

AAYUSH KUMAR

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EDUCATION

Manipal University Jaipur, Rajasthan, India Bachelor of Technology, Computer Science

GPA: 3.59 | July 2025

Coursework: Data Structures, Object Oriented Programming, Artificial Intelligence, Machine Learning, Software Engineering, Database System

Boston University, Massachusetts, United States Master of Science, Computer Science

GPA: In Progress | December 2026

Coursework: Advanced Algorithms, Distributed Systems, Deep Learning, Object Oriented Design

TECHNICAL SKILLS

Programming Languages: Python, Go, C, C++, TypeScript/JavaScript, Java, SQL

Libraries / Frameworks: Next.js, React/React Native, Node.js, Flask, PyTorch, Vercel AI SDK, NVIDIA NeMo, WhisperX, Drizzle ORM, Scikit-learn, NLTK, Tailwind CSS

Tools / Platform: Git, Docker, Linux, Postman, Tableau, Vercel, Vite.js, MATLAB

Databases: PostgreSQL, MongoDB

Certifications | Links: AWS Cloud Foundation, Data Structures, Object Oriented Hierarchies in Java

PROFESSIONAL EXPERIENCE

BlackRock, Gurugram: Software Engineer, Backend, Analyst

Jan 2025 – Aug 2025

- Automated the end-to-end data onboarding process for equity and fixed income products by developing Python scripts for data ingestion and validation from Sybase, saving 15-20 hours of manual processing per week.
- Deployed Python-based AI agents to automate internal workflows and data analysis tasks for the Fixed Income team.

Indian Institute of Technology, New Delhi: Research Intern in Anushandhan NRF

Aug 2024 – Jan 2025

- Engineered a multi-stage AI pipeline for a full-stack Automatic Speech Recognition (ASR) service, focusing on high-accuracy transcription and speaker diarization.

Indian Institute of Technology, Kanpur: Research Intern in Cognitive Science

May 2024 – Jan 2025

- Developed a full-stack psycholinguistic research tool with an integrated NLP pipeline to automate data analysis, providing key data for the "SHABD 3" research paper.

ACADEMIC PROJECTS

Graph Coloring using Reinforcement Learning | [Link](#)

- Developed a Reinforcement Learning system (Double DQN, PyTorch) to solve the NP-hard graph coloring problem.
- Achieved near real-time performance, coloring graphs of 600-800 nodes under a second, significantly reducing the computational time for complex, real-world scheduling problems. Built a high-performance, low-latency C++ backend with OpenMP

Language Cognition Survey Tool, Language Cognition Lab, IIT Kanpur | [Link](#)

- Built an end-to-end system with a custom NLP pipeline to automate the collection and analysis of psychological survey data.
- Automated the generation of narrative summaries from raw data to provide researchers with ready-to-use analytical insights.

Omnix; Chatbot | [Link](#)

- Engineered a generative AI chatbot using Vercel's AI SDK supporting Google Gemini, OpenAI, and Anthropic.
- Application supports text generation, tool calls. backend with NextAuth.js to ensure data security and user confidentiality

NFT Marketplace | [Link](#)

- Designed and built a full-stack mobile app in React Native with a novel solution for trading NFTs.

OmniPaxos | [Link](#)

- Applied distributed systems principles engineering a fault tolerant implementation of OmniPaxos consensus algorithm in Go.
- Validated correctness under simulated network partitions and failures.

Anushandhan Research Project, National Research Foundation, IIT Delhi | [Link](#)

- Developed a transcription API (Python, Flask) using WhisperX and NVIDIA NeMo for diarization.
- Enhanced accuracy with Demucs vocal isolation, CTC Aligner timestamps, and punctuation restoration.

LEADERSHIP AND ACTIVITIES | [LINK](#)

Ranked 1st among 650 Computer Science students for Research Project; Runners-up, ACM De-fi Hacks; Dean's Honor List and Student Excellence Award; Publication in IEEE ARIIA 2024; Founded Global Grad Club; Volunteered 300+ hours at NGO; Design and Analysis of Algorithms, NPTEL, IIT Madras