Samuel Barnabase

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Education

Iowa State University **Expected Graduation: May, 2027**

Bachelor of Science in Electrical Engineering, Minor in Computer Science *Ames, IA*

GPA: 4.0/4.0

Relevant Coursework: Data Structures and Algorithms, Digital Logic Design, Electric Circuits, Object-Oriented Programming

Honors & Accomplishments: Top 2% of Class, Dean's List, Loyal Scholar, Dean's Excellence Scholarship, University Honors Program

Experience

Undergraduate Research Assistant **January 2025 - Present**

Iowa State University *Ames, IA*

- Assisted in the deployment of a monitoring system for devices in the ARA wireless lab to track device performance and health.
- Worked with LibreNMS and Netdata to monitor devices across multiple platforms, enabling real-time analytics and historical data retrieval.
- Integrated a USB temperature sensor device to configure data collection for accurate environmental monitoring.
- Utilized Docker and Linux to containerize and optimize the monitoring system, streamline deployment, and improve scalability.

UX/UI Intern **June 2023 – July 2023**

Innovate 120 *Maquoketa, IA*

- Collaborated with GAF to enhance roofer safety using AI, improving hazard detection and reducing risk.
- Led a team of 3 to design a mobile app and wearable mock-up in Figma and Adobe for better safety.
- Improved strategic thinking, teamwork, and communication skills, while ensuring a smoother project execution.

Projects

Time & Temperature Display System | Embedded Systems, Atmega Microcontroller, PCB Design, RTC Module **November 2024**

- Developed an embedded system with an Atmega microcontroller to display real-time temperature and time.
- Integrated a temperature sensor and op-amp for accurate room temperature detection and signal conditioning.
- Introduced an RTC module with a lithium backup to maintain accurate time without external power.

Carpooling Web App | MERN stack, RESTful APIs, TailwindCSS, AWS S3, JWT, Redux **July 2024**

- Built a full-stack carpooling web application using MERN stack, designed for ISU students to find and share rides easily.
- Optimized CRUD and search in MongoDB, allowing users to filter, sort, and manage rides seamlessly.
- Deployed the application on the Render platform and integrated AWS S3 Bucket for image handling, reducing image upload and retrieval time by 60%.

CLI Chatbot | NodeJS, OpenAI **June 2024**

- Developed a terminal based chatbot by leveraging OpenAI's 3.5 turbo model, designed to be used when ChatGpt is at maximum capacity.
- Implemented a functionality to save and log all conversation between the bot and the user.
- Integrated a code snippet saving feature, allowing users to store and retrieve code examples within the chat interface for future reference.

Technical Skills

Languages: Java, Python, C/C++, JavaScript/TypeScript, HTML/CSS, TailwindCSS, Verilog, PLC programming
Developer Tools: Oscilloscope, function generator, Docker, Linux, LTSPICE, Quartus Prime, ModelSim Questa
Certifications: AWS Certified Cloud Practitioner

Leadership / Extracurricular

IEEE **January 2025 – Present**

Events Chair *Iowa State University*

- Planned and hosted company info sessions, guest lectures, and career development events to benefit IEEE members.
- Coordinated events and collaborated with industry professionals to enhance member opportunities.

Tau Beta Pi: *Member* —Recognized for academic excellence in Engineering at Iowa State University, ranking in the top 1/8th of the junior class.

IEEE HKN Eta Kappa Nu: *Member* —Acknowledged for leadership and academic achievement, placing in the top 1/8th of the Electrical Engineering junior class at Iowa State University.