Pursuing a minor in **Computer Science & Engineering**.

Academic Achievements

- Received an **AP grade** in EE207: Electronic Devices & Circuits, awarded to **3 of 166** *(May 2021)*
- Achieved All-India Rank **285** out of 173,000 participants in **JEE (Advanced) 2019** *(May 2019)*
- Achieved All-India Rank **677** out of 1,000,000 participants in **JEE (Main) 2019** *(Apr 2019)*
- Eligible for the **INSPIRE Scholarship** (Innovation in Science Pursuit for Inspired Research) by virtue of performing in **top 1%** at **Class XII (HSC)** exams *(May 2019)*
- Awarded a **Gold Medal** in the **Dr. Homi Bhabha Balvaidnyanik Competition** *(May 2016)*

Professional Experience

Quantitative Research Intern | **AlphaGrep Securities Pvt. Ltd** *(May-Jul 2022)*

- Secured the internship via apping, within **two weeks** of my Schengen **VISA rejection** for former internship offer at **Optiver Services B.V.** acquired through the institute placement cell
- Developed a **data-analysis tool** in python used by a team of **10 members** to design strategies on generated alphas by **plotting backtest results** modifiable by interactive sliders
- Researched and backtested **50+** designed and **improved alphas** using the developed tool
- Explored methods to **detect** and **capitalize** on market moves brought by NSE index **earnings**

Full-Stack Intern | **MeTripping Technologies Pvt. Ltd** *(May-Jul 2021)*

- Developed a **web scraping spider** using the **scrapy python library** to scrape weather data daily, of over **20 thousand** travel destinations, **without expenses** on the websites API calls
- Designed a **Django Backend application** along with **Angular Frontend APIs** to communicate and log various user interactions such as clicks, selects, promo code entries amongst others
- Built a **Backend API** in python, to provide updated weather data for a weather **landing-page**

Technical Projects

Parampariyam | **Course Project** *(Apr-May 2022)*

Guide: Professor Gaurav Kasbekar | Electrical Engineering Department, IIT Bombay

- Probed the **Bitcoin white paper** to conceptualize and **design** our own file transaction **blockchain**
- Introduced **node hierarchies** to ensure a private network and **mathematical analysis** backed **transaction tax** to manage the circulating supply of the networks parampariyam coins
- Implemented the revamped blockchain in python using django-framework and **cryptodome libraries** with the **versatility** to include **additional features** above the originally devised ones

Fundamentals of Digital Image Processing | **Course Project** *(Nov 2021)*

Guide: Professor Ajit Rajwade | Computer Science & Engineering Department, IIT Bombay

- Researched **Phase-Based Image Matching** methods for recognition of **low-quality fingerprints**
- Implemented the novel **Walking Algorithm** to **detect singular points** in fingerprint vector fields
- **Improved recognition speeds** by Band-Limited Phase Only Correlation to filter out noise

Medical Image Computing | **Course Project & Assignments** *(May 2021)*

Guide: Professor Suyash Awate | Computer Science & Engineering Department, IIT Bombay

- Engineered a four layer **Convolutional Neural Network** using Keras and Tensorflow
- Developed a model to identify metastatic tissue in histopathological scans of lymph node sections and achieved an **accuracy** of **94%** and **AUC-ROC** score of **0.97** on the validation set
- Implemented image **denoising, segmentation** and **shape analysis** algorithms to execute Programming Assignments based on concepts and techniques discussed in the course.

Intelligent Agents *(Apr-Jul 2020)*
Guide: Seasons of Code mentor under Web and Coding Club, IIT Bombay

- Was a part of a **4 member team** which implemented a virus spread using **Python libraries** like Scikit Learn, Matplotlib and seaborn and **techniques** like regression, K-Means and Neural-Networks
- Used the techniques learnt to implement a basic **Music Recommendation system** capable of **evolving over time** based on multi-user preferences and listening habits

Autonomous Ball Collector *(Aug 2020)*
Guide: Unmesh Mashruwala Innovation Cell, IIT Bombay

- Learnt basics of **Python, OpenCV, ML, SolidWorks, ROS** and **Gazebo** in a intensive program
- Worked in a **5 member team** and built a **fully functional autonomous robot** in Gazebo-ROS simulation software, which was capable of gathering green and simultaneously discarding red balls
- Made use of **LIDAR, Camera** and **SONAR sensors** to perceive the simulated environment and performed the appropriate action, on the basis of **OpenCV** and **ML techniques**

Technical Skills

Languages* **In decreasing order of proficiency*
Python, C++, MATLAB, R, LaTeX, VHDL, Assembly, Embedded C
Python Libraries
numpy, matplotlib, pandas, tensorflow, keras, Scikit-learn, OpenCV
Web Development
HTML, CSS, Typescript, Bootstrap, Angular, Django, MongoDB, Postgresql

Positions of Responsibility

Department Academic Mentor | Department of Electrical Engineering *(2021-2022)*

- Among the 35 selected from 86 applicants on the basis of extensive **interviews** and **peer reviews**
- Mentoring **8 sophomores** to help them with Academics, Time Management and Extra-Curriculars

Teaching Assistant | Department of Mathematics, IIT Bombay
MA 109 (Calculus I) *(Nov-Dec 2020)* **&** MA 205 (Complex Analysis) *(Aug-Sep 2021)*

- Responsible for **conducting weekly tutorial sessions** for a batch of 40+ juniors, clearing conceptual doubts through personal interaction and helping them cope with their first online semesters
- Assisted the Professors in **planning course logistics** and preparing tutorial solutions

Teaching Assistant | Eng. Lang. Improvement Training Program (ELIT) *(Aug-Dec 2020)*
Student Mentorship Program (SMP), IIT Bombay

- Amongst 20 selected students entrusted with teaching **English grammar** and imparting soft skills
- Organising weekly sessions to teach Tenses to **100+ students** for facilitating speaking and writing

Key Courses Taken

Statistics and ML	Game Theory and Algorithmic Mechanism Design*, Probability and Random Processes, Information Theory & Coding, Medical Image Computing, Deep Learning Specialization†, Introduction to Machine Learning
Computer Science	Design and Analysis of Algorithms*, Data Structures and Algorithms, Logic for Computer Science, Computer Programming and Utilization
Electrical Engineering	Advanced Network Security*, Comm. Networks, Comm. Systems#
Mathematics	Linear Algebra, Calculus, Complex Analysis, Partial Diff. Equations

(*To be completed by Nov-'22, †Coursera, #Includes Corresponding Lab Course)

Extracurriculars & Miscellaneous

- Emerged victorious in the **football tournament** held as a part of AlphaGrep Sports Meet *(2022)*
- Successfully completed **80 hours** of training in **swimming** under the **NSO** programme *(2020)*
- Developed a **mobile controlled robotic car** in a team of four and successfully navigated a challenging **obstacle course** as part of the **XLR8** competition *(2019)*
- Awarded the **Gem of the Year** award in school, for proving to be a **symbol of excellence** *(2017)*
- Awarded as **best speaker** in the 1st school simulated Model United Nations Conference *(2016)*
- **Speaker** in the Frank Anthony Memorial All India Inter School **Debate Competition** *(2015)*