

# Rounak Saha

Roll No.: B22CS008

Bachelor of Technology

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## SUMMARY

Computer Science undergraduate with proven ML experience from research internships and hands-on projects. Specialized in Transformer model optimization for low-resource environments. Expertly skilled in Python, TensorFlow, and PyTorch to build, train, and deploy predictive models. Automated ML workflows to enhance productivity and collaborated with cross-functional teams to drive model deployment and innovation.

## EDUCATION

### •Bachelor of Technology in Computer Science and Engineering

2022–2026

National Institute of Technology Meghalaya, Sohra

CGPA: 9.39

## EXPERIENCE

### •Summer Undergraduate Research at Jodhpur (SURAJ) Internship

Jun – July 2025

Indian Institute of Technology Jodhpur

On-site

- Analyzed and benchmarked 5+ Transformer variants to identify optimal models for edge/low-resource environments.
- Deconstructed complex Transformer architectures to pinpoint computational bottlenecks, leading to a 15% reduction in processing overhead in theoretical models.
- Authored a comprehensive report summarizing 5+ optimization methods, outlining future research directions for efficient model deployment.

### •Data Science & Machine Learning Virtual Internship

Aug – Oct 2024

My Job Grow

Online

- Engineered and deployed 3 live ML projects using advanced analytics tools, resulting in a 25% improvement in predictive accuracy.
- Developed and implemented supervised and unsupervised models in data-driven decision-making scenarios.

## PERSONAL PROJECTS

### •Nirmaya Health Services - Smart Hospital Management System

A full-stack, single-page web application designed to modernize the patient experience and streamline hospital administration.

- Architected a secure user management system for over 100+ user profiles using **Firestore Authentication**.
- Implemented a comprehensive control panel with full **CRUD (Create, Read, Update, Delete)** functionality to manage doctor profiles, user accounts, and all patient appointments.
- Engineered a real-time appointment booking feature with doctor-specific time slots, improving booking efficiency by 40%.
- Integrated the **Google Gemini API** to build an intelligent AI assistant, capable of handling 50+ common patient queries automatically.
- Tech Used: React.js, Tailwind CSS, Google Gemini API, Google Firestore Authentication, Netlify.
- GitHub: Nirmaya\_Health\_Services

### •Cyber Threat Intelligence and Response System

A Python-based threat analysis platform integrating real-time APIs and geolocation.

- Leveraged APIs from **AlienVault OTX** and **AbuseIPDB** to enrich threat intelligence data from over 10,000 potential indicators of compromise (IOCs).
- Tracked anomaly source IPs using geolocation and visualized on UI.
- Applied 5 distinct ML classification models to analyze and categorize malicious behavior patterns with 92% accuracy.
- Tech Used: Python, MongoDB, Streamlit, IP Geolocation, REST APIs.
- GitHub: Cyber\_Threat\_System

### •Lightweight Transformer for resource-constrained environment

(Ongoing) - A lightweight transformer model is being developed to deploy it locally on resource-constrained devices.

- Systematically analyzed Transformer architectures to identify and mitigate computational bottlenecks.
- Implementing optimization methodologies including pruning, quantization, and knowledge distillation to target a 25%-30% reduction in model size and memory footprint.
- GitHub: Lightweight\_Transformer

TECHNICAL SKILLS AND INTERESTS

**Languages:** C/C++, Python, Java, HTML+CSS, JavaScript  
**Libraries:** NumPy, Pandas, OpenCV, React.js  
**Frameworks:** TensorFlow, Keras, PyTorch, Flask, Scikit-learn, Tailwind CSS  
**Databases:** Google Firebase, MySQL, MongoDB  
**Tools:** Jupyter, VSCode, GitHub, Netlify, Vercel  
**Coursework:** DSA, OS, DBMS, OOP, Software Engineering, ML & DL (NPTEL)  
**Areas of Interest:** Machine Learning, AI, Data Analytics

AWARDS, ACHIEVEMENTS & CERTIFICATIONS

- Awarded the **Certificate of Excellence** for outstanding performance and dedication towards the development of Astronomy Club.
- Received **Certificate of Merit** at ML Vision 2024 for demonstrating innovation and technical expertise among 50+ participants.
- Certified in "**Deep Learning**" from Coursera (NPTEL).
- Achieved a rank of 3748 in GATE 2025 DA paper.
- Secured **3rd position** out of 12 teams in the Inter-departmental Hackathon, 2024.

POSITIONS OF RESPONSIBILITY

- |   |                           |
|---|---------------------------|
| • <b>AI/ML Coordinator</b> SanganaKriti - NITM Coding Club  | <i>Mar 2024 – Present</i> |
| – Organized and led 5+ ML workshops and AI awareness sessions for over 100 students.  |                           |
| • <b>Student Convener</b> NITM Astronomy Club   | <i>Aug 2024 – Present</i> |
| – Spearheaded the organization of 3 major club events, increasing student participation by 40% compared to the previous year. |                           |