Shreya Singal   22B2445

Metallurgical Engineering and Materials Science   **B.Tech.**

Indian Institute of Technology Bombay   **Gender: Female**

                                                         DOB: 02/04/2004

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2026	8.01
Intermediate	CBSE	Amity International School	2022	96.60%
Matriculation	CBSE	Amity International School	2020	98.40%

Pursuing Minor in **Artificial Intelligence and Data Science** from C-MInDS,IIT Bombay

Scholastic Achievements

- Ranked in **top 6**% in IIT-JEE Advanced, out of **0.15Mn+** candidates   (*'22*)
- Secured **99.44 percentile** in JEE Main, out of **1Mn+** candidates   (*May '23*)
- **Ranked 2038** out of **0.2Mn+** candidates in Kishore Vigyan Protsahan Yojana(KVPY)   (*'21*)
- **C**leared **NTSE** Stage 1 among **1.2Mn+** candidates,ranking in top **5000** all over India.   (*'19*)
- Achieved a remarkable score of **96.6**% in **Class 12** and **98.4**% in **Class 10** under CBSE   (*'20,'22*)
- Secured **All India Rank 63** in Unified Cyber Olympiad. (Unified Council)   (*'19*)
- Secured **International Rank 12** and **Zonal Rank 2** in finals of National Cyber Olympiad(SOF)   (*'16*)

Work Experience

Summer Intern|EY Tech Consulting|ERP AI Solutions   (*May'24 - Jun'24*)

- Conducted research on **Classic and Generative AI capabilities in supply chain solutions** by analysing different capabilities and features of leading cloud based **Software as a Service(SaaS) ERP solutions**.
- Collected and analysed information from various sources, including **Gartner Magic Quadrants** and **Spend-Matters SolutionMap** rankings, industry reports, company websites, and expert interviews, to support research objectives.

Data Analyst Intern|NoQs Digital   (*Dec'23 - Jan'24*)

*Received **Letter of Recommendation** and **Outstanding Performance Award** for exceptional performance*

- Created dashboards in **Excel** for Key Performance Indicators. Used **SQL** for data manipulation and analysis.
- Created visualizations using Microsoft Power BI and Microsoft Excel and implemented bulk document creation and dynamic email messaging with Autocrat, enhancing efficiency and productivity by reducing manual efforts.
- Developed automated functions using Google Apps Script with JavaScript to streamline and support various tasks.

Key Projects

GenAI based Automated Answer Evaluation System|CMInDS,IIT Bombay   (*May'24-Present*)

Guide: Prof. Vinay Kulkarni | IIT Bombay

- Created a program leveraging **Large Language Models (LLMs)** to evaluate descriptive answers during examinations, thus improving the productivity of human evaluation by automatically creating a set of reliable metrics.
- Utilised Python for data processing and **Gemini** and **OpenAI APIs** configuration for evaluating the answers.
- Designed methods to calculate **compliance score** by comparing student answers to expected answers and implemented multiple methods to ask **follow-up questions** for better evaluation of student answers.

Reinforcement Learning in Cybersecurity |Summer of Code   (*May'24-Present*)

Web and Coding Club | IIT Bombay

- summarized the **CS234 Reinforcement Learning** course videos from Stanford as an induction into the project.
- Developed a password generator using **Q-learning** algorithm and a **random forest** classifier, achieving **99**% accuracy in **classifying password strengths** and **optimizing password composition** for enhanced security.
- Implemented an **Intrusion Detection System (IDS)** using Reinforcement Learning (RL) agent and exploring strategies to create an adaptive framework for real-time autonomous detection and response to security threats.

Natural Language Processing | Summer of Science   (*May'24-Present*)

Maths and Physics Club | IIT Bombay

- Investigated tokenization, text preprocessing and text representation methods**(Bag of Words model, TF-IDF)**
- Studied about Natural Language Processing techniques: the **Naive Bayes** Model and **K Means Clustering**

Options Pricing Models and Accuracy |FinSearch   (*Jun'24-Present*)

Finance Club | IIT Bombay

- Studied basics of options and option pricing models, mainly focusing on Binomial and Black Scholes Models.
- Analyzed options data for Apple Inc. (AAPL) and implemented the **Binomial and Black-Scholes** models.

Image Classification for building layouts |Course Project *(April'24)*
Guide: Prof. Vinay Kulkarni | IIT Bombay

- Developed an image processing pipeline using **OpenCV** and **NumPy** to extract features where the system includes hierarchical clustering analysis and **Principal Component Analysis** using SciPy and scikit-learn.
- Performed **contour analysis, vertex counting, and complexity classification**, applied K-means clustering to image features, and visualized images from the predicted clusters based on user-input parameters.

Computer Vision using CNN in PyTorch| Winter in Data Science *(Dec'23 - Jan'24)*
Analytics Club | IIT Bombay

- Implemented **edge detection, image blurring, sharpening, erosion, and dilation** using NumPy library.
- Developed a neural network to **classify digits** (0-9) using one input layer, two hidden layers and one output layer and created image classification models for the **MNIST** and the **CIFAR-10** datasets using PyTorch.

Home Security System | Course Project *(Oct'23 - Nov'23)*
Guide: Prof. Tanushree Choudhary | MEMS Department | IIT Bombay

- Utilized knowledge of threat vectors to design systems that mitigate **potential security risks** effectively.
- Implemented security features to mitigate risks like unauthorized access, intrusion detection, and environmental monitoring, with an SMS notification feature on mobile devices for real-time alerts ensuring security.

Unreal IITB |Summer of Code *(Jun'23)*
Web and Coding Club | IIT Bombay

- Covered basics of using **Unreal engine 5**, a popular 3 dimensional content and experience creation tool.
- Implemented interactive elements within the virtual environments, such as interactive objects and scripted events. Developed virtual environments, focusing on aspects such as terrain, lighting, and atmospheric effects.
- Designed and developed a model of a princess castle and expansive open world island using Unreal Engine 5.

Fabrication Project - Bricks out of plastic bottles|Course Project *(Feb'23)*
Guide: Prof. Parag Bhargava| IIT Bombay

- Developed **eco-friendly bricks** using **recycled plastic water bottles**, collaborating in a team of 14.
- Applied engineering principles to transform plastic bottles into bricks, enhancing strength and durability.

Line Following Robot |MS101 Course Project *(Feb'23)*
Guide: Prof. Tanmay K. Bhandakkar | IIT Bombay

- Built an autonomous vehicle(line follower) with an innovative four wheel drive mechanism in a team of six.
- Conducted rigorous testing of the line follower bot in diverse environments and created a detailed CAD model.

POSITION OF RESPONSIBILITY

PR and Outreach Convener | Sustainability Cell, IIT Bombay *(Nov'23 - May'24)*

- Crafted impactful articles and social media posts to communicate **sustainability goals** and achievements.
- Promoted efforts for events related to sustainability, ensuring optimal engagement and maximizing impact.
- Developed and executed **public relations** strategies to advance and promote **sustainability** initiatives.

Corporate Relations Coordinator | Entrepreneurship Cell, IIT Bombay *(Sep'23 - March'24)*
Asia's largest student-run organization promoting Entrepreneurship | Patronage from UNESCO & Startup India

- Contacted, crafted execution of sponsorship deals with corporates and university for the business conclave
- Created a database of **30+** companies comprising of officials of top corporates for potential sponsorship deals.

Hospitality, Assistance and PR Coordinator | Mood Indigo, IIT Bombay *(May'23 - Dec'23)*
Asia's largest college cultural fest, with annual footfall of more than 0.15Mn

- Volunteering in enhancing the **on-ground assistance** and **accommodation plan** of all the annual cultural fest visitors and stakeholders through **efficient queue time reduction** and comprehensive **digitization**.
- Worked in a team in organizing and managing **hospitality services** ensuring seamless execution of events.

TECHNICAL SKILLS

- **Programming:**   Python, MATLAB, LaTeX, R, C/C++, SQL, Tensorflow, Keras, Pytorch, HTML
- **Software:**   LTSpice, Arduino IDE, AutoCAD Fusion360

EXTRACURRICULAR ACTIVITIES

- Completed **Japanese IR language course** with **Dean of Office International Relations, IIT Bombay**
- Devoted **80+ hours** of service under Sustainable Social Development, **NSS, IIT Bombay**
- Participated in **RC plane** competition in a team of four conducted by **Aeromodelling Club**,IIT Bombay.
- Completed a reading project on **Data Science** in Summer of Science,Maths and Physics Club,IIT Bombay
- Stood **first** in **Mega National Finals** of Young Masters Quiz conducted by India Today **all over India**.