

Aditya Reddy

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EDUCATION

- **Manipal University Jaipur**, Jaipur, India 2024 – 2028
Bachelor of Technology in Electronics and Communication Engineering *Jaipur, Rajasthan*

PROJECTS

Low Latency Trading Gateway | C++, FIX Protocol, Lock-Free Programming GitHub Link

- Built a high-performance trading system in C++ with lock-free queues, memory pools, and CPU pinning to eliminate latency bottlenecks.
- Implemented zero-copy FIX protocol parsing using **state machines** and **string views**, achieving **sub-2µs** parser efficiency with **1.4µs average**.
- Optimized tick-to-trade latency to **10-15 microseconds average** with **2.8µs minimum**, processing **400+ messages** at **98% execution rate**.

HTTP/1.1 Web Server | C, POSIX Sockets, Multithreading GitHub Link

- Built a custom HTTP/1.1 server from scratch in C using raw POSIX sockets and a thread pool architecture, with zero external dependencies.
- Implemented full HTTP request parsing, static file serving, MIME type detection, and protection against directory traversal attacks.
- Benchmarked with ApacheBench: sustained **11.5K+ requests/sec** and **8.7ms average latency** under **100 concurrent clients**.

Laplacian Edge Detection | C GitHub Link

- Developed an image processing tool in C using the Laplacian operator to detect intensity discontinuities in grayscale images.

ACTIVITIES & EXTRACURRICULARS

- Qualified to penultimate round at **Elicit Hacks 9.0 (MUJ)**,
- Completed the **Harvard CS50P Certificate** in Python programming, focusing on problem solving, data structures, and I/O systems.
- Volunteered at **Bison Asha School for Special Needs**, assisting in educational activities and organizing inclusive events over two years.

TECHNICAL SKILLS

- **Languages:** C/C++, Python, Verilog, SystemVerilog, Bash
- **Developer Tools:** Git, Make, Linux CLI, GCC, Shell scripting, LaTeX, GTKWave
- **Technologies/Frameworks:** Verilator, Icarus Verilog, RISC-V Toolchain, Vivado, GTKWave