



Harsha Vardhan Y
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Examination	University	Institute	Year	CPI/%
Graduation	IIT Bombay	IIT Bombay	2028	xx.xx
Intermediate	CBSE	Narayana Jr. College	2024	97.8%
Matriculation	CBSE	Narayana CO School	2022	97.6%

SCHOLASTIC ACHIEVEMENTS

- Attained **All India Rank 170** in the **Joint Entrance Examination Advanced**, among 180,000+ aspirants 2024
- Secured **Rank 84** in **TS EAPCET**, a premier state-level entrance exam, among **254,000+** contenders 2024
- Achieved **All India Rank 267** in the **Joint Entrance Examination Main**, among 1,400,000+ aspirants 2024
- Secured **Rank 119** in **AP EAPCET**, a major state-level entrance test, out of **339,000+** participants 2024

KEY PROJECTS

Summer Of Quant | Quant Community, IIT Bombay

(June - July 2025)

- Studied **stochastic processes**, **Markov chains**, and **Poisson processes** with applications in quantitative modeling
- Gained exposure to **time series analysis**, feature engineering, and signal generation for trading strategies
- Learned **quantitative trading strategy design**, focusing on risk management, backtesting, and model robustness
- Secured a **Certificate of Excellence**, ranking among the top 10 performers in the Summer of Quant program

AI-Enhanced Chatbot Integration | Intern, Quant Systems

(May - July 2025)

- Helped in integrating the company's database with the **OpenAI API** to build an AI-powered corporate chatbot
- Designed a **math-focused** chatbot using retrieval-based prompting to ensure accuracy from internal data
- Implemented **RAG** with OpenAI Embeddings, Chat Completions, and **Pinecone** for precise query handling

Stock Price Prediction Using LSTM | Self Project

(December 2024)

- Built a stock price prediction model using **LSTM networks** to capture temporal dependencies in past market data
- Collected, cleaned, and visualized stock data with **Pandas**, **NumPy**, **Matplotlib**, **yfinance**, and **Scikit-learn**
- Implemented real-time stock data collection and performed advanced **feature engineering** with **yfinance**
- Evaluated model performance using multiple metrics to rigorously assess prediction accuracy and overall robustness

Advanced Algorithm Implementation | Course Project

(Aug - Sept 2025)

Guide: Prof. Ashutosh Gupta - Data Structures and Algorithms

- Implemented a **Red-Black Tree** with insert/delete operations and an optimized **hash table** using linear probing.
- Devised **Strassen's matrix multiplication** achieving $O(n^{\log_2 7})$ runtime with advanced memory optimizations.
- Investigated and benchmarked **Heaps**, **Binary Trees**, and **BSTs** to evaluate efficiency and operational trade-offs.

Queen's Gambit Chess Engine | Self Project

(June - July 2025)

- Understood several core concepts of **Game Theory** such as **MinMax Theorem**, **Nash Equilibrium** and **Zero Sum Games** to develop optimal strategies for a wide variety of competitive scenarios and decision making problems
- Designed an **Advanced Evaluation Function** for **Chess Analysis** incorporating current positional insight and future position forecast to make a **chess bot** capable of solving various **puzzles** with **90%+ Accuracy** efficiently
- Extended chess bot capabilities to play complete matches, integrating features like **Opening Book Lookup**, **MinMax Theorem**, and **Alpha-Beta Pruning Optimization**, successfully defeating a **1500-rated** Lichess bot

Restaurant E-Commerce Website | Team Project

(January - February 2025)

Devcom, IIT Bombay

- Built a full-stack **restaurant web app** with an interactive digital menu and real-time dynamic cart system
- Developed a responsive frontend in **React JS** and backend in **Node.js** for seamless client-server integration
- Gained experience in **modular web development**, state management, and scalable e-commerce application design

OTHER PROJECTS

Cricket Scoring System | Course Project: Software Systems Lab

(March - April 2025)

Guide: Prof. Kameswari Chebrolu

- Developed a real-time **Cricket Scoring Web Application** using **HTML, CSS, JavaScript, and Python**
- Implemented modular features for player management, score tracking, strike rotation, and over summaries with robust error handling, and used **Selenium** to automate webpage simulation for testing and input automation
- Integrated interactive **modals** for player input, live updates, and user-friendly match simulation experience

Quadcopter with Remote Control | Course Project: Makerspace

(March - April 2025)

Guide: Prof. Joseph John, Prof. Shankar Krishnan

- Developed a fully operational **quadcopter** from the ground up, combining structural design, electronics, and embedded coding for autonomous flight, while modeling essential parts in **Fusion 360** for accurate assembly
- Designed a **flight controller** with wireless connectivity to ensure stable control of orientation and movement
- Gained hands-on expertise in **aerodynamics, sensors, circuit design and microcontroller programming**

Competitive Programming | Summer Of Science

(June 2025 - July 2025)

Maths and Physics Club, IIT Bombay

- Explored recursion, **dynamic programming**, string operations, **greedy methods** and **mathematical algorithms**
- Solved over **150+** Codeforces problems and puzzles across diverse difficulty levels to build strong analytical thinking
- Applied advanced data structures in coding challenges, emphasizing efficiency and modularity in implementation
- Worked with graph algorithms (**Dijkstra's**, **Floyd-Warshall**) and **sorting techniques** to optimize performance

SAT-Based Sokoban Solver | Course Project: Logic in Computer Science

(August 2025)

Instructor: Prof. S. Krishna

- Designed a **robust multi-dimensional state-space encoding** using **PySAT**, translating Sokoban game mechanics into **Boolean satisfiability** with 6+ constraint types, including movement logic and non-overlap conditions.
- Enhanced solver performance using **unit propagation** and **clause learning**, efficiently handling complex **SAT** instances with optimized variable encoding.
- Constructed a comprehensive set of **CNF** clauses to enforce game rules, modeling **collision dynamics** and **transition logic**, enabling decoding of the SAT solution into a valid gameplay path.

Artificial Intelligence Program | Alcheringa, IIT Guwahati

(Jan - Feb 2025)

- Completed an **8-week AI program**, gaining hands-on experience with modern AI and machine learning techniques.
- Gained strong expertise in **machine learning algorithms, data processing, and predictive modeling**, and applied these advanced technical skills effectively to analyze data, build models, and solve real-world problems.
- Demonstrated a strong and consistent commitment to continuous learning and advanced technical skill development.

Assorted Python Projects | Self Projects

(2024 - Present)

- Developed a Windows utility to adjust the opacity of any running application for improved multitasking and focus.
- Built a Python script to fetch and display all problems solved by a user on **Codeforces**, tracking progress efficiently.
- Created a PDF converter that transforms documents into a dark-themed format, reducing eye strain for extended use

TECHNICAL SKILLS

Languages	C/C++, Python, Bash, Assembly, Verilog, Make, Arduino, Git, HTML, CSS, Javascript
Software	L ^A T _E X, Markdown, Sed, GitHub, Awk, Fusion360, Fractory, Docker, Jupyter, ReactJS
Data Science Libs	NumPy, Pandas, Matplotlib, SciPy, Tensorflow, PyTorch, Pycryptodome, OpenCV

EXTRACURRICULAR ACTIVITIES

- Engaged as a regular participant on **Codeforces**, rigorously honing algorithmic problem-solving abilities and advancing competitive programming proficiency through sustained practice and contest performance (2025)
- Volunteered with the **National Service Scheme (NSS)**, contributing to large-scale social outreach programs and community development initiatives aimed at fostering educational equity and civic responsibility (2024)
- Assisted in organising the **Treasure Hunt** competition during **E-Summit 2025**, ensuring smooth execution of event logistics and facilitating participant engagement in a high-pressure problem-solving environment (2025)
- Actively participated in inter-collegiate **Volleyball** tournaments, cultivating teamwork, resilience, and disciplined collaboration while representing the school in competitive sporting events (2023)