

ASHUTOSH PANDA

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EDUCATION

Bachelor of Technology in Electronics and Communication

Jun 2023 – Present

National Institute of Technology, Patna

CGPA: 7.69/10

PROJECTS

Plero – AI Code Completion Editor

June 2025

TypeScript, Tailwind, React, OpenAI API



- Built a Retrieval-Augmented Generation (RAG) pipeline with local vector search to improve context grounding.
- Refined token chunking and embedding strategies to lower cost/latency while preserving accuracy.
- Created a performance benchmarking suite to evaluate latency across chat, web, and reasoning workflows.
- Designed a type-safe IPC contract ensuring robust communication between main and renderer processes.
- Reduced inference time via embedding cache implementation and prompt optimizations.

ROC – Client-Server Database

Feb 2025

Rust, quinn, Tokio



- Built an asynchronous key-value database with user-scoped data isolation and crash recovery.
- Implemented secure client-server communication over QUIC protocol.
- Developed core database operations (SET, GET, DELETE, RANGE, LIST) using actor-based concurrency.
- Added Write-Ahead Logging (WAL) for durability and persistent user session management with UUIDs.

x86_64 Operating System

Mar 2025

Rust, bootloader, QEMU



- Implemented VGA text buffer driver for kernel-level text rendering.
- Added CPU exception and interrupt handlers enabling responsive keyboard input.
- Established virtual memory management with 4-level page tables and a bump allocator.
- Designed cooperative multitasking via async/await and a custom task executor.
- Wrote kernel-level integration tests for OS subsystem validation.

Mini TCP – Userspace TCP/IP Stack

Jan 2025

Rust, tshark



- Engineered a minimal TCP/IP stack in userspace with full packet-handling control.
- Implemented parts of RFC 793 compliant TCP state machine from the ground up.
- Created low-level packet parsing for payload extraction, resolving protocol edge cases.
- Developed concurrent connection manager with explicit synchronization to handle multiple TCP states safely.

TECHNICAL SKILLS

Programming Languages: Rust, C++, Python, Go

Familiar with: C, Java, JavaScript, TypeScript

Other Exposure: AWS, TensorFlow, LangChain, PyTorch, React

Developer Tools: Git, GitHub, Docker, Kubernetes, Postman

Coursework: Data Structures, Object-Oriented Programming, Computer Networks

CERTIFICATIONS

Python [Udemy by Jose Portilla]: Developed various programs using Python libraries like web scrapers and automation bots

Jan 2024

Machine Learning [Udemy by Jose Portilla]: Built ML models using Python libraries

Apr 2024

Cloud & DevOps [IT World Education]: Deployed and scaled applications using AWS services

June 2024

POSITION OF RESPONSIBILITIES

Team Gray Interface, HackSlash

Apr 2024 - Present

Administrative and ML Lead

- Collaborated with team members on deep learning models for different disciplines; containerized models for reproducible deployment. Supervised juniors on skill-building tasks and projects, organized events, and managed club operations.