Aahlaad Mantravadi

+91 7702090302 aahlaad.mantravadi@gmail.com
linkedin.com/in/aahlaad github.com/aahlaadmantravadi

Education

International Institute of Information Technology, Naya Raipur **GPA: 8.44/10**
Bachelor of Technology, Computer Science and Engineering *Dec. 2021 – July 2025*
Relevant Coursework: *Object-Oriented Programming, Software Engineering, Deep Learning*

Work Experience

Software Developer Intern ***Feb 2025 – July 2025***
RCI, DRDO
Hyderabad, Telangana, India

- Designed and deployed an **On-Board Computer** simulator in C as a core part of the **testing pipeline** (including on-field drone tests), replacing legacy software that dropped messages at ∼6 KB/s; the new **multi-threaded** design with proper concurrency controls reliably sustained at least ≥96 KB/s.
- Streamlined testing workflows by replacing a multi-step, CLI-based process with a comprehensive **GUI-based** application, reducing operator effort while providing real-time graphs and consistently formatted reports for easier logging, analysis, and downstream use.
- Delivered a standalone Windows executable with no external dependencies, using in-built Win32 API and OpenGL. **Backwards compatible** from Windows XP S2 through Windows 11, ensuring reliable deployment in offline lab environments with a clear, intuitive interface.

Developer Intern ***May 2024 – July 2024***
RCTS, IIIT-Hyderabad
Hyderabad, Telangana, India

- Developed an **Action Recognition** model using the Kinetics-400 dataset for classroom video feeds; addressed low resolution and occlusion via Masked Video Distillation.
- Co-created a **custom dataset** for classroom-behavior and labeling guidelines enabling real-time tracking, individual behavior detection, and group activity analysis.

Projects

C++ Neural Networks | C++, Windows, Visual Studio Build Tools, CUDA, CMake

- Built a modular framework for **deep learning** tasks in C++ using explicit matrix multiplications which included modules such as tensor operations, back propagation, optimizers (SGD/Adam), and activation functions.
- Accelerated training via parallelization of computations on the GPU using the Nvidia **CUDA** Toolkit.
- Developed a GUI using ImGui that processes **natural language** user input to automatically download datasets, generate neural network architectures, and configure training parameters via Gemini API.
- Achieved 99.6% accuracy on MNIST, matching a **TensorFlow** implementation with identical architecture.

RedisCraft | C++, Win32 API, pthreads, TCP/IP

- Engineered a Redis-like in-memory database in C++ with a **non-blocking** event loop using `poll()`; developed data structures including hash maps, AVL trees, and a min-heap for efficient TTL management.
- Architected a **thread pool** to offload expensive operations, eliminating server stalls from large data deletions and guaranteeing high availability under concurrent client loads.

Skills

- **Languages**: C, C++, Python, SQL
- **Cloud**: AWS, Azure, GCP
- **Systems**: Linux, Windows, Win32 API, OpenGL
- **ML/Compute**: CUDA, TensorFlow
- **Tools**: Git, Docker

Extracurricular Experience

- Ranked in **top 1%** (847 out of 1,23,967 candidates) in GATE 2024 (Computer Science).
- Student Head of Institute's Innovation Council *(Jan-Jun 2024)* | Managed innovation events and collaborations.
- Vice President of Ciphercell *(May 2022 – May 2023)* | Conducted cybersecurity sessions and workshops.
- Classical Carnatic Vocalist for more than 10 years and performed at multiple events broadcast live on television.