Parth Mudgal

Software Developer | Delhi, India
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Summary

B.Tech CSE student and Codeforces Specialist with strong foundations in data structures, algorithms, and core computer science. Experienced in building backend intensive applications involving AI agents, RAG, asynchronous job processing, real-time systems, Docker based code execution, and self hosted infrastructure.

Education

Maharaja Agrasen Institute of Technology — Sep. 2023 – Present
B.Tech in Computer Science Engineering — *CGPA: 8.12*

DAV Shreshtha Vihar — 2023
Class XII (CBSE) — *78.6%*

Presidium — 2021
Class X (CBSE) — *94%*

Experience

Wings2Aspirations Start Up India Pvt. Ltd. — Remote
IT Intern – Software Testing / Product Research — *Jun. 2026 – Jul. 2026*

- Performed functional, usability, AI output testing for MakeMyCareer.AI, Classis.ai across authentication, payments, dashboards, recommendations, and usage limits.
- Conducted product research for Haajri.in by analyzing target users, customer pain points, competing solutions, product differentiators, and operational requirements to identify potential product improvements and feature opportunities.

Technical Skills

Languages: C++, JavaScript, TypeScript, Python
Frameworks/Libraries: React, Next.js, Node.js, Express.js, FastAPI, Socket.io
Databases/Tools: MongoDB, PostgreSQL, Redis, Qdrant, Docker, BullMQ, Linux, Git
AI/Backend: AI Agents, RAG, LLM Tool Calling
Core CS: Data Structures and Algorithms, OOP, DBMS, Operating Systems

Projects

HomeServerAI – AI Operations Agent | *Python, FastAPI, PostgreSQL, Qdrant, Ollama, Docker* | GitHub

- Built a bounded AI operations agent that investigates home server incidents by dynamically selecting diagnostic tools based on observations and evolving hypotheses.
- Integrated local LLMs through Ollama with schema constrained tool calling and implemented RAG using embedded operational runbooks stored in Qdrant.
- Designed a FastAPI orchestration layer and separate diagnostic gateway for controlled Docker, HTTP, TCP, Linux, and service level checks without exposing unrestricted shell access to the LLM.
- Added incident, observation, hypothesis, action, and audit persistence in PostgreSQL with execution budgets, validation, approval-gated actions, and post-action verification.

CodeDuel – Online Judge | *React, Node.js, Express.js, MongoDB, Redis, BullMQ, Docker* | Live | GitHub

- Built a full-stack online judge that accepts coding submissions, executes them against hidden test cases, and stores execution results and verdicts.
- Designed an asynchronous evaluation pipeline using Redis and BullMQ where the API queues submissions and worker processes execute them independently.
- Executed untrusted code inside isolated Docker containers with CPU, memory, PID, and network restrictions to improve execution safety.
- Implemented authentication, problem management, submission history, and MongoDB persistence, and deployed the application on a personal Linux home server.

Achievements

- Codeforces Specialist with maximum rating 1417 and CodeChef 3-star with maximum rating 1671.
- Secured Global Rank 284, 535, and 676 in CodeChef Starters 180, 196, and 170 respectively.
- Secured top-3000 global ranks across multiple Codeforces contests, including Rounds 1082, 1003, and 1016.
- Helped grow MAIT's competitive programming community to 500+ students and coordinated industry seminars for 100+ participants.