Samuel Barnabase

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Education

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

Bachelor of Science in Electrical Engineering, Honors Program *Ames, IA*

GPA: 4.0/4.0

Honors & Accomplishments: Texas Instruments Scholarship Recipient, Tau Beta Pi Engineering Honor Society, IEEE-Eta Kappa Nu, President's List, Dean's List, Loyal Scholarship Recipient

Experience

Boeing Research Fellow **August 2025 - Present**

Iowa State University *Ames, IA*

- Awarded a year-long Boeing-sponsored research fellowship with mentorship from industry engineers.
- Conducting research under Dr. Degang Chen, working on the design of low-cost ultra-small DACs (Digital to Analog Converters).
- Using Cadence Virtuoso for DAC circuit simulation, designing PCBs, and performing lab testing to validate research prototypes.

Electrical Engineering Intern **June 2025 – Present**

Arconic *Davenport, IA*

- Programmed and modified Rockwell Logix 5000 PLCs using ladder logic, and configured HMI systems to support automation and process improvements.
- Resolved critical stitcher issue by analyzing data in ibaAnalyzer, pinpointing faulty component, and updating PLC code which eliminated downtime and prevented future issues.
- Integrated an AI tool (LogixAI) for slip detection by collecting and preparing machine data for training, which improved detection speed and reliability by 90%.
- Gained hands-on experience with PLC programming, HMI configuration, data analysis, and reading electrical schematics.
- Contributing remotely to ongoing process improvements, PLC/HMI updates, and automation projects after summer internship.

Undergraduate Research Assistant **January 2025 - May 2025**

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 Graylog to monitor devices across multiple platforms, enabling real-time analytics and historical data retrieval.
- Utilized Docker and Linux to containerize and optimize the monitoring system, streamline deployment, and improve scalability.

Projects

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

- Built an embedded system with a team of 3 using an Atmega microcontroller to display real-time temperature and time.

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.

Leadership / Extracurricular

IEEE Iowa State University Chapter **January 2025 – Present**

Events Chair *Iowa State University*

- Planning and executing guest lectures and workshops to support student engagement and learning.
- Collaborating with the PR team to boost attendance by 30% and enhance student engagement in engineering topics

Technical Skills: MATLAB, Java, Python, C/C++, Verilog, PLC programming
Developer Tools: Cadence Virtuoso, Altium Designer, KiCad, Oscilloscope, Linux, LTSPICE, Quartus Prime, QuestaSim
Certifications: Altium Education PCB Basic Design Course, AWS Certified Cloud Practitioner