Aahlaad Mantravadi

+91 77020 90302 | aahlaad.mantravadi@gmail.com
linkedin.com/in/aahlaad | github.com/aahlaadmantravadi

Education

International Institute of Information Technology, Naya Raipur **GPA: 8.49/10**
Bachelor of Technology, Computer Science and Engineering *Dec. 2021 – June 2025*
Relevant Coursework: *Software Engineering, Object-Oriented Programming, Deep Learning*

Work Experience

Software Developer Intern ***Feb 2025 – July 2025***
RCI, Defense Research and Development Organisation
Hyderabad, Telangana, India

- Led development of a **Graphical User Interface** for simulating On-Board Computers in **Avionics Systems**. The software supports multiple communication protocols with error handling for lossless data transmission.
- Built in **C** with **Windows API** for interfacing with hardware and **OpenGL** for real-time data visualization. Designed a **multithreaded** architecture to boost responsiveness and throughput, delivering **60%** improvement.

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

- Developed an **Action Recognition** model using Kinetics-400 Dataset to recognize students' actions in classroom video feeds, while addressing low resolution and obfuscation using **Masked Video Distillation**.
- Participated in creation of a **custom dataset** for 15 behaviors across different classroom settings, enabling fine-tuning of the AI model for real-time tracking, individual behavior detection, and group activity analysis.

Projects

RedisCraft | C++, Linux, Berkeley Sockets API, POSIX Threads

- Built an in-memory database server in C++ from scratch, implementing core **Redis** features including key-value operations, sorted sets, and TTL expiration with heap-based timers.
- Designed **event-driven** architecture using epoll/poll for non-blocking I/O, custom AVL trees for fast sorted operations, and chaining hashtables with progressive resizing for concurrent access.

Linux Debugger | C++, Linux, ptrace

- Developed a command-line debugger in C++ for Linux, implementing process control features like breakpoints, single-stepping, backtraces, and memory I/O using `ptrace`.
- Implemented source-level debugging capabilities by parsing **DWARF** and **ELF** binary formats to map machine code to functions, source lines, and variables.

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

- Architected a Deep Learning **framework** in C++ from scratch, implementing modules such as Forward Pass, Backpropagation, Activation Functions, and Optimizers.
- Parallelized training on GPU architecture using **CUDA** and achieved 83.6% accuracy on the MNIST dataset, matching the performance of a Tensorflow implementation.

Skills

- **Languages**: C, C++, Python, SQL
- **Cloud Technologies**: AWS, Azure, GCP
- **DevOps**: Git, Docker, Linux, Windows
- **Tools & Frameworks**: Win32 API, CUDA, Tensorflow

Extracurricular Experience

- Ranked **847** (**99.32**$^{\text{th}}$ percentile) out of **1,23,967** in Computer Science (**GATE 2024**).
- Student Head, Institute's Innovation Council | *Jan 2024 – June 2024* | Led innovation events and collaborations.
- Vice President, Ciphercell (Cybersecurity) | *May 2022 – May 2023* | Conducted sessions and workshops.
- Classic Carnatic Vocalist for more than 10 years, performing at multiple events broadcast live on Television.