Pursuing **Minor** in **Artificial Intelligence** and **Data Science**, offered by **CMinDs, IIT Bombay**

Scholastic Achievements

- Secured **All India Rank 338** in **Joint Entrance Exam (Advanced)** among 1,40,000+ students. (2021)
- Achieved **All India Rank 124** in **Joint Entrance Exam (Main)** among 9,00,000+ students (2021)
- Secured **All India Rank 82** in **KVPY 2021 - SX Stream**, held by **IISC, Banglore** (2021)
- Recipient of the prestigious **NTSE Scholarship** by **NCERT, Government of India** (2019)

Key Projects

Real Estate Rent Prediction Model | DS 203 Course Project (Ongoing)

Guide: Prof Amit Sethi

- Scraped and collected data about various factors affecting rent from various resources available on web
- Planning to analyze different types of data using python libraries like **NumPy, Pandas, SciPy, Seaborn**
- Aiming to perform EDA on factors like location, size, interior and predicting models for those using MLE
- Intend to train the prediction model using **Long Short Term Memory** (LSTM) neural network model

Bubble Trouble | CS101 Course Project (Autumn 2021)

Guide: Prof Parag Chaudhuri

- Enhanced an GUI based bubble shooting game with C++ using Simplecpp graphics with 300+ lines of code
- Added a variety of features like splitting a bubble into bubbles with varying speeds, health and time counter
- Added levels and increased difficulty of each level in the game using **Object Oriented Programming**

Student Satellite Program IIT Bombay

A 70+ member student team with the vision of making IIT Bombay a centre of excellence in space technology

- **CubeSat | Guidance and Navigation(GNC) Subsystem** (May '22 - Present)
  A Nanosatellite mission to be proposed to ISRO for launching into Low-Earth Orbit (LEO)
  - Working on the **Multiplicative Extended Kalman Filter** (MEKF), which will be the estimator used on Cubesat and on the **QuEst** algorithm, used to find the initial attitude estimate
  - Wrote and tested the code for the **Extended Kalman Filter** algorithm for attitude estimation of a quadrotor
  - Studied about the **Kalman Filter Algorithm**, a prelude to MEKF and EKF and implemented the algorithm for estimating the position and velocity of an object undergoing oscillatory motion
- **Attitude Parametrization | Mini Project** (Mar '22)
  - Studied about different types of methods to represent attitude of a satellite, like **Euler Angles**, **Rotation vector**, **Rotation matrix**, and **Quaternion** and their drawbacks, like **Gimbal Lock**
  - Studied about the **Euler Rotation Theorem**, Motion of a body in Rotating frames and **Transport theorem**, and numerical methods of Integration like **Runge Kutta RK** methods, specifically **RK4**
  - Wrote and tested the code for interconversion between different parametrizations of attitude

VHDL Projects | Digital Systems Lab

- Designed a **Sequence Generator Finite State Machine** using **Structural Modelling** in **VHDL** language
- Implemented a **Sequence Detector** using **Mealy FSM** model and verified the outputs on **Xenon** board
- Designed a basic **Arithmetic and Logic unit** that performed four functions using **Behavioural description**
- Designed a **Multiplier** using Behavioural description and verified the outputs using **Scanchain mechanism**

Technical Skills

Languages	Python, C++, VHDL, HTML
Libraries	Numpy, Scipy, Matplotlib, Pandas
Softwares	AutoCad, Quartus, LaTeX

Extracurriculars

- Awarded the **Student of the year Award** for **Best Overall performance** in 10th std (2019)
- Secured Rank **5** in Chess Tournament **Freshie Rapid Open**, conducted by IIT Bombay (June '22)
- Successfully completed a year long course in **Chess** conducted by **National Sports Organisation** (2021)