Pursuing a **Minor** degree offered by the department of **Computer Science and Engineering**

Scholastic Achievements

- Among **26 out of 1100+** freshmen awarded a **Branch Change** to **Mechanical Engineering** *(2020)*
- Secured a percentile of **99.00** in **JEE Advanced** | Achieved a percentile of **99.68** in JEE Main *(2019)*
- Received the **INSPIRE Scholarship** for being in the **Top 1%** in HSC Class XII Examination *(2019)*

Professional Experience

Google Summer of Code - 2021 | SymPy *May 2021 - August 2021*

SymPy is a robust **computer algebra system** that provides a wide spectrum of features in a plethora of scientific disciplines

- **Fixed 30+ issues** over 10 months; among the **6** students shortlisted by SymPy out of **40+** GSoC proposals
- Achieved a **40% speed-up** for limits by amending make-shift solutions to raise and **handle exceptions** better
- **Refactored** the Order and Accumulation Bounds classes to better support **basic operations** like multiplication

Larsen & Toubro Defence | AUV-IITB | DST IMPRINT II.C *March 2020 - Present*

The aim of this project is to develop an Underwater Remotely Operated Vehicle (ROV) for **mid-sea inspection & surveillance**

- Wrote **serial drivers** for the Doppler Velocity Log (DVL), Inertial Measurement Unit (IMU) and Servo Motors
- Implemented a **safety system** for the ROV which **detects obstacles** and automatically avoids collisions

Key Projects

Matsya, Autonomous Underwater Vehicle (AUV) *October 2019 - Present*

RoboSub, AUVSI & US Office of Naval Research *Guide: Prof. Leena Vachhani, Prof. Hemendra Arya*

All-student team working on designing and developing a **state-of-the-art AUV**, capable of smart decision-making, object detection, and navigation, enabling it to autonomously perform **realistic naval tasks in marine conditions**

Accolades: 2nd Runner-up in video presentation at RoboSub 2020 | Young Researchers' Prize at IEEE OES

Software Sub-Division Head *June 2021 - Present*

- Spearheading a **3-tier, 9 member** multidisciplinary team for the design and development of Matsya 6A
- Currently working on implementing an **image stitching** algorithm for scarcely featured underwater images

Software Developer *October 2019 - May 2021*

- Designed and implemented a 6 Degrees of Freedom **Linear Quadratic Regulator** (LQR) Controller for Matsya
- Developed a **customised Linux driver** architecture for the IMU which can perform in-house **calibration**
- Implemented a **Bounding Box plugin** for Gazebo to **automate dataset generation** for Computer Vision models
- Curated scripts for complete **automation, logging** and **data analysis** of the simulation process (on **Gazebo**)

Focused Ion Beam Induced Deposition (FIBID) *Januray 2021 - April 2021*

Course Project: Manufacturing Processes ME206 *Prof. Rakesh Mote*

- Performed Stopping Range of Ions in Matter (**SRIM/TRIM**) simulations for damage calculations

R2T2 Mars Mission *November 2016*

Swiss National Centre for Competence in Research *Eden College Durban*

Worked in a team to remotely implement a search and rescue mission with Earth-Mars communication constraints

- **Represented South Africa** in an **international** collaborative event along with 15 teams from 7 countries

Positions of Responsibility

Manager | *Electronics and Robotics Club (ERC), IITB* *May 2021 - Present*

- Nominated to **lead a 10 member team** catering to 5000+ students with an annual budget of over
- Head of **All IIT Robotics Association** (AIITRA), a collaboration between the robotics club of **Top 5 IITs** to organize **country-wide hackathons** with a **reach of 50,000+ students** and sponsored by corporations

Teaching Assistant | *Department of Mechanical Engineering, IIT Bombay* *November 2020 - July 2021*

- Mentored **350+** freshmen in Engineering Drawing; conducted weekly lab sessions and evaluated assignments

Extracurriculurs

- Secured **Bronze medal in Chess** during the annual freshmen sports competition - Freshiesta 2019
- Actively learning **Speedcubing** with a current Personal Best solve of **7.12 seconds** on 3x3x3 Rubik's cube
- Completed **year-long training** in **Lawn Tennis** under National Sports Organization (NSO)