Abhijit Amrendra Kumar

Software Engineer | Data Platform & Infra | Agentic AI Enthusiast

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EDUCATION

- Bachelor of Technology in **Computer Science and Engineering** | IIT Bombay   *(2021-2025)*

SCHOLASTIC ACHIEVEMENTS

- Awarded the **National Fellowship** in the Kishore Vaigyanik Protsahan Yojana (**KVPY** SA stream) exam *(2019)*
- Secured **All India Rank 45** among a total of **150,000 candidates** appearing for *JEE Advanced 2021* exam *(2021)*

WORK EXPERIENCE

SDE-1 in Data Platform | *Dream 11*   *(Jul'25 - Ongoing)*

- Completed onboarding training in **Java - Vert.x** for backend and **React Native** for cross-platform app development.
- Studied distributed infra and streaming platforms through industry case studies and foundational systems papers, including *Uber Data Mesh, Google Dremel, Netflix Streams, Amazon DynamoDB, MapReduce, Google File System.*
- Developed insight into **Apache Kafka**, large-scale data pipelines, and explored trade-offs in modern data platforms.

AI Intern | *Facets Cloud*   *(Feb'25 - May'25)*

- Developed an **Agentic AI** ticket assistant leveraging retrieval over historical resolutions and **discussions** to help engineers streamline debugging by identifying **similar past issues**, **underlying causes**, and **resolution steps**.
- Built **crawlers** to extract company-specific info from **LinkedIn** and official sites for **data enrichment** & **analysis**.
- Built **agentic workflows** for **automated PR reviews** using LLMs to assess code quality & adherence to guidelines.

Advanced Application Engineering Intern | *Accenture Plc.*   *(May'24 - Jul'24)*

- Collaborated with a team of 8 for **regression testing** of Accenture Hoteling and Capacity Planning services.
- Acquired skills in **Amazon Web Services** in EC2, S3, DynamoDB, Aurora, performance testing and automation.

Full Stack Developer Intern | *MapIT.ai Pvt Ltd*   *(June'23-Jul'23)*

- Developed a bluetooth-based **beacon positioning & path tracking** webpage in React and Django Websockets.
- Refined their CMS system & acquired skills in **GeoDjango and PostGIS, Django Websockets and Docker**

Software Developer | *Chocolate Stay Pvt Ltd*   *(2023)*

- Constructed a backend server for **hotel bookings, user authentication and real-time updates** in **NodeJS**.
- Modeled a hotel management/administrative interface in **ReactJS** and a hotel reservation app in **Flutter/Dart**.

KEY PROJECTS

Flash: In-Memory Database | *Self Project*   *(July'24)*

- Integrated **data persistence** with point-in-time snapshots and AOF for continuous logging of write operations.
- Built support for data types like strings, lists, **hashmaps, sorted sets (AVL trees)**, & **heaps** for TTL of keys.
- Incorporated support for **data streams** (sockets in C++) and **time series operations** for timestamped data.
- Accelerated performance using **asynchronous execution** & **thread pooling** (atomic operations for consistency).

Zeal Interpreter | *Self Project*   *(June'24)*

- Developed an interpreter for the Monkey programming language using **flex** for lexical analysis and **bison** for parsing.
- Implemented an **object data model**, alongwith **first-class functions**, **higher-order functions** & **closures**.
- Constructed a **bytecode generation** module for efficient program execution on a **stack-based virtual machine**.

SCLP C-like Compiler | *Course Project: Implementation of Programming Languages*   *(Apr'24)*

- Developed a C-like language compiler, with **language constructs** like **function calls, scopes & control flow**
- Implemented the different phases of compilation in C++ using **IRs** to translate high level code into machine code
- Executed register allocation to formulate **RTL** and implemented call stack functionality to generate **assembly code**

Raytracing Engine | *Self project*   *(May'23)*

- Developed a ray-tracing engine in C++, with features like **motion blur**, **texture mapping**, and **perlin noise**.
- Created realistic Cornell Box scenes by adding **anti-aliasing**, **emissive lighting** and dielectric & metallic materials.
- Optimized rendering with **Bounding Volume Hierarchies** (grouping objects) and **Octrees** (spatial partitioning).

Enhancing xv6 | *Course project: Operating Systems*   *(Oct'23)*

- Implemented **priority-based**, **round-robin** and **multiple-queues** scheduling schemes for CPU process scheduling.
- Added **shared memory** functionality using syscalls and ensured synchronization using **spinlock** and **sleeplock**
- Incorporated techniques like **lazy page allocation** using modified **page fault** handling and memory allocation
- Integrated **multi-threading** functionality and implemented **semaphore** to enforce ordered execution using syscalls

Practical Near Neighbor Search via Group Testing | *Course project*   *(May'24)*

- Reduced lookup times by atleast **2.2x** & memory requirements by atleast **5%** for k-nearest neighbour search using **group testing** and distance-sensitive bloom filters, comparing against SOTA algorithms like **FLASH** and **FAISS**.
- Implemented the described technique in C++ and ran benchmarks on **PromethION, Webspam, URL** datasets.

Synth Bridge | *InterIIT Tech Competition*   *(Dec'23)*

- Developed an AI-based project management system with **RAG** with MERN, Langchain, Redis, ChromaDB & AWS
- Secured **silver rank** in the **Trumio** problem statement and **bronze institute rank** in the InterIIT Tech competition

POSITION OF RESPONSIBILITY

Seasons Of Code Mentor (11 Mentees) | *Web and Coding Club, IIT Bombay*   *(May'23 - Jul'23)*

Learner Space Mentor (290+ Mentees) | *Web and Coding Club, IIT Bombay*   *(May'23 - Jul'23)*

CERTIFICATIONS

Tensorflow for Deep Learning Bootcamp | *Zero to Mastery*   *(Jul'23)*

The Complete 2023 Web Development Bootcamp | *Udemy*   *(Jan'23)*

The Complete Flutter Development Bootcamp with Dart | *Udemy*   *(Mar'23)*