

Pursuing a **Minor** degree in **Artificial Intelligence** and **Data Science** from **C-MInDS, IIT Bombay**

SCHOLASTIC ACHIEVEMENTS

- Achieved **99.81 Percentile** in **JEE-Main** out of over 1 million candidates (2021)
- Secured **All India Rank 1207** in **JEE-Advanced** out of over 0.14 million candidates (2021)
- Secured **AP(Advanced Performer)** grade for excellent performance in **PH 108-Basics of Electricity & Magnetism**, awarded to 27 out of over 1300 students taking the course (2022)
- One of the **17 out of 1400+** students to secure a **Change of Branch** to the department of **Computer Science and Engineering** owing to excellent academic performance in first year at IIT Bombay (2022)
- Secured **All India Rank 275** in the prestigious **KVPY (Kishore Vaigyanik Protsahan Yojna)** SX and awarded fellowship by the Department of Sciences, **Indian Institute of Science(IISC) Bangalore** (2021)

KEY PROJECTS

FastChat

Autumn 2022

Guide: Prof. Kavi Arya | Ongoing Course Project : Software Systems Lab

IIT Bombay

- Developing a messaging software by building a network of clients interacting via servers acting as mediators
- Focusing on obtaining **high throughput** while using only **limited resources** dedicated for the servers
- Ensuring **low latency** of individual message deliveries and **end-to-end encryption** between clients
- Using **python socket library** to develop the network, using **open source libraries** for authentication and communication, **PostgreSQL** database to store the data and **bash** for scripting and collecting results
- Adding flair to this web application by implementing an interactive frontend using **HTML, CSS and JavaScript**

Rail Planner

Autumn 2022

Guide: Prof. Supratik Chakraborty | Course Project : Data Structures and Algorithms Lab

IIT Bombay

- Designed a simplified version of a railway planner using various data structures and analyzed the space, time complexity and the efficiency to demonstrate the **properties of different data structures in C++**
- Stored trains as a dictionary using **Hash Tables** and devised algorithms for fastest possible journeys
- Used **BSTs and then AVL trees** for quick searching using the journey codes and used **Tries** to implement the autocomplete feature while searching for station names
- Used **Quicksort** to order trains by day and time, implemented the **KMP-string matching algorithm** for allowing review searches by using keywords and implemented **Heaps** to allow filtering the reviews by their rating

Generating Representative Images from a Sample

Autumn 2022

Guide: Prof. Suyash Awate | Ongoing Course Project : Data Analysis and Interpretation

IIT Bombay

- Used **MATLAB** to use a data set of images of various fruits and sampled random images to generate new representative fruit images using **Principal Component Analysis (PCA)**
- Used PCA to analyse images of handwritten digits from the **MNIST Database** and optimally reduce the dimensionality and reconstruct the image
- Implemented hyperplane fitting of 2 random variables and sampled points in the Euclidean Plane according to a given multivariate distribution

Multiplayer Tic-Tac-Toe

Autumn 2022

Guide: Prof. Kavi Arya | Course Project : Software Systems Lab

IIT Bombay

- Used **Java Socket Programming** for **inter process communication** using the **peer-to-peer model**
- Created the tic tac toe game using this model and handled various network and **IOStream exceptions**

Bubble Trouble

Guide: Prof. Parag Chaudhuri | Course Project : Computer Programming and Utilization

Autumn 2021

IIT Bombay

- Designed an interactive single player retro style game which implements a bubble shooter to shoot random floating bubbles on the screen to demonstrate the **Object Oriented Paradigm in C++**
- Implemented event-handling using **XEvent** object extensively used the **C++ STL** and the Simplecpp library that was developed in-house by the institute to add the various features of the game
- Handled various events, assigning multiple responses by the game and designed the game for many levels of difficulty

TECHNICAL SKILLS

Programming Languages: C++, Python, MATLAB, Java, Bash, Solidity, Sed, AWK

Software & Tools: Git, L^AT_EX, MySQL, NumPy, Pandas, Matplotlib, Doxygen, Sphinx, gdb

Web Development: HTML, CSS, JavaScript, BootStrap

EXTRACURRICULAR

- Successfully completed one year under **National Sports Organization(NSO)** in **Chess** at IIT Bombay (2022)
- Pitched a **Business Model Canvas** for a startup in the health sector which entailed making online ambulance bookings, for the EnB Buzz competition conducted by the **Entrepreneurship cell of IIT Bombay** (2021)
- Participated in a team of 3 and wrote a working script and successful submission in **Google Hashcode 2021**(2021)
- Worked as team of 4 to make a remote controlled bot using ESP32 for XLR8 - an event of **ERC, IITB** (2022)