Aashay Shah

Irvine, CA, 92617
408-836-5847 | aashay.as99@gmail.com | LinkedIn | github.com/shipp02

Objective Statement

Detail-Oriented Computer Science and Engineering student at UC Irvine with a 3.9 GPA, seeking a challenging software engineering position that leverages my strong systems programming/embedded software skills. Aiming to apply my skills to cutting-edge systems with real-world impact.

Education

University of California - Irvine **Sep. 2021 – Present**
Bachelor of Science in Computer Science and Engineering, GPA 3.9 *Irvine, CA*

- Achieved the distinction of being on the Dean's List during all quarters of my coursework
- Wrote a compiler for a C like language to x86_64 assembly in accordance with the Linux ABI.
- Presented my research projects and received funding from ASTM and UCI UROP for three separate projects
- Analyzed Digital Image Processing systems capable of 3D scene reconstruction (stereo), de-noising and anti-aliasing
- Enhanced MIT's xv6 kernel by writing a user-space thread scheduler, stack tracing, system call tracing, watchdog timers for processes, COW fork, and a network driver (PCIe) for a RISC-V based operating system

Experience

XCelerAI **July 2023 – August 2023**
Software Engineer Intern *Singapore*

- Developed a Customer Relationship Management (CRM) System to streamline on-boarding of new XCelerAI users
- Leveraged AWS services like S3, PostgreSQL RDS, and ECS to run and test the application
- Created data visualization based on the needs of enterprises using data grids and master-detail patterns using Spring
- Engineered RBAC and OAuth systems to limit access to data according to privileges

UCI Rocket Project **September 2022 – Present**
Avionics Engineer *Irvine, CA*

- Resolved long standing style and performance issues with monitoring and data logging system for the rocket using Grafana to aid flexibility and leveraged Grafana's Push API's for soft real-time feedback and performance
- Leveraged RTSP, ffmpeg, and OBS to set up live video streaming for our rocket launch.
- Benchmarked the performance of various time-series database systems like ClickHouse and PostgreSQL to determine best choice for sensor data logging.

Projects

Drone with OpenDroneID Anti-Collision | *ArduPilot, ESP32, Bluetooth, WiFi, Qt, RTOS,ROS, Gazebo* **March 2024**

- Contributed to a system capable of avoiding collisions with other drones based on their OpenDroneID signals.
- Enhanced embedded software to receive OpenDroneID signals and integrated it with Ardupilot autopilot.
- Demonstrated object avoidance, in SIL simulation (using Gazebo and ROS2) and real hardware, using OpenDroneID location data and utilizing bendy ruler variation of Dijkstra's algorithm to allow mission while avoiding the obstacle.
- Orchestrated on-time data delivery and fast updates to drone positions using RTOS scheduling

Live graphing and analysis system | *Go, PostgreSQL, TCP, JavaScript, HTML, CSS, JS, Docker, WebSocket* **June 2023**

- A system capable of incrementally plotting real-time data collected from sensors and performing analysis (linear regression) to provide system insights.
- Used Ping-Pong messages and re-connection with exponential back-off to improve usability and reliability .
- Provided a unified view of data from various data bases like PostgreSQL and ClickHouseDB.

Lox Programming Language | *Java, C++, Truffle Framework, IntelliJ* **September 2023**

- Used recursive descent and Pratt parsing techniques to parse expressions with correct precedence
- Used tree walk interpreter for Proof of Concept and improved speed by 3x with a bytecode VM
- Wrote a precise mark-and-sweep garbage collector to make sure objects get freed.

Technical Skills

Languages: C, C++ (C++20), Assembly, SQL, Python, R, Seaborne, MATLAB
Developer Tools: VS Code, CLion, Git, LLVM Sanitizers, Jira, Oscilloscope, JTAG, GCC, ARM-GCC
Technologies/Frameworks: Google Test, OOP, CMake, OS Concepts, x86, Networking, Buildroot, OpenCV, ROS2, Gazebo, CAN, Protobuf