ADITYA KUMAR

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Education

Indian Institute of Technology Kharagpur   **2021 − 2025**
Bachelor of Technology in Mechanical Engineering   *7.64/10*

Experience

Software Developer   **May 2025 − Present**
House of Amber Advisory Private Limited   *Mumbai, India - Onsite*

- Designed and scaled high-performance backend services using **Python** and **FastAPI** for enterprise-grade applications
- Built optimized RESTful APIs with robust validation, error handling, and authentication for seamless integrations
- Deployed containerized production services using **Docker** on **AWS Kubernetes**, ensuring high availability
- Enhanced system reliability by implementing structured logging, monitoring, and automated testing workflows

Software Developer Intern   **Mar 2025 − Jun 2025**
Mahi Mahi Marketing Solution   *Banglore, India - Remote*

- Developed **Maven.ai**, an AI-powered-marketing platform automating all marketing generation using Generative AI
- Optimized AI models and integrated detailed analytics to improve content quality and campaign effectiveness
- Designed intuitive user interfaces with structured workflows to enhance usability and content management

Full Stack Developer Intern   **Feb 2025 − Apr 2025**
Dhruva Capital   *Kolkata, India - Remote*

- Built **SwanSathi.com**, a gold-loan management platform with authentication, loan processing, and real-time tracking
- Developed the official website using **React.js** and **Node.js** with a modern, responsive, SEO-optimized UI
- Integrated backend services and optimized database performance using caching strategies to ensure high availability

Projects

Portmon | *Rust, Linux, Networking, CLI* | ○ [Link](#)   **2025**

- Built a high-performance Rust CLI tool to inspect active TCP/UDP ports and map them to Linux processes
- Implemented functionality comparable to `sudo ss -tulpn` by parsing system socket and process metadata
- Designed secure, privilege-aware execution to expose detailed port, PID, protocol, and listening state information

University Library Management System | *Next.js, Node.js, PostgreSQL, Redis* | ○ [Link](#)   **2024**

- Built library management system with secure APIs, role-based access control, and automated workflows
- Implemented rate limiting, DDoS protection, and advanced error handling to ensure reliability under high traffic
- Optimized performance using Redis caching and efficient PostgreSQL queries to reduce latency and database load

Mystery Messaging | *Next.js, TypeScript, MongoDB, AI* | ○ [Link](#)   **2024**

- Built a full-stack anonymous messaging platform enabling users to send and receive feedback securely
- Implemented email verification and authentication using NextAuth for secure access and session management
- Integrated AI-powered message suggestions to enhance user interaction and message composition

Snake Game | *C++, Game Logic* | ○ [Link](#)   **2023**

- Implemented the classic Snake game in C++ with real-time movement, collision detection, and score tracking
- Designed efficient game-loop logic and grid-based state management to ensure smooth gameplay

Achievements and Distinctions

- Secured a rank within the top **2%** candidates in **JEE Advanced 2021**, among over 1.6 lakh aspirants nationwide
- Achieved a rating of **1000+** on **Codeforces**, demonstrating strong problem-solving and algorithmic skills
- Solved **200+** DSA problems across competitive programming and interview preparation platforms
- Developed multiple production-grade software projects spanning **backend systems, full-stack applications, and Linux-based CLI tools**
- Built and deployed real-world applications used in live environments, including scalable APIs, AI-powered platforms, and systems utilities

Research Experience

IIT Kharagpur Interactive Map & Navigation System | *Next.js, Geospatial Systems, Algorithms*   **2025**

- Designed and developed an interactive campus-wide navigation system for **IIT Kharagpur**, enabling route discovery and location search
- Implemented graph-based pathfinding algorithms to compute optimal routes across academic blocks, hostels, and facilities
- Built a scalable frontend with dynamic map rendering and efficient data handling for real-time navigation

Solar Power Heat Management System | *Thermal Analysis, Energy Systems*   **2024**

- Analyzed heat generation and dissipation in solar power systems to improve thermal efficiency and operational stability
- Modeled heat transfer mechanisms including conduction, convection, and radiation for optimized system design
- Proposed heat management strategies to reduce thermal losses and enhance long-term system performance

Technical Skills

Languages: Javascript, Typescript, Python, Rust, C, C++, Golang, CSS, HTML, Solidity, C#
Databases/ORMs: SQL, MongoDB, Postgres, Redis, , Sqlite, Prisma, Sequelize
Devops/Cloud: Linux, Docker, Kubernetes, AWS(S3, EC2, Lambda, RDS), Nginx, Git, YAML,

Coursework

Scholastic: Programming and Data Structures, Linear Algebra, Probability and Statistics, Partial Differential Equations, Soft Computing, Operations Research, Advanced Calculus
MOOCs: Competitive Programming, Backend Engineering, Database Engineering, Operating Systems, Network Engineering,