Shaun Joe Roy

Software Engineer

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Professional Summary

Software engineer with expertise in software architecture and system-level engineering, with a keen interest in computer architecture and OS-level development. Experienced in embedded systems, real-time applications, sensor fusion using standard communication protocols, and direct memory access. Proficient in deep learning, autonomous systems, and GPU-accelerated computing. The background includes aerospace defense projects such as missile simulation and mission planning.

Experience

Software Engineer (C++/Embedded Systems) *Bangalore, India*
LTX LaunchTrax *Mar 2025 – Present*

- Developed embedded communication protocols (I2C, SPI, UART) for real-time sensor fusion and data acquisition from IMUs, pressure, and other sensors for Autonomous Underwater Vehicles (AUVs).
- Improved control algorithms through SIL testing in Gazebo/ROS, reducing response time by 35% and CPU usage by 30% using DMA-based sensor data handling.
- Designed to optimize and accelerate computation-intensive algorithms for missile simulations and electronic warfare (EW) triangulation tasks.

Software Developer Engineer *Bangalore, India*
LTX LaunchTrax *Jan 2025 – Mar 2025*

- Reactive Qt/QML user interface built for mission planning software, streamlining pilot workflows, and reducing operational task time by 35%.
- Streamlined rendering pipeline through code optimization techniques, reducing the scenario generation time by ˜60%.
- Enhanced CI/CD pipelines to improve build consistency and deployment reliability.

Software Engineer Intern *Bangalore, India*
LTX LaunchTrax *Oct 2024 – Jan 2025*

- Engineered a QThread-based C++ pipeline on Linux for IP-layer integration with Honeywell HGuide n380, enabling real-time GPS/IMU data extraction through low-level protocol decoding.
- Worked on mission planning and debriefing software for the Tejas MK1A fighter jet.

Education

Presidency University Bangalore, India
B.Tech in Computer Science and Engineering *Nov 2020 – Nov 2024*

- Thesis on Advanced Heart Health Assessment through Machine Learning Using the KNN Algorithm
- **Coursework:** Computer Architecture, Comparison of Learning Algorithms, Machine Learning, Statistical Methods, IoT.

Projects

Image-Based Search Engine — *Microsoft Azure, Flask, LLMs* *GitHub*

- Built an image search engine using Azure Computer Vision to analyze and retrieve similar images from a Search Index with descriptive tags.

ForageDB — *Qt/QML, Algorithms, System Design, C++* *GitHub*

- Built ForageDB, a C++ relational database with CRUD operations, improving query efficiency by 40%.

Skills

Languages: C, C++, Embedded C, Python, Java, ARM assembly, Swift, Scala, HLSL, GLSL

Frameworks: Qt/QML, Pytorch, TensorFlow, OSG, VSG, SIMDIS, Flask, Spring Boot, Node.js, Metal, Microsoft Azure, Bare Metal Programming (arm-a53), vcpkg, ArcGis, QGis

API: Vulkan, CUDA, OpenGL, ImGui, OpenMP, MPI, xSimd

Tools: ROS, Gazebo, Docker, Linux, CI/CD, NSIS

Protocols: TCP/IP, UDP, gRPC, I2C, SPI, UART, HTTP