducted calibration and functional testing of gas and flame detectors to validate sensor performance and response accuracy.
- ❖ Design and implement new fixtures and tooling to improve assembly efficiency and quality.
- ❖ Collaborate closely with Quality and Operations leadership to ensure compliance and readiness for scaling.

Engineering Projects

Solar Powered Vehicle　　　　　　　　　　　　　　　　　　　　　　　　　　　　**Los Angeles, CA**
---UCLA IEEE Project　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(Oct 2023 - Jun 2024)

- ❖ Power system optimization with transient circuit analysis of the embedded circuit components
- ❖ Designing and testing PCBs for solar energy harvesting and power management.
- ❖ Implementing signal processing techniques to enhance control system performance and stability.
- ❖ Conducting power factor correction analysis to improve system efficiency.

Micromouse　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　**Los Angeles, CA**
---UCLA IEEE Project　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(Oct 2022 - Sep 2023)

- ❖ Designing and fabricating PCBs, integrating components via bench testing with oscilloscopes and logic analyzers.
- ❖ Developing and debugging **microcontroller(STM32-F411RE)** based FloodFill algorithms using real-time sensor data for maze-solving.
- ❖ Validating circuit performance using LTspice simulations before hardware implementation.

Electrocardiogram　　　　　　　　　　　　　　　　　　　　　　　　　　　　　**Los Angeles, CA**
---ENGR 96E　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(Jan 2023 - Mar 2023)

- ❖ Designing circuit boards for ECG measurement with low-noise signal conditioning for accuracy.
- ❖ Developing a program using **Arduino Uno (ESP32)** to process and display ECG signals on a computer interface and **LCD**.
- ❖ Simulating analog filter designs using LTspice to optimize signal clarity and minimize artifacts.

Path Following Robot Car　　　　　　　　　　　　　　　　　　　　　　　　　　**Los Angeles, CA**
---ECE3 Project　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(Oct 2022 - Dec 2022)

- ❖ Implementing **PID control** for autonomous navigation, enabling a robotic car to complete a 3.4-meter track in 8.3 seconds.
- ❖ Using phototransistors for real-time path detection, verified sensor signals and control loop timing with oscilloscopes.
- ❖ Testing and tuning motor control signals using function generators and digital multimeters to ensure efficient operation.

Rogue Survivor　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　**Los Angeles, CA**
---Systems Design Capstone EE180DA/DB　　　　　　　　　　　　　　　　　　　　　(Sept 2023 - Jun 2024)

- ❖ Localizing the player's attack and direction using **OpenCV**'s object tracking and detection algorithms.
- ❖ Using **MQTT** for real-time transmission of game object data to control player motion.

- ❖ Leveraging an **IMU(SparkFun 9D0F)** in Arduino to control in-game player movement based on gyroscope measurements.
- ❖ Employing speech recognition algorithms to control the player's behavior in-game.