

# Shreyas Deb

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## EDUCATION

### International Institute of Information Technology, Hyderabad

B.Tech. in Computer Science and Engineering (CGPA: 8.71)

Aug. 2023 – May 2027

Hyderabad, Telangana

### Alpine Public School, Bangalore

CBSE Board (Percentage: 95.8%)

June 2021 – May 2023

Bengaluru, Karnataka

## EXPERIENCE

### Undergraduate Researcher

Center for Computational Natural Sciences and Bioinformatics (CCNSB)

Aug. 2025 – Present

Hyderabad, Telangana

- Conducting research on computational models for biological systems, focusing on optimizing algorithms for large-scale genomic data analysis.
- Developing efficient data pipelines using **Python** and **C++** to process high-dimensional biological datasets, integrating statistical methods for pattern recognition.

### Software Development Intern

MontyCloud

May 2025 – July 2025

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

uExcelerate

Jan. 2025 – April 2025

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

Texperia

Jan. 2025 – Feb. 2025

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

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**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

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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

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- Tech Team Head**  
*E-Cell IIT Hyderabad*

Aug. 2024 – Present
- 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)**  
*IIT Hyderabad*

March 2025 – Present
- Contributing to the campus open-source ecosystem by organizing workshops and maintaining student-run projects.