Aahlaad Mantravadi

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EDUCATION

International Institute of Information Technology, Naya Raipur — CGPA: 8.44/10
Bachelor of Technology, Computer Science and Engineering — *July 2025*
Relevant Coursework: *Object-Oriented Programming, Software Engineering, Operating Systems*

Excellencia Junior College — Percentage: 96.4%
XII Grade - TSBIE — *May 2021*

Sri Chaitanya Techno School — Percentage: 95.8%
X Grade - CBSE — *May 2019*

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 core part of **testing pipeline**, replacing legacy software that dropped data at $\sim 6\,\text{KB/s}$ with **multi-threaded** design sustaining $\geq 96\,\text{KB/s}$ through proper concurrency controls.
- Streamlined testing workflows by replacing multi-step CLI process with comprehensive **GUI-based** application, reducing operator effort while providing real-time graphs and formatted reports for analysis.
- Delivered standalone Windows executable with no external dependencies using Win32 API and OpenGL, **backwards compatible** from Windows XP SP2 through Windows 11 for reliable offline deployment.

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
- **DevOps:** Git, Docker, Linux, Windows
- **Tools/Frameworks:** Win32 API, OpenGL, CUDA, TensorFlow

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.