



Shreyas Ajit Katdare
Computer Science & Engineering
Indian Institute of Technology Bombay

22B0636
B.Tech.
Gender: Male
DOB: 08/05/2004

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

Pursuing a Minor in Artificial Intelligence and Data Science

SCHOLASTIC ACHIEVEMENTS

- Granted **AP (Advanced Performer)** grade (**top 1%** of students) in **3 courses** including **Computer Programming**. (2023)
- Awarded **Change of Branch** to **Computer Science & Engineering** department (only **18** out of **1400+** students). (2023)
- Secured percentile of **99.636** in **JEE Mains** (**1M+** candidates) & **98.62** in **JEE Advanced** (**250K+** candidates). (2022)
- Awarded the prestigious **KVPY fellowship** by **IISc Bangalore** and secured **AIR 1088** in **KVPY 2022 -SX stream**. (2022)
- Secured **All India Rank 16** in **Maharashtra Common Entrance Exam** out of over **2.3 Lakh+** candidates. (2022)

PROFESSIONAL EXPERIENCE

Terrastack Technologies | Software Development Intern

(Summer 2024)

A collaboration between Settlement Commissioner, Department of Land Records and Google Research

- Worked on a project that aims to generate **modified village maps** that respect farm boundaries on ground while ensuring **minimum deviation** in **area** and **shape** from the digitized paper maps, for **40000** villages across Maharashtra.
- Developed custom **QGIS plugins** to streamline land record management, integrate with **PostgreSQL** databases, and designed **map editing tools** for precise spatial adjustments and dynamic visual updates using **PyQGIS** & **PyQt API**.
- Developed a **codebase** consisting of over **5K+** lines along with comprehensive **documentation** for all the plugins.

KEY PROJECTS

Algorithmic Trading | Prof. Ashutosh Gupta; Data Structures and Algorithms

(Autumn 2023)

- Created a **trading market model** that handled orders, expiration, ensuring fairness by matching orders based on price & time.
- Developed an algorithm for **order book processing** to detect **arbitrage** in multi-quantity stock orders, optimizing profit.
- Implemented a **buy low, sell high** strategy and a **moving median** strategy to improve trading efficiency and profitability.

Semi-Automatic Tumor Segmentation | Prof. Suyash Awate; Medical Image Computing (Spring 2024)

- Implemented **Multiscale Otsu Segmentation** algorithm on original and edge-aware smoothened brain MRI images.
- Applied **K Nearest Neighbours** algorithm to combine the segmentations and generate improved segmentation results.
- Extracted tumor region using **bi-directional region growing**, achieving a **95%** true positive rate and **0.6%** false positive rate.

Cache Optimizations & Data Prefetching | Prof. Biswabandan Panda; DLDCA

(Autumn 2023)

- Implemented **LRU, FIFO, LFU & BIP** replacement policies for the **L2C** cache within **ChampSim** micro-architecture simulator.
- Explored the implementations of the **IP-Stride prefetcher** and implemented the design of a **Stream prefetcher**, determining prefetching degree and monitoring region distances to enhance **IPC** & achieve a **system Speedup** of **1.30**.

Sentiment Analysis & Text Generation | Self Project

(Summer 2024)

- Developed an **LSTM-based** sentiment analysis bot using the **IMDB dataset** and **GloVe embeddings**, performing text cleaning and normalization to classify movie reviews and provide ratings out of 10 with semantic understanding.
- Designed & trained a **many-to-one LSTM** model on a text corpus to generate coherent & contextually relevant sequences.
- Enhanced text generation variability & coherence by implementing **entropy scaling** & adjusting the **softmax temperature**.

Enhancing xv6 OS functionality | Prof. Mythili Vutukuru; Operating Systems

(Spring 2024)

- Added multiple **System Calls** in the **xv6 operating system** codebase to enhance process and memory management.
- Implemented the **weighted round robin scheduler** in xv6 enhancing process scheduling based on priority values.
- Implemented **Demand Paging** and enhanced **fork** with **Copy-On-Write** functionality optimizing memory usage.

POSITIONS OF RESPONSIBILITY

Teaching Assistant | MA 105 - Calculus, MA 110 - Linear Algebra & Differential Equations

(2023-24)

- Conducted weekly tutorial sessions for **35+** students in association with **Department of Mathematics IITB**.

Seasons of Code Mentor | Web & Coding Club IIT Bombay

(Summer 2024 Ongoing)

- Guided 8 students on a project based on sentiment analysis & text generation using **RNN** and **LSTM**.

TECHNICAL SKILLS

Programming Languages

Libraries and other software

Development

C/C++, Python, MATLAB, SQL, VHDL, MIPS, PostgreSQL, PyQGIS, HTML
PyTorch, NumPy, SciPy, Matplotlib, Pandas, Jupyter Notebook, Pulp, Pygame
Git, GitHub, L^AT_EX, Docker, Autocad, QGIS, PostGIS, Markdown, Anaconda

EXTRACURRICULAR ACTIVITIES

- Active Competitive Programmer** : Achieved a contest rating of **1853 (4 stars)** on the platform **CodeChef**. (2024)
- Awarded prestigious **black belt** in **Karate** & **Gold Medal** in **Nihon Shotokan National Karate Championship**. (2018)
- Completed an intensive year long **National Sports Organisation (NSO)** programme in **Chess** at **IIT Bombay**. (2023)