

ERIC ORTIZ

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HIGHLIGHTS OF QUALIFICATIONS

- Practical experience in embedded hardware development, including circuit design, sensor integration, and real-time data acquisition and processing.
- Strong foundation in power systems, DC/DC conversion, current sensing, and high-amperage circuit design in academic and lab settings.
- Familiar with operating lab equipment, including oscilloscopes, multimeters, and signal generators.
- Proficient in utilizing MATLAB and Simulink to model and simulate engineering systems and workflows.
- Hands-on experience developing embedded software in Python and C++ for GPIO control, inter-process communication, and cross-platform hardware interfacing.
- Proven ability to lead and contribute to engineering teams through EV projects, lab research, and IEEE competitions; presented work at conferences and showcases.

SUMMARY OF TECHNICAL QUALIFICATIONS

APPLICATIONS:

- Altium Designer, LTspice, PSpice, MATLAB, Simulink, PowerWorld Simulator, STM32CubeIDE, GitHub, Visual Studio, Microsoft Office, Fusion 360

COMPUTER LANGUAGES:

- Software: Python, C, C++, Java, HTML, CSS, JavaScript
- Hardware: x86 Assembly, ArmV8, Verilog, VHDL

CORE TECHNICAL SKILLS:

- Analog/Digital Circuit Design, PCB Schematic Capture, Power Systems, Oscilloscope and Testing Equipment Use, Embedded Systems, Sensor Integration, Agile Project Workflows, Electronic Systems Testing, Control Systems

EDUCATION

Master of Science in Electrical and Computer Engineering

Graduated: May 2025

Concentration in Smart Grids and Power Systems

Lewis University, Romeoville, IL

GPA: 4.0/4.0

Bachelor of Science in Computer Engineering

Graduated: May 2024

Lewis University, Romeoville, IL

GPA: 3.8/4.0

Minors: Mathematics and Mathematical Modeling

EXPERIENCE

Engineering Graduate Assistant

January 2022 – May 2025

Department of Engineering, Computer, and Mathematical Sciences, Lewis University, Romeoville, IL

- Delivered technical instruction and code-level debugging support, reinforcing core engineering concepts while developing public-facing lab documentation and tutorials.
- Maintained and configured laboratory infrastructure, including 3D printers, PCB mills, CNC mills, and laboratory testing equipment.
- Supported departmental outreach and engineering showcases, demonstrating lab projects and representing the department.

Research Assistant

January 2023 – May 2025

Department of Engineering, Computer, and Mathematical Sciences, Lewis University, Romeoville, IL

- Developed a real-time monitoring platform for a smart laboratory system using a Python client/server architecture, integrating camera feeds and synchronized data collection across networked lab stations.
- Implemented a position-mapping system using camera intrinsics for student X/Y coordinate computation and automatic station assignment.
- Integrated Raspberry Pi units and current sensors for real-time current tracking to monitor circuit activity.
- Deployed programmable multimeters via station monitors, enabling automated measurement scripts and backend data forwarding.
- Contributed to system-level integration of safety and automation features, including wristband compliance and facial/action recognition.

PROJECTS

Electric Autonomous Vehicle: Lewis University Capstone + Master's Project

- Led development of an electric go-kart with AI-assisted braking, overseeing hardware integration, control systems, and team coordination in a Scrum-based environment.
- Engineered a 48V, 200A power delivery system, including parallel battery pack configurations, BMS integration, and CAN bus communication for RPM data.
- Implemented DC-DC power conversion using a buck converter to supply low-voltage onboard electronics.
- Designed and integrated a custom PCB supporting GPIO-based microcontroller relay switching for braking actuation.
- Validated system performance using MATLAB/Simulink simulations and hardware-software debugging.
- Spearheaded software integration of AI object recognition/tracking with physical control execution via a C++/Python IPC framework (Named Pipes, multiprocessing queues).
- Authored and approved technical documentation, including schematic-level wiring diagrams, testing protocols, and verification plans.

Autonomous Drone: Object-Oriented Programming Final Project

- Assembled quadcopter with Pixhawk flight controller, GPS, telemetry, ESCs, and brushless motors.
- Developed autonomous flight logic in Python (DroneKit) with takeoff, waypoint navigation, and return-to-launch.
- Provided embedded hardware and control systems expertise to assess drone programming in CS curriculum.

Resistor Sorter: Hardware and Software Systems Final Project

- Developed camera vision system with OpenCV on Raspberry Pi to classify resistor color bands.
- Automated sorting with stepper motors and conveyor mechanisms for precise resistor positioning.
- Earned 2nd place at IEEE Electro Information Technology (EIT) 2023 poster competition.

PRESENTATIONS

- **2025 ACCA Student Symposium** (April 2025) — "Dynamic All-Electric Vehicle with Intelligent Devices"
Presented a Master's project on integrating AI with electric vehicle systems for intelligent object recognition, tracking, and smart braking.
- **2023 IEEE International Conference on Electro Information Technology** (May 2023) — "Computer Vision for Use in Resistor Sorting"
Poster session on the development of a vision-based resistor sorting system for efficient electronic component identification.

AWARDS AND HONORS

- 2024 Senior Department Award for Computer Engineering.
- Employee of the Year, 2023-2024 ECEN department
- Bachelor of Science, magna cum laude (GPA: 3.8/4.0).
- 2nd Place – IEEE EIT Poster Competition for Resistor Sorter Project
- St. John Baptist De La Salle 4-year Full Tuition Scholarship.

LEADERSHIP AND ACTIVITIES

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| • Electric Vehicle Team, Lewis University
<i>Project Manager</i> | January 2021 - May 2025 |
| • IEEE Club, Lewis University | March 2025 - May 2025 |
| • Robotics Club, Lewis University | September 2022 - May 2024 |
| • Drone Development Team, Lewis University
<i>Project Manager</i> | April 2022 – May 2022 |