

Rahul B

Computer Science Engineering Student | Full Stack Intern | Systems and Web Developer

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PROFESSIONAL SUMMARY

Computer Science Engineering student with practical experience in full-stack development, systems programming, computer networking, and local AI tooling. Built production-style web interfaces, SDN controller logic, document-processing tools, compression systems, and local LLM orchestration projects using Python, C/C++, JavaScript, React/Next.js, Linux, OpenFlow, and modern developer tools. Completed a 1-month full-stack internship at the Centre of Innovation and Entrepreneurship, PES University, where I developed the MedInnTech course website from scratch. Active on LeetCode, with continued focus on strengthening data structures, algorithms, and competitive programming fundamentals.

EDUCATION

PES University, Bengaluru

Bachelor's Degree in Computer Science and Engineering, B.Tech | Expected 2028

CGPA: 7.6125 as of Semester 4

Base PU College, Sahakarnagar, Bengaluru

Pre-University Education | 2022-2024

Vidya Niketan School Hebbal, Bengaluru

High School, 1st-10th | Completed 2022

EXPERIENCE

Centre of Innovation and Entrepreneurship, PES University - Full Stack Intern

Duration: 1 month

- Developed the MedInnTech course website from scratch, enabling the Medical Innovations and Technologies course initiative to present program details, cohort information, eligibility, FAQs, and student-facing content through a structured web interface.
- Improved course information accessibility across multiple student-facing sections by building responsive pages and reusable content blocks using modern full-stack web development practices.
- Delivered a deployment-ready website experience by implementing UI components, integrating content, debugging layout issues, testing responsiveness, and refining the site based on feedback.
- Maintained an organized development workflow by using Git-based iteration, clean file structure, and incremental feature updates during the internship.

PROJECTS

AI-Orchestration-Layer | Python, Ollama, ChromaDB, RAG, Local LLMs

- Built a modular local-LLM orchestration layer, enabling command-line interaction with tool-calling, autonomous web search, and controlled system-command execution through a Python-based architecture.
- Improved document and knowledge-base querying by implementing retrieval-augmented generation with ChromaDB and sentence-transformers to index and search large documents and local Obsidian vaults.

libdeck39 C Library | C99, Bit Packing, Memory Optimization, Git

- Reduced full-deck memory representation to 39 bytes by engineering a C99 library that encodes a 52-card deck using compact 6-bit card storage.
- Improved card-state handling by implementing stack-based deck operations, bit-packing logic, reusable library functions, and Git/GitHub based package maintenance.

SDN Traffic Controller | Python, Ryu Controller, OpenFlow 1.3, Mininet

- Automated SDN traffic inspection and control by engineering a centralized Ryu controller tested in Mininet with OpenFlow 1.3-based flow-table manipulation.
- Implemented dynamic network policy enforcement by creating match-action rules for firewall access control, traffic routing, packet inspection, and performance logging.

Bit Compress | C, Python, RLE, Huffman Coding, Algorithm Optimization

- Built a lossless binary compression pipeline that improved file-size reduction opportunities by automatically selecting between bit-level run-length encoding and byte-level Huffman coding.
- Increased compression correctness confidence by adding CLI orchestration, compression statistics, and round-trip decompression verification across C and Python workflows.

PPTX and PDF Document Tools | Flask, Python, JavaScript, Docker

- Simplified document-processing workflows by creating a web application for merging PPT/PDF files and converting PPT/PPTX presentations into PDFs.
- Prepared the tool for reproducible deployment by building a responsive dashboard, organizing Flask/Python backend processing, and adding a Docker-ready application path.

COURSEWORK AND FOCUS AREAS

Data structures and algorithms, computer networking, software engineering, database-backed web applications, systems programming, distributed systems, low-level architecture, mathematical modeling, open-source development, and practical full-stack engineering.

SKILLS AND PROFICIENCIES

Programming Languages: C, Python, C++, JavaScript, Bash, SQL/MySQL, MATLAB, Icarus Verilog, Assembly ARM7TDMI and RISC-V

Frameworks and Web: React.js, Next.js, Node.js, Express.js, Flask, MongoDB, Tailwind CSS, responsive UI development

Systems and Developer Tools: Linux Fedora/Ubuntu, Git, GitHub CLI, VS Code, Docker, Ollama, ChromaDB, Ryu, Mininet, GNOME/GNU, AntigraVity

Core Competencies: Distributed systems, socket programming, SDN/OpenFlow networking, memory management, bit packing, RLE/Huffman compression, algorithm optimization, low-level architecture, competitive programming

LANGUAGES AND ACTIVITIES

Fluent in English, Hindi, and Kannada | Open-source project development on GitHub