Shreyas Deb

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Education

International Institute of Information Technology, Hyderabad — Aug. 2023 – May 2027
B.Tech. in Computer Science and Engineering (CGPA: 8.71) — *Hyderabad, Telangana*

Alpine Public School, Bangalore — June 2021 – May 2023
CBSE Board (Percentage: 95.8%) — *Bengaluru, Karnataka*

Experience

Undergraduate Researcher — Aug. 2025 – Present
Center for Computational Natural Sciences and Bioinformatics (CCNSB) — *Hyderabad, Telangana*

- Conducting research under **Dr. Vinod P K**, focusing on the computational modeling of complex biological systems through the lens of **Systems and Network Biology**.
- Investigating the intersection of **Deep Learning** and **Network Biology** to **decipher emergent disease mechanisms, integrate multi-omics data, and predict clinical outcomes for precision medicine**.

Software Development Intern — May 2025 – July 2025
MontyCloud — *Bengaluru, Karnataka*

- Built a production-grade **Agentic Suite** for Product Management as part of the **PM360 team**, including a **Spec Writer**, **Meeting Analyzer**, and **Product Value Agent**, increasing PM efficiency by **40%**.
- Designed multi-agent LLM systems using **GraphRAG** pipelines grounded in a **Neo4j Knowledge Graph** with **temporal memory** and **vector search** (via **Azure AI Search**), and deployed them on a fully **serverless AI backend** using **AWS**, with agent workflow orchestration via **AWS Strands** and **MCP (Model Context Protocol)** servers.
- Achieved **80%+ reduction** in spec creation time and **90%+ spec accuracy**; deployed globally (US, EU, India) and delivered robust ingestion pipelines from **Jira**, **Confluence**, and meeting data.

Software Engineering Intern — Jan. 2025 – April 2025
uExcelerate — *Hyderabad, Telangana*

- Developed a scalable **Learning Management System (LMS)** with an enhanced UI and personalized content delivery, increasing user engagement by **35%** and improving average session duration by **25%**.
- Designed and implemented a **modular recommendation system** using hybrid filtering techniques (content-based, collaborative, and interest-based), achieving **80%+ recommendation accuracy** and enabling seamless future expansion for personalized user experiences.

Software Intern — Jan. 2025 – Feb. 2025
Texperia — *Bengaluru, Karnataka*

- Optimized the frontend architecture for the **Playda platform**, achieving a **32% reduction** in average page load time and improving interaction responsiveness by **∼25%** for monthly visitors.
- Contributed to the **U.S. market expansion initiative** by redesigning and localizing U.S.-facing pages, directly supporting a projected **40% increase** in user acquisition at launch.

Projects

AIshA - Advanced Intelligent Shell Assistant | *C, POSIX APIs, OpenSSL, Gemini AI* — GitHub

- Built a fully-featured **Unix shell from scratch in C99** with integrated **Gemini AI**, supporting **40+ built-in commands**, background job control, custom line editing, and natural language command translation.
- Implemented **raw termios-based readline** for auto-completion and history browsing, achieving **zero external dependencies** except OpenSSL for HTTPS API integration.
- Designed **modular architecture** with POSIX-compliant process control (`fork`, `exec`, `waitpid`), signal handling, and custom JSON parsing for AI responses.

Docs++ - Distributed File System | *C, Networking, Concurrency, System Design* — GitHub

- Developed a **distributed file system** with **sentence-level locking** for concurrent edits, achieving **Google Docs-like collaboration** with real-time access control and version management.
- Architected a **3-tier system** with Name Server coordination, multiple Storage Servers, and client connections, implementing **12+ core operations** including streaming, versioning, and hierarchical folders.
- Achieved **data persistence**, comprehensive **ACL-based permissions**, and efficient file search with checkpoint-based version control and undo functionality.

shAI - Natural Language Shell Assistant | *Python, LLMs, Ollama, CLI Tools* — GitHub

- Created a **CLI tool** that translates natural language to bash commands using **local Ollama models (CodeLlama)**, with query validation and safety checks before execution.
- Implemented **3-stage validation pipeline**: query appropriateness check, command safety analysis, and detailed execution reporting with error handling.
- Achieved **local-first privacy** by running entirely on-device without cloud dependencies, suitable for security-conscious environments.

Saathi - AI Mental Wellness Platform | *Next.js, FastAPI, OpenAI, Multi-Agent Systems* — GitHub

- Built a **PWA mental health companion** with **5 specialized AI agents** for active listening, guided coping, multi-disciplinary advisory, privacy safeguards, and local support connections.
- Designed **gamification features** including achievement badges, mood-based Spotify integration, and dynamic color schemes with crisis mode for immediate escalation.
- Implemented **privacy-first journaling** with AI-powered insights, anonymous community forums, and guided reflection prompts for structured self-analysis.

Technical Skills

Languages: C, C++, Python, JavaScript/TypeScript, SQL, Bash, Assembly (RISC-V/x86), Rust, HTML/CSS
Systems & Backend: POSIX APIs, Socket Programming, Multithreading, Linux Kernel, FastAPI, Node.js, Express.js, GraphQL, REST APIs, Redis, MongoDB, PostgreSQL, System Design
AI/ML & Data: PyTorch, TensorFlow, LangChain, OpenAI API, Ollama, RAG (GraphRAG), Vector DBs (Azure AI Search, Pinecone), Neo4j, Scikit-learn, Pandas, NumPy
Cloud & DevOps: AWS (Lambda, Strands, S3), Azure, Docker, Kubernetes, Git, GitHub Actions, Jira, Confluence

Relevant Coursework

Data Structures & Algorithms | Operating Systems & Networks | Computer Systems Organization | Design and Analysis of Software Systems | Statistical Methods in AI | Probability and Random Processes | Linear Algebra | Discrete Mathematics

Leadership & Extracurricular

Tech Team Head Aug. 2024 – Present
E-Cell IIIT Hyderabad

- Spearheaded the technical operations for the Entrepreneurship Cell, maintaining the official server infrastructure and ensuring 98% uptime for portals.
- Managed the technical team for **Megathon**, the largest student-run hackathon in Hyderabad, overseeing registration portals and live event dashboards.
- Assisted in organizing flagship events and workshops, fostering a spirit of entrepreneurship and innovation across the campus community.

Team Member - Open Source Developers Group (OSDG) March 2025 – Present
IIIT Hyderabad

- Contributing to the campus open-source ecosystem by organizing workshops and maintaining student-run projects.