Pursuing a **Minor** Degree in the Department of **Computer Science and Engineering** , IIT Bombay

Scholastic Achievements

- Currently ranked **2nd** out of 90+ undergraduates in the Department of Aerospace Engineering *(2022)*
- Achieved **99.09** percentile in the **JEE Advanced** examination among 150,000 candidates. *(2020)*
- Scored **99.56 percentile** in the **JEE Mains** examination among 1.18 million candidates *(2020)*
- Secured **1st** rank in Jamshedpur for Science Stream in Class XII Board Examinations *(2020)*
- Obtained a score of **419/450** in BITSAT 2020 examination among **100,000+** candidates *(2020)*

Professional Experiences

Augmented Reality and Backend Intern | Spacetime App | Electroshoe *(May 2022- Jul 2022)*

- Implemented **Marker Based AR** for NFT visualization in the Marketplace App on Android and iOS
- Achieved asset modification in **Unity** at runtime and dynamic loading using **Firebase, Lightship ARDK**
- Created **HTML,CSS,Javascript** based Admin Panel connected to Firestore to submit images and assets
- Enabled **Plane Detection** and On Tap object placement during runtime in Camera generated AR Scene

Application Development Intern | Dass System Research Labs *(Nov 2021- Mar 2022)*

- Worked on **QT Framework (C++)** based Bridge Game Desktop application server and client
- Created Team and Rubber Bridge Event using **QT UI Class** on server side with result post processing
- Modified Server-Client Communication using **QTCPSocket and QUDPSocket** with **XML Parsing**

Key Projects

Trie Header and Huffman Encoding | Self Project *(May 2022)*

- Created header file for **trie** data structure in **C++** with functions to add & search word, longest prefix search
- Added functionality to read text from **.txt** files using **fstream** and indexing for word and prefix search in trie
- Implemented **Huffman Encoding** for .txt file compression using **Priority Queue** for all ASCII characters
- Stored final **compressed code** in a new .txt file using **ofstream** and implemented **Decompress** function

Sarcasm (Web based Crypt Hunt) | Student Alumni Relations Cell, IITB *(Feb 2022)*

- Developed responsive UI components from provided Figma designs using HTML,CSS, Javascript and Bootstrap
- Programmed interface and dynamic display for multistep registration form to allow multiple participant categories
- Added Questions, Images, Links, Hints, Bonus Times and Solutions onto the **nginx server** while deployment

Router Port Configuration for Multi Router Networks | Course Project *(Nov 2021)*

Guide: Prof. Varsha Apte | Dept Of Computer Science, IIT Bombay

- Simulated **Router Port Labelling** using Bridge Protocol Data Unit (BPDU) with **C++**
- Identified **Main Router** as per **Spanning Tree Protocol** with all designated active ports
- Classified ports as **Root Port,Designated Port and Alternate Port** using C++ STL and struct

Analysis of Epigenetic Memory by Nucleosome Modification | Course Project *(Nov 2021)*

Guide: Prof. Mithun Kumar Mitra | Dept Of Physics, IIT Bombay

- Used Numpy and Matplotlib modules of Python to simulate the analysis results obtained in this research paper
- Implemented probabilistic programming to model Nucleosome stochastic state modification using random generators

Cryptocurrency Analytics | Course Project *(Jul 2021)*

Guide: Prof. Prabhu Ramachandran, Prof. Amuthan A.Ramabathiran | Dept Of Aerospace Engg, IIT Bombay

- Visualised data using **Matplotlib, Numpy** modules in Python along with **Pandas Dataframe**
- Implemented **Hypothesis Testing** with return ratio as test statistic to find the coin with better ROI
- Formulated **Linear Regression** with $\mathbf{R^2}$ value of 0.32 to conclude that minimal linear correlation exists

C++ Word Game | Self Project *(Jan 2021)*

- Used C++ File Processing for .dat and .txt files using to create a word guessing game
- Implemented **CRUD Operations** on **Binary(.dat)** file using **fstream** header file to store and read words and clues
- Added **Point Structure** and **Control Flow** based on user input using **Classes and Objects**

Positions of Responsibility

Senior Design Engineer | Mars Rover Team, IIT Bombay *(Apr 2022 - Present)*

Part of a team of 40+ students competing in National and International Rover Building Competitions

- Part of **Bioassembly subsystem** in Mechanical division responsible for **Experiment analysis** on soil samples
- Redesigning Experiment Assembly consisting of microscope, spectrometer & sensors using Solidworks and Ansys
- Carried out the recruitment and onboarding process for freshers consisting of assignments, interviews and training
- Currently mentoring first year students for induction project consisting of CAD, Simulation and Manufacturing

Department Academic Mentor | Dept. of Aerospace Engineering *(Apr 2022 - Present)*

Selected out of 50+ applicants based on rigourous interviews and extensive peer reviews

- Mentoring a group of 6 undergraduate students on one-to-one basis in sophomore year onboarding and Academics
- Coordinating with a team of 20+ co-mentors in organizing various activities and initiatives for mentees

Web Coordinator | Student Alumni Relations Cell (SARC) *(Jun 2021 - Apr 2022)*

Part of a 60 member team responsible for fostering relations between 60,000 alumni and students

- Coordinator for the **Web Portfolio** responsible for maintaining and developing websites and portals
- Worked on Designing **UI/UX** model using **HTML, CSS, Javascript** for ASMP 2021 for 1500+ end users
- Developed website for Alumination 2021 using HTML, CSS, Javascript and **ThreeJS** with **Django** backend

Technical Skills

- **Programming Languages:** C++, Python, SQL, Dart, HTML, CSS, Javascript, LaTeX, C# , MATLAB
- **Softwares and Frameworks :** Solidworks, Ansys, Django, Flutter, Git, Frappe, React, ThreeJS, RealityKit
- **Python Libraries :** Numpy, Matplotlib, Scipy, Pyscf, Pandas, Pydiffusion, Odeint, Seaborn, Django

Key Courses Undertaken

Aerospace Engg.	Structures Laboratory, Control Theory, Structural Vibrations, Aerodynamics, Rocket Propulsion, Solid Mechanics, Incompressible Fluid Mechanics, Thermodynamics and Propulsion, Introduction to Aerospace Engineering, Compressible Fluid Mechanics, Aerospace Measurements Lab, Aircraft Propulsion, Aerospace Structural Mechanics, Spaceflight Mechanics
CS & Analytics	Computer Programming & Utilization, Data Analysis and Interpretation, Computer Networks, Data Structures and Algorithms, Design and Analysis of Algorithms, Reinforcment Learning
Mathematics	Linear Algebra, Differential Equations, Differential Calculus, Integral Calculus, Partial Differential Equations, Numerical Analysis

Extracurricular Activities

- Secured a **Global Rank of 62** among 25000+ participants in **Codechef December Long Challenge** *(Dec 2021)*
- Participated in Badminton Doubles Tournament as a part of Aerospace Department Sports Day *(Mar 2022)*