Shubham Raj   22B0665
Energy Science and Engineering   **B.Tech.**
Indian Institute of Technology Bombay   **Gender: Male**
                                                                   DOB: 04/06/2003

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2026	7.47

SCHOLASTIC ACHIEVEMENTS

- Awarded a **Branch Change** to department of **Energy Science and Engineering**, granted to **6 out of 1400+ students** *('23)*
- Received **AA grade** for exceptional performance in **Computer Programming and Utilization (CS 101)** course *('23)*
- Secured **All India Rank 3219** in JEE Advanced 2022 amongst **0.16 million+** candidates across the nation *('22)*
- Achieved **99.56 percentile** in JEE Main 2022 amongst **1.02 million** candidates across the nation *('22)*

KEY PROJECTS

KRIYETA 3.0 | National Level Hackathon | *Python, LangChain, React, Flask*   *(June '24)*
Problem Statement: Create an AI system that monitors user's mental health through their interaction and provides support
- Implemented chatbot utilizing **Retrieval Augmented Generation (RAG)** to deliver tailored and context aware responses
- Fine-tuned **DistilBERT** with **LoRA** for sentiment analysis integrating with **RAG**, predicting user's mental health state
- Developed a dynamic responsive React powered website integrated with Flask backend, delivering great user experience

Image Deblurring with UNet Architecture | *Python, PyTorch*   *(Mar '24 - Apr '24)*
GNR 638 | Course Project | Machine Learning for Remote Sensing - II | Prof. Biplab Banerjee   *IIT Bombay*
- Implemented a UNet Architecture with **3 encoders** and **3 decoders** for image deblurring and **7.7M training parameters**
- Utilized Python libraries including NumPy, PIL and scikit-image along with PyTorch to accomplish the project objectives
- Trained the model on dataset of 58K blur sharp image pairs and achieved **PSNR score of 27.5** on 14K test image dataset

Real-Time Facial Recognition System | *Python, TensorFlow*   *(Dec '23 - Jan '24)*
Winter in Data Science | Analytics Club   *Undergraduate Academic Council, IIT Bombay*
- Implemented **Siamese Neural Network** Architecture in TensorFlow and CV2 to extract real time high-level facial features
- **Image Embeddings** calculated in images captured through a webcam, instantly comparing them against **anchor images**
- Dissimilarity between embeddings is calculated by **distance metric**, which is used to calculate similarity between images

Fine-Grained Image Classification | *Python, PyTorch*   *(Feb '24 - Mar '24)*
GNR 638 | Course Project | Machine Learning for Remote Sensing - II | Prof. Biplab Banerjee   *IIT Bombay*
- Trained a **CNN model** for fine-grained image classification with **6.8M parameters** using the **CUB dataset** with 200 classes
- Implemented transfer learning with an **ImageNet pretrained EfficientNet model**, adapting its classifier layer for the task
- Achieved a **top-1 accuracy of 71.48%** on the test dataset after series of fine tuning the classifier and training the model

POSITION OF RESPONSIBILITY

Web Manager | Aavhan | IIT Bombay   *(July '24 - Present)*
India's largest collegiate sports tournament | Budget: INR 10M+ | Footfall:100k+ | Events: 20+

Responsibilities	1. Enhancing participation enrollment and event coordination by implementing better UI/UX in website 2. Leading a two-tier team of volunteers to enhance online presence and streamline digital interactions
Initiatives	1. Integrated document uploads in the website to enhance user experience by integrating cloud storage 2. Switched to React for building dynamic and efficient UI, significantly enhancing user experience

System Administrator | Hostel 5 Council | IIT Bombay   *(Apr '24 - Present)*
Lead in managing Website, App and Server, Elected by 450+ students of the hostel, hostel representative in network committee

Responsibilities	1. Leading 3 Web and App Secretaries to enhancing hostel's website and app, improving functionality 2. Actively maintaining LAN & WiFi connections, ensuring reliable and uninterrupted network services
Initiatives	1. Digitizing the mess system to enhance student dining experiences and meal tracking capabilities 2. Digitizing inventory management system, improving inventory tracking and resident experience

TECHNICAL SKILLS

Data Science	Python, TensorFlow, Keras, PyTorch, Numpy, Pandas, Matplotlib, OpenCV, Scikit-learn, Beautiful Soup
Development	HTML, CSS, JavaScript, TypeScript, ReactJS, NodeJS, ExpressJS, MongoDB, Flask, Firebase, Tailwind

EXTRACURRICULARS

Sports	• Took part in 5KM Crossy (Marathon) GC showcasing my commitment to physical fitness • Engage in Table Tenis and Swiming for recreational pursuit and Study-Life balance
Mentorship	• Mentored 16 Students under Seasons of Code (WnCC) over a course of two months • Instructed 600+ students as CS101 Teaching Assistant with weekly labs and exam revisions