

DEEP SARKAR

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EDUCATION

National Institute of Technology

Bachelor of Technology

Rourkela, India

Nov. 2022 – April 2026

TECHNICAL SKILLS

- **Backend & Systems:** Node.js, Express, C++17, Apache Kafka, Redis (Pub/Sub), WebSockets, Java
- **Data & AI/ML:** MLOps, XGBoost, Scikit-Learn, Feature Engineering, Vector Databases, Stream Processing
- **Cloud & DevOps:** Docker, CI/CD (GitHub Actions), AWS, Azure, PostgreSQL, MySQL, Supabase, Git, Linux
- **Languages:** JavaScript (ES6+), TypeScript, Python, C++, SQL, HTML5, CSS3
- **Coding Profiles:** [Codeforces](#) — [LeetCode](#) — [CodeChef](#) — [AtCoder](#)

EXPERIENCE

CodTech IT Solutions Pvt. Ltd.

Backend Engineering Intern

May 2025 – July 2025

Hyderabad, Telangana

- Engineered a real-time chat backend using **Node.js, Express, and WebSockets**, achieving an average message latency of **<100ms** for 1,000+ concurrent users.
- Implemented a secure **RESTful API** for a micro-blogging platform with **PostgreSQL**, featuring **JWT-based authentication** and **RBAC** (Role-Based Access Control).
- Established an automated **CI/CD pipeline** with **Docker and GitHub Actions**; authored **Jest unit tests** to achieve **92% code coverage**, ensuring production stability.

PROJECTS

Low-Latency C++ Matching Engine | C++17, Memory-Mapped I/O, Lock-Free Patterns

[GitHub](#)

- Developed a **high-performance limit-order book** that sustains **sub-100 ms latency** under 1k concurrent clients, improving throughput by **70x** via a **lock-free object pool**.
- Eliminated dynamic memory allocation using **intrusive linked lists** and optimized lookups to **O(1)** using bit-manipulation primitives (`__builtin_clzll`), removing file-stream overhead via **mmap-accelerated** ingestion.

Real-Time Fraud Detection Pipeline | Python, XGBoost, Kafka, Grafana, Docker

[GitHub](#)

- Architected an **end-to-end MLOps pipeline** to detect fraudulent transactions with **millisecond-level inference latency** in a simulated live streaming environment.
- Engineered a high-throughput ingestion architecture using **Redpanda (Kafka)** to process 30-dimensional feature vectors, visualizing real-time financial metrics via **Grafana dashboards**.

AI-Driven Disaster Management System | Google Solution Challenge submission

[GitHub](#)

- Developed a **real-time resource locator** for flood victims, enabling rapid access to emergency supplies by indexing **geo-spatial data** of shelters and medical camps.
- Integrated an **AI-powered guide** to provide survival instructions based on live water-level data, recognized by **GDG on Campus** for addressing real-world societal problems.

NexusPipe | Distributed Analytics | Node.js, Python, Kafka, Redis, MySQL

[GitHub](#)

- Designed an **event-driven analytics pipeline** using microservices communicating asynchronously via **Apache Kafka** to ensure system scalability and fault tolerance.

ACHIEVEMENTS / CERTIFICATIONS

- **Meta Hacker Cup 2024:** Achieved **Top 15% Global Rank** (Rank 7,647 in Round 1 and 1,092nd in practice Round) out of 50,000+ competitive programmers. | [Certificate](#)
- **Google Developer Groups Solution Challenge (2025):** Selected for contribution to the GDG on Campus Challenge for an AI-powered disaster management solution. | [Certificate](#)
- **Codeforces Global Ranking:** Achieved top **16%** (6.8k/42k+) in Div. 2 rounds; consistently active in global algorithmic contests.
- **Technical Mentor:** Recognized for aiding 50+ junior developers in understanding **distributed systems** and backend architecture fundamentals.