Pursuing a **Minor** offered by the **Department of Computer Science and Engineering** with a **9.0** Minor CPI

Scholastic Achievements

- Secured **99.64** percentile in Joint Entrance Examination-Mains among over **1 million** candidates *(2022)*
- Secured **98.71** percentile in Joint Entrance Examination-Advanced among over **0.15 million** candidates *(2022)*
- Awarded **AP** grade for exceptional performance in Entrepreneurship, given to only the **top 2%** of the class *(2022)*

Internship Experience

Software Development Engineer | KRIV *(May' 24 - Jul'24)*

- Built a user-friendly, dynamic app in **Flutter** and **Django** to connect people with Civil Engineers for their needs.
- Utilized **BLoC** for state management and external **Google Map APIs** to get location information from the user.
- Made APIs in Django to handle **CRUD** operations and implemented login and sign-up through **OTPs** for security.

Research Intern | UCLA | Guide: Prof. Lixia Zhang *(May' 24 - Present)*

- Learnt about **Named Data Networks**, a new internet architecture which aims to replace the current IP architecture.
- Explored using data names for forwarding network packets instead of IP addresses to enhance **broadcasting** efficiency
- Identified issues and suggested changes for **NDN Workspace**, a **decentralised** collaborative editor on NDN.

Key Projects

InstiApp *(Aug' 23 - Present)*

Developers' Community | IIT Bombay

Introduced important updates to, and maintained InstiApp, an app which provides digital solutions to various problems a student may face in IIT Bombay. The app has more than **15,000 downloads** in both the Play Store and App Store.

Map Microservice

- Led a team of 4 developers to make a **microservice** in **Angular** and **Django** that shows an interactive map of IITB.
- Implemented microservice architecture for independent scaling, which reduced server resource consumption by **25%**
- Used **adjacency lists** and **Dijkstra's** algorithm to compute the shortest path between any two locations on the map
- Containing over **250** locations, the map is used by more than **10,000+** students every year to navigate the campus

Buy and Sell

- Designed and developed a portal in **Flutter** with a team of **4** members to allow college residents to sell their goods.
- Actively promoted and publicized the platform, resulting in **over 200** product sales within 2 months of its launch.

Encrypted QR Generation

- Generated a QR code in **Flutter** to authorize **10,000+** students in more than **10** hostels to take their mess meals
- Performed **Encryption** & **Decryption** using the **Fernet algorithm** to securely generate the URL for the QR code

Dockerisation

- Containerised Angular and Django applications using **Docker** to isolate dependencies and environment configurations.
- Used **Docker Compose** to orchestrate multi-container applications, streamlining the setup and deployment processes.

Predicting Indian Population Trends *(Apr' 24 - May'24)*

Guide: Prof. Prabhu Ramachandran | AE248: AI and Data Science | Course Project

- Analysed and visually represented the Indian Census of 2011 using **NumPy**, **Pandas**, **Matplotlib** and **Seaborn**.
- Performed **correlation tests**, **linear regression line fitting** and **hypothesis testing** using various parameters.
- Predicted the Indian population in 2021 by fitting a **Quadratic regression model** with an accuracy of **90%**.

Entry-Exit Authorisation System *(Apr' 24- Jun' 24)*

Developers' Community | IIT Bombay

- Led a team of **4 developers** to develop an app in **Flutter** which authorizes **10,000+** students to enter areas like the gym by using a **NFC card** reader and tracks relevant details about the student needed by the administration.
- Leveraged **Hive** and **MongoDB** to locally store and verify data so that the app functions without the internet.
- Used the **Retrofit** package to carry out **API** integration to sync local data with the Backend when internet is available

Data Syncing using WebSockets *(Dec' 23- Jan' 24)*

Developers' Community | IIT Bombay

- Used Websockets in **Flutter** for continuous syncing of meal data between mess tablets present in different hostels
- Implemented an **algorithm** to recover **lost meal data** from websocket stream in case of loss of internet connection
- Performed **unit testing** for websockets to future-proof the codebase, ensuring easier maintainability of the code.

EmoSense: An NLP model for sentiment analysis *(Dec' 23- Jan'24)*

Self Project

- Learnt **exploratory data analysis** and text-preprocessing using the **Pandas**, **Matplotlib** and **NLTK** libraries
- Trained an **NLP** model to detect depression through tweets using **sentiment analysis** with the help of **LSTM**, **Word2Vec** embeddings and **Logistic Regression**, further comparing the accuracies achieved by each of them
- Finetuned an advanced **BERT** model with a primary focus on **masking** and **attention**, to determine whether or not the given Twitter data had indicators of depression, subsequently achieving a remarkable accuracy of **87.5%**

Artificial Intelligence | Summer Of Science *(May' 23 - Jul' 23)*

Maths and Physics Club | IIT Bombay

- Explored Supervised and Unsupervised machine learning techniques through methods like **Deep Learning** and **Reinforcement Learning** and their working using the **gradient descent** algorithm to minimise the cost function
- Studied the application of the **McCulloch-Pitts neuron** in optimising allocation of products from docks to a large number of warehouses to **optimize space utilization** and reduce congestion and resource wastage in warehouses

Other Projects

Website Security *Course Project | CS745 - Principles of Data and System Security* *(May' 24)*

- Developed a website in **HTML**, and tested it for security vulnerabilities by performing **XSS** and **CSRF** attacks.
- Implemented effective XSS and CSRF mitigation techniques, comprising of **output encoding** and **CSRF tokens**.

Data Structures and Algorithms | *Learner's Space, WnCC, IIT Bombay* *(Jul' 23)*

- Learnt Data Structures like **Binary Trees**, **Arrays**, **Vectors** and **Hash Tables** and practiced problems on them
- Participated in tournaments every week on **HackerRank** with **900+** other students to solve challenging problems

Deep Linking | *Developers' Community, IIT Bombay* *(Aug' 23)*

- Enabled **deep linking** in **Flutter** to direct users to a specific screen on Instiapp after scanning a QR code
- This allowed for the publicity of the app and helped in gaining **1000+** downloads from the freshmen of the institute

Python For Data Science | *Learner's Space, UGAC, IIT Bombay* *(Jul' 23)*

- Leveraged **Scikit-learn** to train and test a **Linear Regression Model** to predict the closing price of TCS's stock.
- Made a **Logistic Regression Model** to predict diabetes in a person and validated accuracy using R-value calculation

Positions of Responsibility

Project Lead | Developers' Community, IIT Bombay *(Mar' 24-Present)*

- Leading a team of **20+ developers**, responsible for maintaining crucial digital infrastructure for the institute.
- Mentored and guided developers in writing **production quality, maintainable code** and **seamless deployments**.
- Significantly contributed to the continuous improvement of **Instiapp**, an app that digitises a students' everyday life.
- Deployed the system on a **Linux** server using **bash** and ran **cronjobs** to automate **20+** hours of manual work

Department Academic Mentor | Department of Aerospace Engineering *(Jun' 24-Present)*

- Mentoring a group of **8 sophomore students**, on a one-to-one basis, ensuring their **academic**, **mental** and **emotional** wellbeing, whilst coordinating with **15+** co-mentors, to smoothen their transition into the department
- Curating **course related resources**, for the benefit of **300+** students of the Aerospace engineering department.
- Developing a handbook to provide information about academic and professional opportunities to **300+** students

Technical Skills

- **Software:** Fusion 360, ANSYS, MATLAB, LaserCAD, Docker, Git, LaTeX, Jupyter Notebook, Android Studio
- **Programming Languages:** Python, C++, Java, Dart, TypeScript, HTML, CSS
- **Libraries and Frameworks:** Angular, Flutter, Numpy, Matplotlib, Pandas, Seaborn, SciKit, Bootstrap, Django

Courses Undertaken

- **Computer Science:** Computer Programming and Utilisation (CS101), Computer Networks (CS224), Data Structures and Algorithms (CS213), Principles of Data and Systems Security (CS745), AI and Data Science (AE248)
- **Mathematics:** Calculus I (MA109), Calculus II (MA111), Linear Algebra (MA106), Differential Equations (MA108)

Extracurriculars

- Reached the **novice finals** of the IIM Ahmedabad Parliamentary Debate Competition among **57** teams *(2024)*
- Reached the **novice finals** of the Tabtastic Autumn Open among **49 international debating teams** *(2023)*
- Volunteered for **80+** hours as a part of the **National Service Scheme** for Sustainable Development *(2022 - 2023)*
- Collected **2000+ kilograms** of clothes in a **Cloth Collection Drive** to help underprivileged individuals *(2023)*
- Helped in ideating and writing multiple articles for Insight, the student **Journalist Club** of the institute *(2023)*