Satvik Jain | **22B0635**
Civil Engineering | **B.Tech.**
Indian Institute of Technology Bombay | **Gender: Male**
DOB: 09/08/2003

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2026	
Intermediate	CBSE	St. Mary's Academy	2021	
Matriculation	CBSE	St. Mary's Academy	2019	

Pursuing a **minor degree** in **Computer Science and Engineering**, IIT Bombay

Scholastic Achievements

- Awarded **AA grade** (awarded to **top 5%** students of the class) in **5+** courses in a batch of 150+ students *(2024)*
- Secured **99.41** percentile in the **JEE Mains** entrance exam amongst **1 million** candidates across India *(2022)*
- Achieved a rank in the **top 1.70%** in the **JEE Advanced** entrance exam amongst **0.16 million** candidates *(2022)*
- Secured a **centum** in **English** 10th board examinations by Central Board Secondary Education *(2019)*

Professional Experience

Machine Learning Engineer

NoQs Digital *(Jun '24 - Jul '24)*

High growth startup with tailored technology solutions to boost sales, and operational efficiency

*Awarded the **Best Intern Award** and received a **Letter of Recommendation** in recognition of excellent work*

- Developed an advanced **chatbot** leveraging **RAG** with **llama3-8b-8192** integration for context-aware responses
- Engineered the chatbot to address inquiries on NoQs Digital's services and internship opportunities
- **Automated** processes and developed interactive **dashboards** using advanced **Google Sheets** and **App Script**

Key Projects

Advanced GPTs Using Open Source LLMs

Seasons of Code, WnCC | IIT Bombay *(May '24 - Jul'24)*

Acquired expertise in application of GenAI leveraging NLP and Deep Learning

- Implemented an **LSTM**-based **next-word predictor** model with advanced preprocessing and embedding techniques
- Executed a comprehensive **NLP pipeline**, developing a skip-gram model to capture semantics using **PyTorch**
- Developed an interactive app comparing performance of over **10** open-source LLMs with **dynamic benchmarking**
- Implemented a **chatbot** capable of performing internet searches, fetch real time stock data,complex calculation and information from Wikipedia using **Langchain AI agents** equipped with various advanced tools (**Serp API**)
- Built an advanced, long-context, **multi-modal RAG** chatbot to chat your documents like pdf, text, url and various other data files and leveraging various LLMs (**Gemini**, **Llama**, **Mistral**, **Gemma**) using **LangChain**

Image Captioning Using Transfer Learning

WiDs, UGAC | IIT Bombay *(Dec '23 - Jan '24)*

- Developed an image caption generation application by integrating **VGG16** CNN architecture with **LSTM** and **NLP** techniques, ensuring accurate image identification and caption generation on the **Flickr8K Dataset**
- Implemented a neural network classifier for the **MNIST** dataset using Keras, achieving **97%** accuracy
- Demonstrated proficiency in utilizing essential Python libraries, including **NumPy**, **Pandas**, **scikit-learn**, and **Matplotlib**, for efficient data manipulation, machine learning tasks, and data visualization throughout the project

Generating Handwritten Digit Images using DCGANs

Course Project | Great Learning Academy *(Jul '24)*

- Developed a Deep Convolutional Generative Adversarial Network **(DCGAN)** to generate realistic digit images
- Implemented **Conv2D** layers and **Leaky ReLU** activations, achieving **adversarial** training convergence
- Explored various CNNs and GANs such as **TCGAN**, **ACGAN**, **CycleGAN** to understand their application

Guided Projects

Coursera *(May '24 - Jul '24)*

- Fine-tuned **BERT** model for text classification using TensorFlow and achieved validation accuracy of **96%**
- Leveraged **Transfer Learning** using various pre-trained models like **ELMo**, **Universal Sentence Encoder** and **NNLM** available in **TensorFlow Hub** and visualized the results using **TensorBoard**
- Developed **PCA** from scratch using NumPy, performed EDA with Pandas, and visualized data with Seaborn
- Implemented a **Logistic Regression** classifier for cancer detection and achieved a test accuracy of **97.90%**
- Built a **Naive Bayes** model to perform **Sentiment Analysis** on Twitter dataset and achieved an accuracy of **93%**
- Explored **SQL** commands like SELECT, INSERT, DELETE, ORDER BY to create meaningful reports

Cat vs Dog Classifier by Fine Tuning VGG16

Course Project | *DataFlair* *(Jun '24)*

- Demonstrated how **data augmentation**, **fine-tuning**, and **transfer learning** using the state-of-the-art **VGG16** model significantly improve model training and performance on the validation set, achieving a **98%** accuracy
- Visualized model performance through accuracy and loss charts for both training and validation sets using **Matplotlib**, showcasing detailed analysis and insights into the training process and validation metrics
- Found that the **best-performing** model was the one **fine-tuned** on **VGG16** with **data augmentation**, achieving **superior** accuracy and performance compared to other approaches

Automated Extraction of Nifty 50 Stock Metrics

Self Project *(Jun '23)*

- Developed a robust **web scraping** script using Python to extract real-time **Nifty 50** stock data from NSE
- Utilized **Selenium** and **Beautiful Soup** for efficient data retrieval and parsing from the NSE website
- Handled scraped data using Pandas, demonstrating expertise in web automation, and data analysis

Built Logistic Regression Classifier using OOP

Course Project | *UGAC Learner's Space* *(Jul '23)*

- Developed a **logistic regression** classifier using Python, showcasing strong **Object-Oriented Programming**
- Implemented **Gradient Descent Optimization** for iterative parameter updates, enhancing model convergence

Autonomous Self-Returning Line Follower Bot

Course Project | *MS 101 : Mountain Cargo Challenge* *(Apr '23 - Jul '23)*

- Engineered a Line Follower Bot using **Arduino** and **Fusion 360**, achieving **95%** line detection accuracy
- Designed a self-returning bot with precise material dumping, improving productivity and reducing downtime

Position of Responsibility

Institute Technical Summer Activities Mentor

WnCC | *Maths & Physics Club* | *IIT Bombay* *(May '24 - Present)*

Fostered the development of talented individuals at the institute through mentorship and guidance

- Guided **10+** students in developing **web scraping** scripts using **Selenium** and **Beautiful Soup**
- Designed & curated a comprehensive learning module on **machine learning** and **deep learning** fundamentals
- Helped students navigate resources, troubleshoot issues, and debugging for efficient and reliable data retrieval

NEC Mentor

E-Cell, IIT Bombay *(Sep '23 - Feb '24)*

Asia's Largest Entrepreneurship promoting student body recognized by NEN | Patronage from UNESCO

- Mentoring **20+** teams from colleges across India to set up their own **Entrepreneurship Cell**
- Conducted weekly meets with them to upscale their events while laying the foundation of their E-Summit
- Ideated **20+ tasks** for the advance track with the team of **20** in a systematic manner for the teams in NEC

Relevent Courses Taken at IIT Bombay

Data Science	Artificial Intelligence and Data Science
Computer Science	Logic for Computer Science, Computer Progrmaming and Utilization, Discrete Structures
Mathematics	Calculus I & II, Linear Algebra, Differential Equations, Probability and Statistical Methods

Technical Skills

Programming	C/C++, Python, LaTeX, HTML, CSS, JavaScript
Python libraries	Langchain, NumPy, MatPlotLib, Seaborn, Pandas, Scikit-learn, Tensorflow, PyTorch, nltk
Softwares	LaTeX, Jupyter Notebook, Microsoft Office, Git, Canva, Fusion 360, Excel, PowerPoint

Extracurricular Activities

- Facilitated inclusive **education** and **mentorship** for visually challenged individuals within the **Voice for Purpose (VFP)** at **National Service Scheme**, IIT Bombay, promoting their active engagement in learning process
- Designed a **smart collar** and **app** to enhance campus safety and mitigate stray dog infections. Led **UI/UX** design using **Figma**. **Pitched** the project to potential users, demonstrating its potential impact and feasibility
- Participated in **Civiesta** Sports Fest, in cricket and table tennis, with the cricket team securing **first** place
- Developed a **Gen AI solution** for the e-commerce apparel sector in **Bona Consilia Challenge (BCC)**
- Mastered Andrew Ng's acclaimed Machine Learning **67hr** course work from **Stanford Online & Coursera**
- Led a 2-month study on **Consumer Theory and Behavioral Analysis**, gaining insights into decision-making
- Collaboratively developed and pitched an innovative **startup** idea to revolutionize **Ed-Tech** industry
- Directed strategic analysis of Rapido, analyzing the value proposition, target customers and potential pitfalls