

Rajat Kumar Saw

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Education

Indian Institute of Technology(Indian School of Mines) Dhanbad

Bachelor of Technology in Mining Machinery (Mechanical) Engineering

Relevant Coursework: Data Structures and Algorithms, Probability and Statistics, Economics and Finance

St. Xavier's College, Ranchi

Jharkhand Academic Council(JAC)

Expected MAY 2027

Current GPA: 8.82/10.0

Year of Completion: 2023

Class XII - 93.4%

Projects

TermiNet | Web-Based Ephemeral Shell Access Platform

- Developed a secure web-based shell interface using isolated Kubernetes pods, supporting **100+ concurrent users** for real-time Linux command execution.
- Orchestrated **on-demand pod creation** per user with enforced resource quotas and automatic teardown.
- Secured user access via **JWT-based authentication** and salted SHA1 password hashing.
- Engineered a **Flask API** to manage user sessions, pod lifecycle, and command I/O through the **Kubernetes stream exec API**.
- Tech Stack:** Flask, Kubernetes, Docker, MySQL, Python

CryptTalk | Secure E2EE Chat

- Developed a real-time chat application supporting **1-on-1 and group conversations** with a seamless and responsive user experience.
- Designed a **modern, responsive UI with Material UI** and implemented an **optimized paging system** for efficient message retrieval, minimizing server load and ensuring smooth performance at scale.
- Implemented **end-to-end encryption (E2EE)** with **Diffie-Hellman Key Exchange (DHKE)** for secure key agreement and **AES-256** for robust message encryption.
- Tech Stack:** React, Express.js, MongoDB, Socket.io, Material UI, DHKE, AES

Technical Skills

- Languages:** C, C++, Python, JavaScript, HTML, CSS, SQL, Shell Scripting, Assembly
- Programming:** Competitive Programming, Data Structures & Algorithms (DSA), Object-Oriented Programming
- Web Technologies:** React, Express.js, Node.js, Flask, MongoDB, Docker, Kubernetes
- Cybersecurity:** Web Exploitation, Cryptography, Binary Exploitation, Networking
- Tools:** Wireshark, Ghidra, Nmap, Burp Suite, Linux

Achievements

- Secured **2nd place** in ChronosCTF by IIT Mandi and ranked in the **Top 20** at IIT-BHU Codefest CTF.
- Successfully organized **Pearl CTF**, a **global cybersecurity competition** with participants from **28+ countries**.
- Solved **750+ DSA problems** on platforms like Codeforces, Codechef and LeetCode.
- Achieved peak ratings of **1360+** on **Codeforces** and **1750+** on **LeetCode**.

Social Engagements

- Core Member:** CyberLabs- InfoSec Division, IIT Dhanbad - Conducted **10+ workshops** on cybersecurity.
- Event Organizer:** Prakash'25 - Annual Day of KARTAVYA – Led **event planning, logistics, and execution**, ensuring seamless operations and impactful engagement.
- Volunteer:** at KARTAVYA - NGO run by students of IIT Dhanbad to educate **underprivileged children**.
- Sports Activities:** Badminton and Chess.