

# Tanmay Santra

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🌐 LinkedIn Profile | 🐙 GitHub Profile

## Summary

Motivated Final-year B.Tech (CSE AI & ML) student with hands-on experience in web and backend development. Familiar with building secure, responsive applications and continuously learning modern development practices, with a strong interest in solving real-world problems through scalable and efficient software solutions.

## Education

### B.Tech in CSE (AI & ML)

2021 – 2025

University of Engineering and Management, Kolkata  
CGPA: 8.02

### Higher Secondary (Science)

2020 – 2021

Gurukul Vidya Mandir School, Joka  
ISC

### Secondary Education (General)

2018 – 2019

K.E. Carmel School, Amtala  
ICSE

## Projects

### Yoga Detection Application

Designed a real-time yoga detection system using deep learning models, improving accuracy and feedback loops for users.

- Noise reduction using **Gaussian blur** to enhance input clarity.
- Detection and removal of corrupt or empty frames to improve dataset quality.
- Improved user posture alignment by **30%**, achieving a **93% accuracy rate** across 5+ yoga poses, enhancing user performance during sessions and performance by 30%.
- Technologies used: Python, Keras, OpenCV

### Secure Credential Storage System

Developed a secure backend system to store and manage user credentials using encryption and authentication techniques.

- Built **RESTful APIs** for password **CRUD** operations with AES-256 encryption ensuring confidentiality.
- Implemented JWT-based authentication and bcrypt for secure login and master **password hashing**.
- Focused on best practices in backend security to prevent unauthorized access and ensure data integrity.
- Technologies used: NestJS, TypeScript, PostgreSQL, TypeORM, JWT

### Gesture Controlled Calculator

Developed an interactive calculator system that interprets hand gestures in real-time using computer vision techniques.

- Built a virtual calculator that recognizes numeric and arithmetic hand gestures using OpenCV and deep learning based gesture tracking.
- Achieved **93% accuracy** in real-time gesture recognition for calculator functions, significantly improving user interaction and input reliability.
- Technologies used: Python, OpenCV, MediaPipe

## Technical Skills

**Languages:** Java, TypeScript, JavaScript, SQL, Python, HTML, CSS

**Frameworks & Libraries:** NestJS, ReactJS, Node.js, Next.js, OpenCV, Pandas, NumPy, Matplotlib, Scikit-learn

**Tools:** PostgreSQL, TypeORM, Postman, Git

**Concepts:** Data Structures & Algorithms, Database Management System, Software Engineering, Object-Oriented Programming, Machine Learning

**Soft Skills:** Adaptability, Analytical Thinking, Self-directed learning, Team Collaboration, Time Management

## Certifications

- HTML, CSS, and Javascript for Web Developers – Johns Hopkins University(Coursera)
- Machine Learning with Python - IBM
- The Ultimate React Course – Udemy
- MySQL - Udemy