SHAUN JOE ROY

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About me

Engineer with specialization in deep learning architecture, autonomous systems, and high-performance GPU-accelerated computing. Specializing in software for embedded systems, GPU-accelerated computing using CUDA and Vulkan. Experienced in machine learning applications and Computer Vision, With a strong background in aerospace defense technology and simulation-based solutions work focuses on creating autonomous systems, with a keen interest in computer architecture and OS-level systems engineering.

Experience

Total Experience - 1.2 years

Application Engineer 1, *LTX LaunchTrax*

Jan 2025 - Present
Bangalore, Karnataka

- Designed and implemented robust embedded communication protocols including I2C, SPI, and UART for seamless integration of sensors (pressure sensors, IMUs) and peripherals, enabling accurate sensor fusion and real-time data acquisition.
- Optimized PID control algorithms for a Control System, performing live tuning and analyzing trade-offs between STM32 and BeagleBone platforms based on processing power, I/O capabilities, and ecosystem fit.
- Worked on dynamic system modeling and guidance algorithms for remote vehicles by performing SIL (Software in the loop) testing for simulations in Gazebo/ROS framework.
- Collaborated across software and hardware teams, quickly adapting to new domains to implement Guidance, Navigation, and Control (GNC) algorithms and advanced sensor fusion techniques.
- Maintained and improved the CI/CD pipeline to enhance build system performance and reliability.

Application Engineer Intern, *LTX LaunchTrax*

Oct 2024 - Jan 2025

- Built and integrated reusable, optimized code for cross-platform development, including embedded devices and GPS navigation systems (using Honeywell HGuide n380).
- Worked on Mission Planning and Debriefing Software for Tejas MK1A fighter jet.
- Worked on simulating navigation scenarios using various statistical-methods.

Education

Nov 2020 - Nov 2024

B.Tech Computer Science and Engineering

Presidency University

- Thesis on "Advanced Heart Health Assessment through Machine Learning Using KNN Algorithm".
- Relevant coursework in Machine Learning and Statistical Methods.

Projects

Image-Based Search Engine | *Microsoft Azure, Flask, LLMs*

- The Image-Based Search Engine project allows users to upload images, which are then analyzed for descriptive tags using Azure's Computer Vision service, the system searches for similar images in an Azure Search Index and displays results, including images and their descriptions, to the user.

Expert AI Healthcare System | *Python, Gradio, PyTorch*

- Led the team that developed a sophisticated machine-learning application for assessing heart health that used the KNN (K-Nearest Neighbours) algorithm.

ForageDB | *Qt/QML, Algorithms, System Design*

- A Simple Relational Database implementing the CRUD functionalities.

Technical Skills

Languages: C/C++, Python, Java, C#, Bash, arm assembly, Swift, Scala
Frameworks & Libraries: Pytorch, TensorFlow, OSG, VSG, SIMDIS, Django, Flask, Spring Boot, JavaFX, Node.js, Metal, Microsoft Azure, Bare Metal Programming (arm-a53)
API: Vulkan, CUDA, OpenGL
Others: Gazebo, Docker, ROS, Linux, Design Patterns (Embedded and Software), NSIS

Languages

English: Proficient, **Malayalam**: Native, **Hindi**: Proficient, **Kannada**: Intermediate