SCHOLASTIC ACHIEVEMENTS

- Pursuing a **minor** in **Electrical Engineering**, IIT Bombay *(2017)*
- Among the top 3% percentile in **JEE Advanced** and 99.35% percentile in **JEE Mains** *(2016)*

WORK EXPERIENCE

- **FaceTab | Electronics Engineer | Augle A.I. Private Limited** *May'20-Present*
  Design of custom Linux tablet with temperature measurement device for bio-metric attendance using facial recognition
  - Researched about different **ARM processors, GPUs** and LCD display for design of custom tablet PCB
  - Decided best compute module and development board for testing and prototyping the tablet
  - Working on temperature measurement device for measuring temperature of person from long distance

KEY PROJECTS

- **Multiagent Patrolling with cars** *May'20-Present*
  Guide- Prof. Leena Vachhani and Prof. Arpita Sinha
  - Developed a decision-making algorithm based on surroundings using **Deep Reinforcement learning**
  - Incorporated Unity simulator and **MIT Deep traffic platform** for testing and training the model of car
  - Working on Multi-agent Patrolling Algorithm to patrol over given map using reinforcement learning
- **Autonomous Indoor drone | Flipkart robotics Challenge** *June'20-Present*
  Team of 5 people working on drone for navigating with 2kg payload and pass through square frames placed in room
  - **Ranked 52th out of 500** qualified teams for level 2 based on robotics quiz taken in level 1 qualifier
  - Designed proper **CAD model** of drone with all required things for level 2 and got selected for level 3
  - Working on **stability and structural analysis** of drone with payload and without payload for level 3
- **ABU Robocon | Controls Subsystem** *Jan'19-April'29*
  Competition organised by ABU in Mongolia requiring autonomous walking bot and another with throwing capability
  - Developed an **Inverse Kinematics** algorithm in **micro-controller** to execute the motion of quadruped
  - Made a Controller to integrate functionality of different components like **grippers**, **pneumatic cylinder** and motors etc, developed electrical filters to reduce noise in signal for controlling motors
- **Terrace Farming Bot | Mechanical Subsystem** *Nov'19-Dec'19*
  A Competition organized by DIC Agro, IIT Roorkee during 8th Inter IIT Tech Meet
  - Ideated the linear actuation **mechanism to climb up and down the terraces** of a particular height and perform the farming tasks like seeding, plowing, leveling and harvesting **autonomously**
  - Designed and simulated the cad model of the bot and assembled it by manufacturing it's all parts
  - **Presented** the mechanical subsystem o**n the behalf of Inter IIT contingent** in DIC problem statement
- **Quad-copter | Hobby project** *Feb'19-April'19*
  Electronics and Robotics Club, Institute Technical Council, IIT Bombay
  - Made a Quadcopter **from Scratch** using Arduino Microcontroller by implementing a **PID Algorithm**
  - Implemented a **Advanced Complementary Filter and kalman filter** Algorithm to **reduce noise up to 99% in gyroscope** generated by vibrations of propellers and **tested on 2D model** approximation
  - Successfully built the quad-copter to **safely take-off and land** and achieved **perfect stabilization** in air
- **Vehicle tracker | Hobby project** *Dec'19-present*
  A real time tracker for vehicles to track their position on roads
  - Designed a **circuit having GPS module** on it, and made a working prototype of circuit of GPS tracker

- Created a **website using Google Maps API and Google cloud** to track the location of vehicles on map
- **Optimized the accuracy** of location of vehicles on roads by using Google's snap to road algorithm

- **Cozmo Clench | Techfest 2018** *Dec'18*
  Electronics and Robotics Club, Institute Technical Council, IIT Bombay
  - Competed with students from various engineering colleges in this Techfest Robotics competition
  - Developed a **wireless joystick controller** which could control the motion of bot and functionality of robotic gripper to perform different tasks given like pick and drop box at particular checkpoints

- **Thor Hammer| Hobby project** *July'19-Aug'19*
  Electronics and Robotics Club, Institute Technical Council, IIT Bombay
  - Constructed an **electrical hammer** based on the concept of **Electromagnetism** of solenoid which was inspired from the one which is present in **MARVEL'S COMICS THOR**
  - Used a **NFC microchip** integrated in the form of ring as key to lift the hammer only by special person

- **Autonomous Path Finder |Line following competition** *Jan'18*
  Electronics and Robotics Club, Institute Technical Council, IIT Bombay
  - Built an **autonomous robot** which follows a white line and **designed IR sensor** to detect white lines
  - Implemented PID algorithm in bot,**cleared all 3 stages** and emerged as **overall 2nd best performer**
  - Built an advanced version of bot and **represented IIT Bombay** in robotics festival **Robotex India 2019**

- **Home Automation | Arduino Hackathon** *Oct'18*
  Electronics and Robotics Club, Institute Technical Council, IIT Bombay
  - Built a home automation system to **Control home appliances** like bulb over the Internet **using IoT**
  - Integrated the **nodemcu (WiFi module)**, relay switch and android app to make project into action

- **Gesture control bot | Arduino Makerthon** *Oct '18-Nov'18*
  Electronics and Robotics Club, Institute Technical Council, IIT Bombay
  - Built a bot using **accelerometer** and **RF module** which can be **controlled** by **gesture** of hand wirelessly
  - Assembled it in a week and got the **award** for **second best project** ideation and implementation

TECHNICAL SKILLS

Languages	Embedded C, C++, Python, R, MATLAB, HTML, CSS, node JS, JavaScript, LaTex
Softwares	SolidWorks, Ansys, Autocad (2D), Eagle, Arduino IDE, STM32Cube, MPLAB IDE
Frameworks	Ros, Django, git, Pytorch, TensorFlow, keras, OpenCv
Electrical	Raspberry-Pi, Arduino, Node MCU, PIC, Intel 8051, STM32, MSP430

Position of Responsibility

- **Convener | Electronics and Robotics Club | Institute Technical Council**
  - Part of a **17 member** team responsible for **inculcating Tech culture** among the fresh minds
  - Conducted sessions on **Arduino, Get Mechanised and Get Electrified** for 500+ tech enthusiasts
  - Organized **XLR8**, club's main flagship event which saw a rise in the number of participants by **35%** and a huge success rate of **92%** and a mentored **150+** teams in debugging the circuits of their bot
  - Organized hands-on sessions like *Electrified* & *HowThingsWork* to give insight to everyday equipments

Extra-Curricular Activities

- Made a **flame sensing drone** in PlutoX hackathon,**stood 2nd and got internship opportunity** in PlutoX
- Participated in the **XLR8** competition and made a **bluetooth controlled bot to** tackel the obstacles and also **ideated the system** to show its status whenever it is going up or down the inclined plance
- **A**ttended the workshop on Communication systems, system engineering, IoT , ROS and Path planning
- **Volunteered** in the **Smart india hackathon finale** hardware edition to cater hardware requirments of teams
- Made an **AR glass** using ArudinoMini & oled display to project data on glass using the **principles of optics**
- **Volunteered** for 80 hours under **nation social service** team by planting and maintaing trees in the campus

Key Courses Taken

Electrical Engineering	Electronic devices, Introduction to electrical and electronics circuits
Computer Science	Computer programming and Utilisation, Web development
Miscellaneous	ROS Localization, Navigation and SLAM, linear algebra