Edward M Kim

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EDUCATION

Carnegie Mellon University Pittsburgh, PA
Bachelor of Science in Electrical and Computer Engineering May 2029
QPA: 3.89

EXPERIENCE

Carnegie Mellon Racing FSAE

Low Voltage Battery Management System Co-Lead May 2026 - Present

- Designed a 4-layer Battery Management System board for a custom 24V battery with Altium Designer
- Implemented a 500 kbps CAN interface used to communicate with and flash the onboard STM32
- Added current sense and charging circuitry while keeping to mechanical restraints
- Designed custom NMOS implementation of a lockout relay to resolve body diode issues during charging
- Managed 4+ watts of heat dissipation using thermal vias and 1oz copper throughout all layers
- Mitigated EMI impact from 42.6 amps of current using unbroken ground planes and via stitching

Grounded Low Voltage Subteam Member Aug 2025 - Aug 2026

- Integrated the electrical systems connecting the sensor suite and compute responsible for driverless operations
- Documented 300+ cross-car connections and created electrical harness for the 2026 car

CMU Robotics Institute Biorobotics Lab - Eigenbot Project Feb 2026 - Present

Undergraduate Research Assistant

- Researched kinematics of modular robots using combinations of locomotive modules on the Eigenbot platform
- Debugged six legs of five modules each using oscilloscopes, DMMs, and variable power supplies
- Isolated intermodule communication failures to faulty spring connectors, improving reliability of system

Georgia Tech CRAB Lab Jun 2024 - July 2025

Internship

- Researched bipedal robot locomotion on granular slopes to increase stability in extreme environments
- Designed retractable cleats to allow shallower gaits which improved stability at slopes up to ± 30 degrees
- Performed data analysis with MATLAB to evaluate gait efficiency and applied results to improve foot design

FRC Robotics: Team 1683 Techno Titans Aug 2021 - May 2025

Electrical Lead

- Managed the design of 12V electrical systems for the team robot focusing on maintenance accessibility
- 2-time event winner, 3-time World Championship qualifier, 6-time event finalist
- Won Impact, Engineering Inspiration, Excellence in Engineering, Industrial Design, and Quality Awards

ACTIVITIES

Build18 (Hackathon) (Astera Labs' Choice Award) Jan 2026

- Designed a cable-driven whiteboard drawing robot capable of replicating images
- Created an edge detection + pixel following algorithm along with kinematics for the cable motion

MakeMIT (Hackathon) (Best Use of Gemini API Award) Feb 2026

- Made a vision-assisted automated sorting trash can with a visual display and tracker
- Used Gemini API to prompt sorting of items from a video stream of the trash can

Red Robot Hackathon (1st Place) Nov 2025

- Designed a robot in 48 hours to compete in a game revealed at the start of the event
- Coded custom drive control schemes along with three distinct autonomous functions

SKILLS

Skills & Tools: Altium, KiCAD, LTSpice, Oscilloscopes, DMMs, Wave Generators & Variable Power Supplies
Programming Languages: MATLAB, Java, Python, C/C++
Languages: Fluent English, Proficient Korean