

ERIC HOU

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EDUCATION

PURDUE UNIVERSITY, West Lafayette, IN

Present - Dec 2027 (Expected)

- GPA: 3.94 / 4.00 | B.S. Electrical Engineering, College of Engineering
- Selected Coursework: Digital System Design, Advanced C Programming, Operations Research - Optimization

EXPERIENCES

Avionics Engineer

Present

Active Controls | Purdue Space Program (PSP)

- Designed battery charging and DAQ electronics for TOAD ground support equipment(GSE), w/ mixed-signal measurement & telemetry interface
- Piloted power monitoring and control PCB design for ASTRA, self-stabilizing/landing EDF vehicle
- Integrated and wired thermocouples, pressure transducers, force cells, valves, and instrumentation for thruster test stands at Zucrow Propulsion Labs

Hardware/Electrical Engineer

Aug 2025 - Dec 2025

Purdue Embedded Systems | SlayterHIL Project

- Prototyped and assembled communication and power distribution PCBs, refining power topology and validating designs through LTSpice
- Enabled reliable DUT interfacing with modular test node hardware for hardware-in-the-loop (HIL) testing of drone flight controller

Hardware Co-Captain

Jul 2021 - Jun 2025

FIRST Robotics Team 13356

- Led end-to-end hardware development, including CAD, manufacturing, and validation for robot subsystems in competitive robotics seasons
- Guided team to #3 in California, Top 30 worldwide; Qualified for Maryland Tech Invitational (top 0.5% of 7000+ teams) three years running
- Developed and shipped 300+ custom STEM kits to organizations; Authored and taught CAD and programming curricula internationally

Head of Computer Science & Board of Director

Sep 2021 - Jan 2024

LEARNIFY+ Nonprofit

- Managed a 50+ member tutoring organization delivering technical courses to 200+ students across 10 states and 4 countries
- Authored and standardized curricula in Java, Python, and web development, contributing 650+ total volunteer hours

RESEARCH

First Author - Development of Vertical Climbing Robot

Sep 2023 - Dec 2024

IEEE IRC 2024 Conference

- Developed the world's first quadruped robot capable of climbing vertical surfaces using adaptive suction, achieving 9 lb payload capacity
- Integrated vacuum and servo control PCB; developed a custom lightweight carbon-fiber, polycarbonate, and 3D-printed chassis
- Implemented LiDAR-based 3D localization on Raspberry Pi and inverse-kinematics trajectory planning, enabling stable multi-planar traversal

Robotics Research Assistant - TRACE Lab

Present

- Developed low-level firmware for STM32 microcontrollers, implementing ADC and DMA drivers to interface with high-level soft-sensor software

Semiconductor Research Assistant - Zhu Lab

Present

- Operating and commissioning molecular beam epitaxy (MBE) machine to create and grow single-crystal thin semiconductor films and study behaviors of exotic 2D materials

Machine Learning Research Assistant

Aug 2021 - Jun 2023

Aspiring Scholars Directed Research Program

- Applied Quantum annealing and ML to isolate particle jets in high-energy particle collisions, developing regression pipelines and neural networks with Python and physics-informed feature engineering, in a selective (<15% acceptance) research cohort.

PROJECTS

5-Stage Electromagnetic Coilgun

Jan 2025 - May 2025

- Engineered multistage coilgun using Fusion 360 and KiCad, including isolated high-current supercapacitor discharge PCBs
- Implemented Raspi controlled digital potentiometer for adjustable boost-converter voltage to supercapacitors, enabling variable launch distances
- Integrated Time of Flight (ToF) sensor for stage synchronization, achieving a 1.7 m range with a 1 lb payload

Autodesk Fusion 360 Wire Generator Plugin

Oct 2023 - Feb 2024

- Developed plugin to generate & sweep configurable spline paths around bodies, using geometric constraints & Rodrigues' rotation for wire modeling
- Delivered production-ready extension adopted by 4,000+ users worldwide and rated 5 stars on the Autodesk App Store

SKILLS

Design / Manufacturing: Altium Designer, Fusion 360 CAD/CAM/FEA/Drawings(GD&T), KiCAD, LTSpice, CNC Milling & Waterjet

Code: C, Verilog, MATLAB, Python, Git, Java