



Ayush Tiwari

Bachelor of Technology
in Mechanical Engineering
Indian Institute of Technology, Ropar

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GitHub | Website | LinkedIn
Codeforces | CodeChef
LeetCode | GeekForGeeks

EDUCATION

Degree	Institute/Board	CGPA/Percentage	Year
Bachelor of Technology	Indian Institute of Technology, Ropar	8.38 (Till 4th Sem)	2023-Present
Senior Secondary	Central Board of Secondary Education	96%	2023
Secondary	Central Board of Secondary Education	98%	2021

PROJECTS

- **BharatMedicare – AI-Powered Medical Analysis Platform** *May 2025 - June 2025*
Web Development + Deep Learning **Website | Github**
 - Fine-tuned a **ResNet50** model with custom **ANN** layers using **Keras Functional API** to classify skin lesion malignancy, leveraging the **ISIC (International Skin Imaging Collaboration) dataset** and **patient metadata** for improved accuracy.
 - Achieved **AUC-ROC: 0.9586**, **Sensitivity: 0.9613**, and **Specificity: 0.7704** during model validation.
 - Built a full-stack **MERN** app with **Clerk** authentication, **Shadcn UI**, and **Python ML** integration via **child-process**; used the **Perplexity API** to generate patient-friendly diagnostic reports.
- **Used CNN to predict the maximum von Mises stress in a beam** *January 2025 - May 2025*
Course - Deep Learning for Physical Systems || Faculty - Dr. Manish Agrawal **Github**
 - Trained **CNN** and **ANN** models in **TensorFlow** to predict maximum **von Mises stress** for structural components and compared their performance.
 - Used **TensorFlow's GradientTape** to compute gradients of predicted stress with respect to **nodal volume fractions** and identified regions most influential to maximum **von Mises stress**.
 - Applied **gradient descent** with the **Adam optimizer** to optimize volume fraction distribution for minimizing maximum **von Mises stress**.
- **MeChat – Real-Time Full-Stack Chat Application** *March 2025 - May 2025*
Web Development **Website | Github**
 - Built a real-time chat application using the **MERN stack** and **Socket.IO** to enable seamless, bi-directional communication between users.
 - Implemented secure **authentication and authorization** using **JSON Web Tokens (JWT)**, ensuring protected access to chat features and user data.

TECHNICAL SKILLS

- **Programming Languages:** C++, Python, JavaScript
- **Web Development:** React, NodeJS, Express, MongoDB, SQL
- **ML/AI:** NumPy, Pandas, Keras, TensorFlow, Scikit-Learn
- **Tools:** Git, GitHub

RELEVANT COURSEWORK

- **CSE & Maths:** Introduction to Computer Science Engineering, Deep Learning for Physical Systems, Probability and Statistics, Linear Algebra, Differential Equations, Calculus
- **Others:** Economics, Tinkering Lab, Basic Electronics

POSITIONS OF RESPONSIBILITY

- **Coordinator**, MUN Club, IIT Ropar *August 2024 - May 2025*
- **Head, Content Writing and Anchoring Team**, Zeitgeist (Annual Cultural Fest), IIT Ropar *June 2025 - Present*
- **Co-Head, Event Management Team**, Aarohan (Annual Sports Fest), IIT Ropar *January 2025 - March 2025*

COMPETITIVE PROGRAMMING AND DSA

- **Codeforces:** 1398 Rated (Pupil)
- **Codechef:** 3 Star Coder
- **Leetcode and GeekForGeeks:** 300+ Problems Solved
- **ACM ICPC:** Participated in the Amritapuri region in 2024

ACHIEVEMENTS

- **Institute Merit Scholarship:** Awarded to top 7% students based on CGPA criteria.
- **JEE Mains:** Secured AIR 2109 (99.82 Percentile)
- **JEE Advanced:** Secured AIR 8622 among 180,000 Candidates