# Samit Madatanapalli

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US Citizen

## EDUCATION

The Pennsylvania State University | College of Engineering — Expected Graduation: 05/2026
- B.S. in Computer Engineering — *University Park, PA*
- Dean's List 2023-2024-2025 — GPA: 3.46

## WORK EXPERIENCE

**Honeywell** 05/2025 – 08/2025
*Intern - Software Engineer* *Pittsburgh, PA*
- Designed and deployed a mobile device free fall feature for the Honeywell embedded Linux devices, implementing real-time sensor processing in C and validating functionality through drop testing using specialized equipment
- Reverse-engineered legacy battery charger systems by analyzing MCU-to-battery communication (I2C, UART, 1-Wire) using Saleae logic analyzers, Perl scripts, and DMM, enabling preservation of critical functionality in next-generation chargers and ensuring safe, reliable operation with both new and legacy batteries
- Developed Python and shell scripts to capture Adaptive Frequency Hopping (AFH) data from a Honeywell Bluetooth headset connection and convert logs into 2D channel map visualizations, supporting efforts to understand RF behavior behind a major customer-reported connectivity issue
- Automated performance log analysis by building a Python tool to extract and visualize performance metrics from Honeywell embedded Linux device logs, streamlining debugging workflows and eliminating manual analysis for the electrical team

**Flourish: Grow with Self-Care (Startup – Selfcare mobile app)** 01/2025 – 05/2025
*Intern - Full Stack Mobile Application Engineer*
- Led end-to-end development of the "Plants Encyclopedia" screen, crafting an animated, interactive UI with expandable dual-card layouts, horizontal scrollable selections, and a live search bar using JavaScript and React Native
- Built and integrated backend services with Appwrite and Python, merging plant metadata and user preferences to deliver dynamic, personalized content across platforms
- Collaborated closely with product and design teams to translate feature requirements into intuitive user interfaces, ensuring alignment with the app's visual identity and user experience goals

**Persistent Systems** 05/2024 – 08/2024
*Intern - Data Engineer Mentee*
- Refactored and optimized my personal AI Fitness Tracker project using enterprise-grade tools like ER/Studio, SQL, and Excel to align with professional data modeling and governance standards
- Designed normalized database schemas to support scalable storage of user health metrics, dietary inputs, and AI-generated nutritional analysis, improving query efficiency and data integrity
- Collaborated with mentors in daily syncs to refine workflows and apply best practices in data transformation and reporting

## PROJECTS

**5-Stage Pipelined Processor with Hazard Detection and Forwarding** 08/2024 – 12/2024
- Designed and implemented a pipelined processor in Verilog using Vivado, integrating core modules like ALU, control unit, memory, and hazard/forwarding logic to support 5-stage execution
- Verified functionality through waveform analysis and iterative debugging, ensuring accurate instruction execution under data/control hazards

**Audio Amplifier Circuit Design Project** 04/2024 – 05/2024
- Designed and built a multi-stage amplifier circuit, including a summing op-amp (stereo to mono), tone filter, voltage divider, LED volume indicator, and fixed-gain amplifier using NPN/PNP transistors
- Validated signal processing accuracy using oscilloscopes, function generators, and industry data sheets
- Presented project to professor and peers, demonstrating functionality, optimizations, and potential applications

**Artificial Intelligence Fitness Tracker Web Application** 07/2023 – 03/2024
- Developed a full-stack fitness tracker using Java Servlets, HTML, CSS, and JavaScript, offering an intuitive and natural interface for users to log health data and receive personalized insights
- Integrated ChatGPT API for natural language dietary input, providing real-time nutritional analysis including calories, protein, and carbohydrates
- Designed and connected a MySQL database to securely store user metadata, enabling custom caloric intake calculations

## SKILLS AND AWARDS

**Skills:** C, C++, C#, Java, Python, HTML/CSS/JS, MySQL, Verilog, Git, Visual Studio, MATLAB, Unity, ER Studio, Eclipse IDE, Multisim, JIRA
**Awards:** National Society of Leadership and Success (NSLS)