Scholastic Achievements

- Qualified **Joint Entrance Exam Advanced** among   ...ates with 9.. percentile   **[2020]**
- Secure...   ...rcentile in the **Joint Entrance Exam Mains** amongst the 1.1 million+ applicants   **[2020]**

Key Projects

Enron Investigation | Analytics Club, IIT Bombay   [Dec'21-Jan'22]

- Collaborated with a team of 10 members to analyse the literature of the Enron fraud case causing a loss of **$74 billion**
- Performed **EDA** using **Python, Tableau** to shortlist **3 Person Of Interest** from a dataset of **140+ suspicious individuals**
- Made predictions based on the Machine Learning algorithms like **Naive Bayes and SVMs** with **score = 0.92**

Toxic Comments Classification | Self Project   [May'22]

- Analysed the text data with **word clouds** and built a text classifier to detect toxicity like threats, obscenity, insult etc.
- Pre-processed the **kaggle dataset** with the help of **NLTK, Spacy, Keras tokenizer and Glove word embeddings**
- Built a model with **Convolutional Neural Networks and LSTMs** with a test accuracy of **98%** and loss of **0.06**

Credit Card Fraud | Self Project   [Jun'22]

- Performed **Exploratory Data Analysis** on the dataset and visualized attributes using graphs and distribution curves
- Applied Machine Learning techniques to build various models like **Logistic Regression, KNN, Gaussian NB, Random Forests, Decision Tree** and found Random Forests to be the best with an **F1 score** of **0.97**

Flight Delays Prediction | Self Project   [Jul'22]

- Carried out **EDA** and **hypothesis testing** of **100,000+** historic flight data to shortlist key features across 9 attributes
- Incorporated feature engineering and used machine learning models - **Gaussian Naive, Logistic Regression** to better model the delays - achieved the best results with **Logistic Regression** out of the 2 ensembles, **F1-score = 0.89**

Competitions

ASME SDC | UMIC, IIT Bombay   [Dec'20-Apr'21]

American Society of Mechanical Engineers' Student Design Challenge

- Selected among **150+** applicants within IIT Bombay to represent the institute internationally at the ASME SDC 2021
- Ideated **strategies** to power a bot from one AAA battery and to recharge it using **wind and solar energy** efficiently
- Developed various online **simulation models** of the electric circuit using Simulink that improved the efficiency by **8x**
- Stood **4th** with a team of 20+ members competing against participants from over **25 top universities globally**

Investment in Mutual Funds | Deutsche Bank | Manch 5.0   [Nov'21-Mar'22]

Trading challenge & mentorship programme

- Compiled numerous studies based on the mutual funds market of over **420+ Mn** individual investors and **40+** funds
- Analysed the data from **20+** literature reviews to narrow down to **6** potential risks affecting **31%** of Indian population
- Explored **5** metrics to compare and analyzed **PGIM India Flexi Mutual Fund** as an investment option with **4** other peers

CICERO | Institute Technical Council, IIT Bombay,   [May'22-Present]

An Augmented Reality mobile application for the institute map, Institute's Technical Summer Project

- Developing an **AR navigation** guide to help **11k+** IITB students by aiding the process of navigation through the institute
- Leveraged **Unity** to integrate **GPS and location tracker** in a toy 3D model with a location precision of **2-5 metres**
- Constructing an app to place **3D objects** for outdoor navigation using **NavMesh** and designed elements using **Figma**

Analysing Options Pricing Models | Finance Club, IIT Bombay   [May'22-Jul'22]

A research project on Options Pricing models

- Extensively studied options pricing strategies and the mathematical theory behind the **Brownian Motion Approach**
- Backtested **Black-Scholes Model** & **Monte Carlo Simulations** in Python to **predict** the options prices of **Nifty 50**
- Investigated the **relationship** between the **predicted option price** and the **observed option price** for the given security

OTHER PROJECTS

SeDriCa │ UMIC, IIT Bombay [Apr'21-Jul'21]
Self Driving Car, Unmesh Mashruwala Innovation Cell
- Part of a 25+ members team dedicated in achieving **level 5 autonomy** in India's first driverless car on Indian roads
- Contributed in the localisation subsystem of the team to implement **Simultaneous Localisation and Mapping packages** to accurately predict the location of the car and building the map of it's surroundings simultaneously
- Researched **LeGO-LOAM(lightweight and ground optimized lidar odometry and mapping)** to build maps
- Performed extensive literature search for implementing different SLAM packages to **optimise the map** of the institute

Organisational Learning Assessment Strategies│ In-semester Undergraduate Programme [Oct'21-Feb'22]
Guide: Prof. Snehal Awate, Shailesh J Mehta School of Management, IIT Bombay
- Extensively studied and reviewed the contemporary literature on **individual learning** and **human cognition**
- Worked with a faculty on a **unified learning assessment framework** and its automation over a given template

Stock Market Analysis │ Maths and Physics Club, IIT Bombay [Apr'21-Jul'21]
A research project on fundamental and technical analysis
- Analyzed the **Financial Ratios of TCS** and compared those metrics with the previous record of the company
- Documented a report, analyzed the **stock prices and made predictions** whether to invest/trade in TCS or not

ACADEMIC PROJECTS

Resolving the loss of efficiency in solar panels
Guide: Prof. P Sunthar, Dept. of Chemical Engineering, IIT Bombay, Grade: 10/10 [Jan'22-Apr'22]
- Reduced efficiency loss by **15%** due to overheating of panels by maintaining **optimum temperature**
- Used heat transfer methods like **evaporative cooling** and **radiation heat loss** to remove excess heat and performed calculations using **MATLAB** and **OpenFOAM** to obtain required flow rate of water to achieve ideal temperature

Simulation of draining of a tank
Guide: Prof. Devang Khakhar, Dept. of Chemical Engineering, IIT Bombay [Jan'22-Apr'22]
- Utilized **icoFoam** & **pisoFoam** to simulate **k-epsilon RAS** flow, through an exit of cubical tank designed on **Gmsh**
- Visualized and analyzed velocity fields, pressure fields, streamlines and pathlines using **OpenFOAM** & **ParaView**

POSITION OF RESPONSIBILITY

Media and Public Relations Coordinator [Jun'21-Apr'22]
SARC (Student and Alumni Relations Cell), IIT-Bombay
- Co-authored the monthly **institute newsletter** 'The Knowledge Tree' with a readership of **60,000+ alumni** globally
- Ideated and formulated questions for the **online cryptic 'SARCasm'** with participation from **600+ students**
- Launched the Instagram page of SARC: **35k+** impressions on the 1st day of launch and **60%** YOY increase
- Revamped and ideated new sections for the newsletter with a variety of student-centric content to circulate it among faculty & students of IITB, with an **increased readership of 11k+** along with the previous years' **60k+** alumni

Interview Coordinator [Nov'21-Dec'21]
Placement Cell, IIT-Bombay
- Acted as a point of contact for students and several **firms/universities** collaborating the recruitment process
- Ensured smooth conduction and execution of **tests and interviews** conducted by firms for **500+** students

Project Guide │ *Summer of Science* [May'22-Jul'22]
Maths and Physics Club, IIT-Bombay
- Mentored **8 students** in the field of **Criminology and Psychology**, under an initiative by Maths and Physics club
- Responsible for supplementing the learning, assessing performance and **resolving queries** of the project mentees

EXTRACURRICULAR ACTIVITIES

Technical	• **Programming & scripting languages:** C++, Python, MATLAB, SQL, LaTeX • **Libraries & Frameworks:** Tensorflow, Keras, sckit-learn, PyTorch, Pandas, Numpy
Culturals	• **Music:** Pursued a **Violin** course under **National Organization of Cultural and Sports** • **Dance:** Learned **Hip-Hop** under Summer School of Cult organised by the Culturals Council • **Language:** Completed a **Japanese Language** Course under International Relations Office
Courses	• **Math**: Introduction to Data Analytics (CL202), Introduction to Numerical Analysis (CL244) • **Finance**: Trading Algorithms by Indian School of Business • **Data Science**: Machine Learning (*Stanford University*), Big Data Analytics (*Learner's Space*)
Debating	• Secured 1st position and the title of **'The Best Debater'** in an Inter-School Debate