

Pursuing Minor in Machine Intelligence and Data Science

SCHOLASTIC ACHIEVEMENTS

- Secured **All India Rank 128** in **Joint Entrance Examination Advanced** among 160,000+ candidates (2022)
- Secured **All India Rank 277** in **Joint Entrance Examination Mains** among 1,000,000+ candidates (2022)
- Awarded the prestigious **KVPY Fellowship in Basic Sciences** twice by the Indian Government, securing **National Rank 269** in the SX stream and **National Rank 456** in the SA stream (2020, 2021)
- Awarded the reputed **National Talent Search Examination (NTSE)** scholarship by **NCERT** (2020)

EXPERIENCE

Software Development Internship

(Summer 2024)

Franklin Templeton

- Worked as a part of **Commercial Mortgage-Backed Securities** team to implement a **Web Dashboard** using **Flask** and **Ag-Grid**, streamlining **bond data** access across different systems and saving **time and effort**
- Implemented a **multi-threaded REST API** for performing **computationally heavy analysis** and **database operations** on a separate **remote machine**, enhancing **scalability** using **Flask** and **Waitress** libraries
- Facilitated the migration of ML models from Oracle to SnowflakeSQL to enhance **performance** and **scalability**

KEY PROJECTS

Peer-to-Peer Texting System | Self Project

(Summer 2024)

- Developed a **shell-based messaging** system using **C++** based on a **peer-to-peer network** architecture, ensuring high **scalability** and easy **deployment** by requiring only one remotely running tracker process at any time
- Designed a **threaded tracker** program to manage **peer registration**, **connection**, and **IP address resolution**
- Leveraged the **peer-to-peer architecture** to ensure **reliable message delivery** even if the sender exits or the receiver is offline, by keeping pending messages with active peers or within the tracker server if needed

Algorithmic Trading | Course Project

(November 2023)

Guide: Prof. Ashutosh Gupta

- Developed trading strategies and techniques for **arbitrage detection** efficiently using **Graphs** and **Hashmaps**
- Implemented a **multi-threaded order book** program which tracks transactions history and **Profit & Loss** for traders at **EOD**. Developed an AutoTrader achieving profitability with **moving median trading**
- Implemented custom data structures for efficient **string parsing** and performing efficient **low latency trading**

Nasdaq Analytics Application | Self Project

(Summer 2024)

- Developed a **Flask-based** web application that integrates with the **Nasdaq's data-link API Quandl** to retrieve current/historical **stocks data**, displaying it in an interactive dashboard with **AG Grid** for easy access
- Implemented the functionality to create visualizations with **Plotly.js** to show stock price trends over time
- Integrated a real-time data update feature using **WebSockets**, enabling **live stock price updates** on the dashboard

Zip Tool | Self Project

(Winter 2023)

- Developed a file compression & decompression tool using **Huffman's algorithm** with efficient character frequency analysis, **tree construction**, and binary mappings to minimize file size while ensuring **lossless data recovery**
- Created an optimized encoding scheme to store character mappings enabling clean and efficient decompression
- Implemented **data integrity checks** to detect **corrupted** compressed files using TCP like **checksum**

POSITIONS OF RESPONSIBILITY

WiDS Reinforcement Learning Mentor | Analytics Club IIT Bombay

(Winter 2023)

- Mentored **9 students** in a reading and implementation project on **Deep Reinforcement Learning**
- Guided mentees in implementing **Deep Q Networks**, **Dueling Deep Q Networks** & **Actor-Critic** models

TECHNICAL SKILLS

Languages	C/C++, Python, SQL, Matlab, LaTeX, Bash, AWK, x86 Assembly, MIPS
Development	Flask, SnowflakeSQL, OracleSQL, HTML, CSS, Git, Doxygen, Spreadsheet, JavaScript
Python Libraries	Gymnasium, PyTorch, Tensorflow, TFDF, NumPy, Pandas, SkLearn, Multiprocessing

ACHIEVEMENTS & EXTRACURRICULAR ACTIVITIES

- Achieved a rating of **1770+** and **Expert** title in **Competitive Programming** platform **Codeforces**
- Created a **business model** for a **student-appealing social media platform** as a part of **EnB Buzz** competition