Ethan Martinez

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Education

University of Rochester Aug. 2019 – May 2023

Bachelor of Science in Electrical and Computer Engineering *Rochester, NY*

- **Relevant Coursework**: VLSI Design, Signal Processing, Embedded Systems, Artificial Intelligence
- **GPA**: 3.87/4.00
- **Activities**: IEEE Student Chapter (Treasurer), UR Robotics Club, HackRochester Organizer

Experience

Hardware Engineering Intern Jun. 2022 – Aug. 2022

Intel Corporation *Hillsboro, OR*

- Developed and tested FPGA-based designs for high-speed data processing, achieving **15% performance improvement**.
- Collaborated with a team to optimize circuit layouts, reducing power consumption by **10%**.
- Implemented simulation environments to validate signal integrity and timing constraints.
- Documented design processes and presented findings to senior engineers, improving project transparency.

Undergraduate Research Assistant Jan. 2022 – May 2022

University of Rochester Embedded Systems Lab *Rochester, NY*

- Contributed to a research project developing low-power wireless communication protocols for IoT devices.
- Designed and tested communication modules using ARM Cortex-M microcontrollers.
- Integrated power management features, extending device battery life by **20%**.
- Published findings in the **Journal of Embedded Systems Research**.

Projects

SmartGrid Controller *Python, MATLAB, Simulink*

Mar. 2023 – Apr. 2023

- Developed a simulation tool to optimize power distribution in smart grid networks.
- Implemented algorithms to balance load distribution, reducing energy loss by **12%**.
- Used MATLAB for power flow analysis and Simulink for real-time simulation.
- Presented the project at the IEEE Power and Energy Conference.

Autonomous Vehicle Prototype *C++, ROS, OpenCV*

Jan. 2023 – Feb. 2023

- Designed an autonomous vehicle capable of navigating complex urban environments.
- Integrated LIDAR and camera sensors for obstacle detection and path planning.
- Implemented computer vision algorithms using OpenCV for traffic sign recognition.
- Achieved **90% accuracy** in real-world navigation tests.

Digital Signal Processor *Verilog, Quartus*

Oct. 2022 – Dec. 2022

- Developed a custom digital signal processor for audio filtering applications.
- Implemented FIR and IIR filter designs in Verilog, achieving real-time processing speeds.
- Simulated and tested designs using Quartus, ensuring functionality and efficiency.
- Received **top grade** for the project in the VLSI Design course.

Technical Skills

Languages: Python, C++, Verilog, MATLAB

Frameworks: ROS, Simulink, OpenCV

Tools: Quartus, Git, MATLAB, ARM Cortex

Technologies: Embedded Systems, IoT, Signal Processing, Autonomous Systems