Andrew Zeng

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EDUCATION

Northeastern University **Boston, MA**
B.S. in Electrical Engineering, Minor in Computer Science *May 2028*
Honors: NU College of Engineering Merit Scholarship, Global Scholars Program
Activities: NU Lunabotics, Students for the Exploration and Development of Space, Club Golf, Club Spikeball
Relevant Coursework: Embedded Design, Discrete Structures, Fundamentals of CS I & II, Computing for Engineers

SKILLS

Languages: Python, C, C++, MATLAB, JavaScript/TypeScript
Hardware & Test: Oscilloscope, DMM, Power Supply, Soldering, Crimping, PCB Design, Circuit Design + Debugging
Tools & Systems: FMCW Signal Processing, Microcontrollers, Ladder Logic, I²C, CAD, Unix/Linux, Git, Github

EXPERIENCE

Electrical Engineering & Test Engineering Co-op **New York, NY**
Opentrons Labworks Inc. *July 2026 – Present*
- Supported test planning, execution, and reporting for robotic subsystems & modules from prototype through production release
- Created a Hall-effect measuring system spanning subsystem design and firmware integration, analyzing tip-offset to ~0.03mm
- Built and debugged circuits, PCB's and fixtures using oscilloscopes, DMM, and power supply, with rapid prototyping concepts

Electrical Engineering Intern (OEM Parts Division) **Pittsburgh, PA**
Westinghouse Electric Company *April 2026 – July 2026*
- Designed mechanical and electrical hardware for breaker product lines servicing AP1000 and operating PWR nuclear plants
- Built automated stress-testing device cycling breakers through continuous linear actuation, ensuring lifetime of 1000+ cycles
- Performed root-cause failure analysis on returned circuit breakers, identifying defects and revising refurbishment procedures

Research Intern **Ann Arbor, MI**
University of Michigan *May 2025 – August 2025*
- Fine-tuned and integrated YOLO models in Python on imagery to build a perception pipeline for autonomous-driving systems
- Designed, engineered and programmed RC car with advanced perception and control systems capable of autonomous driving
- Presented model results and perception findings into university lecture content in collaboration with faculty and research staff

PROJECTS

Hall-Effect Measurement System (Opentrons) *July 2026 - Present*
- Design Hall-effect sensing system to measure pipette-tip offset across varying tip geometries for liquid-handling lab robots
- Iterate magnet shape, sensor selection, placement, and orientation through in-fixture testing to characterize sensor response
- Write Python test scripts interfacing with robot firmware and issuing Unix-level commands to automate sensor data collection

Circuit Breaker Stress Testing Device (Westinghouse Electric) *May 2026 - July 2026*
- Modeled frame and switch-flipping linkage, using FEA to validate against 100+ lb breaker weight and operational shock loads
- Developed integration of linear actuator, control system, limit switches, load cell, and power distribution for automated cycling
- Programmed PLC ladder logic for cycle counting, end-of-travel interlocks, and fault handling across automated test sequence

FMCW Radar (Personal) *Feb 2026 - Present*
- Design and implement an FMCW radar system, capturing raw IQ data and processing it through a custom Python DSP pipeline
- Develop and validate signal processing algorithms (FFT-based, Doppler, detection, tracking) using Python on raw IQ data
- Integrate end-to-end hardware and software, producing live demos, technical documentation, and radar visualizations

Custom Bus PCB (Northeastern Lunabotics Team) *Jan 2026 - Mar 2026*
- Designed a custom I²C backbone PCB in KiCad to coordinate sensor boards across the sensor and power stack of the rover
- Created full KiCad schematics with signal routing, connectors, and interface logic for reliable inter-board communication
- Implemented a power-management architecture distributing regulated power to sensor components across the board

Self-Driving RC Car (Personal) *May 2024 - Aug 2024*
- Designed in AutoCAD and fabricated a 3D-printed, laser-cut chassis built around Arduino Nano hardware and onboard sensors
- Achieved autonomous navigation using a pre-trained YOLO perception model with live ultrasonic and IR sensor feedback
- Programmed vehicle in Python, integrating Arduino-based sensor feedback with the AutoCAD-designed chassis components