ETHAN LIU

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EDUCATION

Bachelor of Science in Computer Engineering   Expected: May 2026
The Pennsylvania State University
Relevant Coursework: Embedded Systems Application Development, Microprocessors & Embedded Systems, Data Structures & Algorithms, Computer Architecture, Operating Systems, Communication Networks, Signals & Systems, Systems Programming, Object-Oriented Programming, Digital Design, Computer Organization & Design

SKILLS

Programming Languages: Java, JavaScript, Python, C++, C, C#, Rust, Verilog, Assembly, SQL
Human Languages: English (Native), Chinese (Native), Spanish (A2)
Tools: Xilinx Vivado, NI LabVIEW, Git, Linux, Windows, Android, React Native, MonoGame, Office 365, Azure, Jira, ThinLinc, Confluence, Snowflake, Arduino, GDB, Flask, CSS, HTML

RELEVANT EXPERIENCE

Iridium Communications: Satellite Network Operations Center   August 2025 – Present
Satellite Operations Intern; Leesburg, VA
- Designed and implemented automated unit tests for company websites using Selenium, reducing manual verification time and increasing overall test coverage for operational workflows

Iridium Communications: Satellite Network Operations Center   May 2025 – August 2025
Satellite Operations and Space Engineering Intern; Leesburg, VA
- K-Band Team: Streamlined K-band software used in Iridium's satellite crosslink system, enhancing internal tools for more efficient data retrieval, diagnostics, and anomaly identification across the global satellite network
- Operations Team: Developed tools to optimize daily satellite operations such as health monitoring and optimizing the software upload process to improve efficiency and deployment reliability

The Pennsylvania State University: Math LA Program   August 2024 – Present
Multivariable Calculus Learning Assistant; University Park, PA
- Collaborate with professors to support instruction and provide in-class assistance
- Lead weekly evening sessions to reinforce course concepts and facilitate peer learning

The Pennsylvania State University: School of Electrical Engineering   August 2024 – Present
Electrical Engineering Lab Assistant for Circuits and Devices; University Park, PA
- Assist with laboratory setup, equipment preparation, and real-time troubleshooting for student experiments

PROJECTS

IridiumNOW IDE | *Python, Javascript, Arduino, C++, CSS, HTML*
- Developed a full-stack IDE to simplify programming for the Iridium 9704 Development Kit using Arduino
- Automatically generates corresponding Arduino firmware code from blocks to support beginners—ideal for high school and early college students working with satellite-connected hardware
- Engineered a user-friendly interface featuring drag-and-drop block diagrams (inspired by Scratch), allowing users to visually configure sensors with labeled images

Pipelined CPU | *Verilog, FPGA, Xilinx Vivado, MIPS*
- Built a 32-bit 5-stage pipelined MIPS CPU (IF, ID, EXE, MEM, WB) with data forwarding and hazard management
- Demonstrated support for a wide range of MIPS instructions on FPGA

Karaoke Mixer | *NI LabView, Breadboarding, Soldering, PCB*
- Developed a 5-block karaoke mixer circuit including treble/bass control using Baxandall tone filters
- Integrated volume control with 4-LED voltage ladder for visual feedback; final version soldered onto a PCB

INVOLVEMENT

Member, *Robotics Club – Penn State,* Penn State University
Member, *Institute of Electrical and Electronics Engineers – Nittany Chapter*, Penn State University