Adit Srivastava | **22B1269**
Electrical Engineering | **B.Tech.**
Indian Institute of Technology Bombay | **Gender: Male**
DOB: 10/08/2003

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

Pursuing a **Dual Minor** in **Artificial Intelligence and Data Science** and **Computer Science and Engineering**

Scholastic Achievements

- Received an **AP (Advanced Performer)** grade in the course **AI/ML** (CS419) given to only one student *(2024)*
- Achieved **All India Rank 343** in **Joint Entrance Exam Advanced** out of **150,000+** candidates *(2022)*
- Obtained an **All India Rank 115** in the **Kishore Vaigyanik Protsahan Yojana** exam in the SX stream *(2022)*
- Secured **All India Rank 558** in **Joint Entrance Exam Mains** along with a **100 percentile** in Math *(2022)*

Professional Experience

Generating Alphas for Global Markets | Professional Project: Prospace, IIT Bombay *(Ongoing)*

Selected in a 5 member team working to generate viable trading Alphas for BP Wealth Ltd.

- Performed the **Calendar Spread Strategy** on Monthly Futures, created a distribution of the price ratio and identified the **ideal Z-values** to enter the trade and implemented a **stop loss** based on the **risk-reward ratio**
- Created **Pairs Trading** Strategies by identifying pairs of stocks with high correlation and cointegration using the **ADF test**, generated trading signals based on **Z-values** and implemented a **stop loss mechanism** to minimize risk
- Used **Bollinger Bands** as Volatility Indicators to identify the ideal index to perform the **Short Straddle Strategy**

Topic Modeling of Customer Service Calls | Data Analytics Internship: Angel One *(Summer 24')*

- Fine tuned the **Indic-Wav2Vec** model to perform **automatic speech recognition** to transcribe a customer service call dataset, used **Pyannote** for **speaker diarization** and the **MarianMT** model for postprocessing
- Built a **Databricks** pipeline to generate a transcript for call recordings followed by a **text correction** pipeline

Key Projects

Federated Multi Armed Bandits | Research Project: Prof. Sharayu Moharir *(Summer '24)*

- Implemented the **FedElim algorithm** research paper to find the local and global best arms in a **federated best arm identification** scenario and verified a **theoretical upper bound** on the total communication cost for server uplinks
- Performed Uplinks only on **exponentially sparse timesteps** to make communication **almost cost free**

Senior AI Engineer | The Humanoid Project, IIT Bombay *(Spring '24)*

- Collaborating with an **interdisciplinary team** at IIT Bombay to develop a **Humanoid Robot Assistant**
- Developed and trained a comprehensive book and label detector by fine tuning **YOLO-V8** on a custom dataset, used **Prompt Engineering** on **Gemini 1.0 Pro** to perform **Optical Character Recognition** on the labels
- Built a **RAG chatbot** using the **Llamaindex** library, used the **Llama-7b** model to answer questions on the academic rulebook and **Quantized** it to reduce the overall inference time of the entire pipeline

Parkinson's Treatment Response Prediction | Research Project: Koita Centre for Digital Health *(Spring 24')*

- Conducted a study using **Multimodal Data** (Demographic,Clinical,Genetic,Image) as features to build an **ML model** to predict treatment response for patients with Parkinson's disease using the **PPMI** dataset
- Processed structural MRI data using the **CAT12** algorithm for **Voxel based Morphometry**, followed by **Linear Interpolation** to obtain volumetric data of Grey matter in the form of **3747** numerical features
- Trained a **Supervised Autoencoder** to classify a patient's response to treatment and achieved **75% accuracy**

DeepRL for Stock Trading | Finsearch: Finance Club, IIT Bombay *(Summer '23)*

- Developed 2 Reinforcement Learning agents using **DQN and PPO** to trade stocks in a custom environment and tested their performance over a **2 year period** where they managed to obtain an impressive **60% profit**
- Compared the performance of these agents to benchmark ML methods like **ARIMA** and **LSTM**

Attacking LLMs using PGD | Summer of Code: Web and Coding Club, IIT Bombay *(Summer '24)*

- Studied various prompting techniques and tested them on pre-trained LLMs like **Vicuna 7b 1.5** and **GPT-2**
- Studied **entropy** and **discrete optimisation** to solve LPP using **Simplex** and tabular methods
- Implemented a **projected gradient-based attack** on the Vicuna 7b 1.3 LLM using simplex and entropy projection

Positions of Responsibility

Teaching Assistant | Linear Algebra: Conducted **tutorial sessions** and cleared doubts for **40+ first year students**
Mentor: Summer of Code | Web and Coding Club, IIT Bombay: Guided 15+ mentees on a 2 month long ML project

Extracurriculars

- Ideated **document summarization app**, conducted customer discovery validating the concept and granted **INR 50,000** for outstanding innovation in a competitive selection among **60+ teams** *(2024)*
- Created a Start-up model for **EUREKA, Asia's Largest business model competition** *(2023)*
- Received a **Gold Medal** in **Basketball Freshiesta**, an inter-hostel competition for freshers *(2022)*
- Created a Business Model for a **Blockchain technology** based startup-**TalentBlock** for **EnB Buzz** *(2022)*