Ethan Gruening

Ames, Iowa, United States ✉ ethgru@iastate.edu 📱 319-529-2344 in/ethan_gruening 🌐 ethan5026.github.io/personal/

EDUCATION

Bachelor of Science in Software Engineering

Minor in Cyber Security · Iowa State University · Ames, IA · May 2025 · 3.92

· Dean's List – Fall 2022, Spring 2023, Fall 2023, Spring 2024

Masters of Science in Artificial Intelligence

Iowa State University · Ames, IA · May 2026

SKILLS

Advanced Skills: AWS, React, circuit design, embedded systems, and network defense.

Languages: C, Java, JavaScript, Typescript, Python, Latex, Verilog, and assembly.

EXPERIENCE

Software Engineering Intern

Principal Financial Group   **May 2023 – August 2024, Des Moines, Iowa**

· Collaboratively contributed to the Disability Intake team's mob programming, prioritizing test-driven development.

· Independently developed and presented new features within the Disability Intakes webpage using a combination of Typescript React and AWS services.

· Competed in Principal's Intern Code Jam 2024 and placed as a finalist.

Undergraduate Research Assistant

NWChemEx, Ames Laboratories   **May 2023 – May 2024, Ames, Iowa**

· Integrated the existing backend functionality of a plugin-based modular software into an IDE as a front-facing product.

· Within a Python interface, the IDE can link together desired modules, make intuitive suggestions, and construct a compatible module execution order.

· The IDE is tested and built within CMake, integrating into the plugin design of NWChemEx.

Tutoring

Academic Success Center, Iowa State University   **August 2023 – January 2024, Ames, Iowa**

· Completed training emphasizing peer education techniques using collaborative and active learning strategies.

· Structured 90-minute tutoring sessions weekly, aligning with professor notes, exam structure, and individual needs within the group.

· Subjects tutored include Chemistry For Engineers (CHEM 167), Digital Logic (CPRE 281), and Discrete Computational Structures (COMS 230).

PROJECTS

MIPS Processor

Computer Organization and Assembly Level Programming – CPRE 381 · January 2024 – May 2024

· Individually created a Verilog processor and memory storage supporting the execution of the binary MIPS assembly instructions.

· Three distinct processor types were made to evaluate accuracy, reliability, and latency: single cycle, multicycle, and pipelined processor.

· The pipelined processor used a series of caches partnered with control and dataflow exceptions to execute at a max cycle time of 23ns.

Virtual Internal Network

Cybersecurity Techniques – CYBE 230 · August 2023 – December 2023

· Created an internal network of virtual machines under private IP addresses.

· Machines included a mail server, internal DNS server, external DNS server, directory service, two web pages, desktop, and firewall.

· A pfSense firewall manages the port forwarding and monitors possible security breaches. Testing with simulated attacks.

Roomba Ice Cream Truck

Embedded Systems – CPRE 288 · August 2023 – December 2023

· Injected a C program integrating the Roomba sensors, motors, and buttons to navigate a simulated 10x10 city and sell ice cream.

· To detect a person, sonar scanners sense and differentiate between large and small objects.

· Motors and bumper sensors help navigate safely to the customer and display a GUI to distribute their ice cream choice.

· All statistical data is sent over a wireless connection to update the sales, mileage, and stock.