Ava Patel

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Education

University of Illinois Urbana-Champaign Aug. 2019 – May 2023
Bachelor of Science in Computer Engineering *Champaign, IL*

- **Relevant Coursework**: Embedded Systems, Digital Signal Processing, Computer Architecture, Machine Learning
- **GPA**: 3.91/4.00
- **Activities**: IEEE Student Chapter (Vice President), Women in Engineering, HackIllinois Organizer

Experience

Firmware Engineering Intern Jun. 2022 – Aug. 2022
Texas Instruments *Dallas, TX*

- Developed and tested firmware for microcontrollers used in IoT applications, optimizing power consumption by **20%**.
- Collaborated with cross-functional teams to integrate communication protocols such as SPI and I2C.
- Created automated testing scripts in Python to validate firmware functionality, reducing testing time by **30%**.
- Documented firmware development processes to improve team efficiency and knowledge sharing.

Undergraduate Research Assistant Jan. 2022 – May 2022
UIUC Embedded Systems Lab *Champaign, IL*

- Worked on a project to design and implement energy-efficient algorithms for wearable medical devices.
- Developed software for ARM Cortex-M processors, enabling real-time monitoring of vital signs.
- Published findings in the **International Conference on Embedded Systems and Applications**.
- Presented research at the UIUC Engineering Expo, earning **Best Undergraduate Research Award**.

Projects

Smart Agriculture System *C++, Arduino, MQTT*
Mar. 2023 – Apr. 2023

- Designed a system to monitor and optimize agricultural conditions using IoT devices.
- Implemented real-time data collection from sensors to monitor soil moisture, temperature, and humidity.
- Used MQTT to transmit data to a cloud-based dashboard for user-friendly visualization.
- Achieved **25% water usage reduction** through automated irrigation based on sensor readings.

Autonomous Robot for Search and Rescue *Python, ROS, OpenCV*
Jan. 2023 – Feb. 2023

- Developed an autonomous robot to navigate and locate victims in simulated disaster scenarios.
- Integrated LIDAR and camera sensors for real-time obstacle detection and path planning.
- Implemented computer vision algorithms using OpenCV to identify human shapes and hazards.
- Achieved **85% success rate** in locating targets during field tests.

Digital Oscilloscope Emulator *Verilog, Quartus*
Oct. 2022 – Dec. 2022

- Designed an FPGA-based digital oscilloscope capable of capturing and analyzing signals up to 1 MHz.
- Implemented features for signal triggering, filtering, and real-time display.
- Optimized Verilog code to ensure high-speed data acquisition and processing.
- Received **highest project grade** in the Digital Signal Processing course.

Technical Skills

Languages: C++, Python, Verilog, SQL

Frameworks: ROS, OpenCV, MQTT

Tools: Quartus, Git, Arduino, MATLAB

Technologies: Embedded Systems, IoT, Signal Processing, Robotics