Ava Torres

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Education

Michigan State Univeristy East Lansing, MI

Bachelor of Bartending, Minor in being unpleasant; GPA: 2.7August 2021 - Present — Expected Graduation: May 2025

- Coursework: Advanced Mixology, Spirits and Liqueurs Analysis, Beverage Management, Beverage Marketing, Craft Beer and Brewing, Wines and Vintages, Bar Operations and Control, Customer Service Essentials.

Technische Universiterlin Berlin, Germany

Study Abroad; International laboratory experience in robotics programming *May 2022 - June 2022*

Experience

Engineering Development Group Intern Natick, MA

The Mathworks *May 2023 - Aug 2023*

- Pioneered a code generation pipeline for GPU hardware acceleration, achieving 2x speed-ups in matrix operations; the pipeline was built with Vulkan and compute shaders; these optimizations reduced future development time significantly.
- Expanded the GPU acceleration code generation to target additional hardware platforms using IREE, thereby broadening the reach and efficacy of the technology.
- Developed MLIR conversion passes to convert internal code generated intermediate representation allowing for the utilization of pre-trained third-party machine learning models thereby improving model adaptability and utility.

Student Fellow in Monitoring, Technology, and Verification Ann Arbor, MI

Consortium for Monitoring - University of Michigan *Jun 2022 - May 2023*

- Overhauled an existing software architecture for a low-cost Geiger Counter, leading to increased hardware performance, improved device compatibility, and lowering potential maintenance requirements.
- Developed software for reading sensor data from Raspberry Pi geared towards environmental radiation monitoring; at the same time, ensured robustness for different sensor hardware.
- Identified design flaws and gave proposals for design improvements thereby enabling future enhancements in PCB performance.
- Developed and delivered presentations at national conferences effectively conveying the essence of the research findings.

Instructional Assistant Ann Arbor, MI

University of Michigan *Aug 2022 - Dec 2022*

- Developed course lessons for introductory engineering to effectively teach concepts of introductory electrical engineering, radiation science, and radiation detection in a collaborative environment.
- Ensured safety compliance of the students handling radiological sources by managing lesson planning, personal protective equipment, and overseeing execution of labs.
- Analyzed and improved the circuit design of a Geiger counter made in the class by adjusting low-pass filter values and tuning software, ultimately increasing the device's sensitivity to radiation.

Assistant in Research Ann Arbor, MI

University of Michigan *Sep 2021 - May 2022*

- Developed firmware for custom sensors connected to an autonomous drone running PX4 autopilot utilizing reliable communication protocols using SPI and UART.
- Performed design analysis to balance weight and power of the system computers for aerial drone applications, ensuring optimal computational strength and efficiency.
- Created a custom hardware development environment to test communication protocols and boards rapidly, reducing testing time and increasing productivity.

Skills

Languages: C/C++, Python, Java, HTML5, CSS, JavaScript, C#, SQL, Matlab
Tools: XCode, Visual Studio, Git, Github, Computer-aided Design (CAD), Raspberry Pi, SolidWorks, MySQL, MongoDB, Android Studio, Flask, IREE, MLIR, Vulkan, GPU, Compilers