

# ANURAG AMCHI

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## EDUCATION

### Indian Institute of Technology Ropar

2022 - 2026

Bachelor of Technology in **Mathematics and Computing**

Rupnagar, Punjab

Key Courses: Data Structures and Algorithms, Data Science and Machine Learning, Analysis and Design of Algorithm, Theory of Computation, Digital Logic and Design, Discrete Math, Linear Algebra, Computational Algebra, Calculus.

## EXPERIENCE

### Borde Inc. USA

September 2023 - March 2024

Machine Learning Intern | Python, Bash, Azure, Git, Dagster

[Certificate](#) | Remote

- Wrote new bash scripts and optimised the old ones to automate annotations and segmentation to improve the accuracy of the assigned classes by **2-5%** and **overall accuracy** by **0.71%**.
- Trained efficient models using **Yolo-v5** on datasets containing more than **150k images** of almonds.

## PROJECTS

### Real Time Chat App

September 2024 - October 2024

Socket.IO, MongoDB, Express, React, Node.js, JWT Authentication

[Live Link](#) | [GitHub](#)

- Built a client-server web application that enables users to communicate through **real-time** messaging.
- Used **REST APIs** and **WebSockets** to ensure scalable and efficient real-time communication.
- Used **Socket.IO** for managing WebSocket connections.

### Finance Tracker

June 2024 - July 2024

MongoDB, Express, React, Node.js, JWT Authentication

[GitHub](#)

- Made a full stack project to keep detailed track of finances with **email reminders** and **visual analytics**.
- Implemented **JWT authentication** for secure user access and data protection.
- Enabled expense tracking, budgeting, and interactive data visualization features.

### Collision Detection using Quadtree

May 2024 - June 2024

HTML, CSS, JavaScript

[Live Link](#) | [GitHub](#)

- Made a fully functional visual website about the Quadtree data structure with features like construction, insertion, searching, deletion, query searching and collision detection for better analysis.
- Implemented collision detection using the Quadtree data structure, reducing the **time complexity** from traditional  $O(n^2)$  to  $O(n \log(n))$ .
- Increased the performance frame rate from **5 fps** to **40 fps** during collision of **10k points**.

### Movie Recommender

May 2024

Python, Machine Learning

[GitHub](#)

- Built a recommender system to recommend 5 movies when a user inputs a movie or rates several movies.
- Combined collaborative filtering and content based algorithm on a dataset containing over **10k movies** rated by over **1k users** with total **100k ratings**.

## TECHNICAL SKILLS

**Languages:** C/C++, Python, JavaScript, MATLAB, HTML, CSS

**Frameworks/Libraries:** React, Express.js, Node.js, Jupyter, TensorFlow, Pandas, Numpy, Matplotlib.

**Database/OS/Tools:** MongoDB, Git, Linux.

## POSITION OF RESPONSIBILITY

**Guitar Coordinator**, Music Club, IIT Ropar

June 2023 - June 2024

**Event Management**, Zeitgeist, Techno-Cultural Fest

March 2023

## MISCELLANEOUS

**Rank 542**, ICPC Prelims

2023

**Codeforces**, Max Rating: 1407(Specialist)

2023

**CodeChef**, Max Rating: 1685(3 star rating)

2023

**Inter IIT Cult-Meet 6.0**, Secured 6th position in Pair-on-stage competition among 23 IITs.

2023

**NTSE Scholar**, Granted scholarship to top 2000 students of stage 2 by NCERT every year till their study period.

2020