



Utkarsh Jindal
Electrical Engineering
Indian Institute of Technology Bombay

200070086
B.Tech.
Gender: Male
DOB: 8/3/2002

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2024	

Pursuing minor in **Computer Science and Engineering** at IIT Bombay

SCHOLASTIC ACHIEVEMENTS

- Ranked **10th** (out of 102) in the B. Tech. programme of Electrical Engineering at IIT Bombay [Present]
- Achieved All India Rank **206** in **JEE(Advanced)** 2020 out of over 1.5 lakh candidates [2020]
- Received the prestigious **KVPY** fellowship offered by Dept. of Science and Technology, Govt. of India [2019]
- One of the five** students selected for ArunaLal Scholarship offered by **PRL, Ahmedabad** [2019]

CONFERENCES

International Conference for Small Satellites

[Apr 2022]

Organised by the Society for Small Satellite Systems

- Secured second position in Student Project Competition for presenting '**Sanket: Antenna Deployment System**'
- Successfully demonstrated communication between **Sanket** module and **handheld radio** during the presentation

TECHNICAL PROJECTS

Sanket | IIT Bombay Student Satellite Program

[Jul 2021 - Present]

The mission aims to develop an indigenous Antenna Deployment System for CubeSat applications, with TRL-8

- Interfaced transceiver **CC1125** with microcontroller **ATmega128** through **SPI** protocol to set preferred values of registers, issue command strobes, and establish half duplex wireless communication
- Understood basic theory of **RF testing** and devised component level **testing plan** for the mentioned transceiver
- Performed antenna simulation on Sanket in **Ansys HFSS**, and fine-tuned its dimensions to obtain desired properties
- Used a **VNA** to obtain the **S₁₁** curve and Smith chart, and suggested corrective measures for impedance matching
- Designed **RF PCB** for low noise amplifier MAAM-011229 in **EAGLE**, accounting for radio frequency needs

Control Electronics for Portable Magnetometer | Research Project

[Jul 2022 - Present]

Guide: Prof. Kasturi Saha, Dept. of Electrical Engineering, IIT Bombay

- Studied the properties of **NV centre** in diamond, and understood the principles behind NV-ODMR methodology used for determining magnetic field (essential components being microwave generator, optical pump, photodetector)
- Read research papers on **CMOS** integration of NV-based quantum sensing to make the setup **portable**

Snake Robotics | Research Project

[Jun 2022 - Present]

Guide: Prof. Dwaipayan Mukherjee, Dept. of Electrical Engineering, IIT Bombay

- Studied **kinematics** of snake robot, ground friction models, and **gait** patterns observed in biological snakes
- Simulated a snake employing **lateral undulation** as gait, and animated the same using **matplotlib** in Python
- Explored algorithms based on **tractrix** for making effective use of extra degrees of freedom in the robot

KEY POSITIONS

Subsystem Head | Communication Subsystem

[May 2022 - Present]

IIT Bombay Student Satellite Program

- Leading an interdisciplinary team of **15** students to develop a **quality assured** antenna deployment system
- Executed a **three-stage** recruitment process involving written test, interview, and mini-project to test the technical ability, practical approach, and teamwork of the applicants; selected **9** out of **70+** applicants
- Conducted a day-long workshop to equip **120+** students from **20+** colleges to set up their own **ground station**

TECHNICAL SKILLS

Programming

C/C++, Python, MATLAB, Octave, Assembly, VHDL

Software

EAGLE, Microchip Studio, Smart RF Studio, Git, ROS, Gazebo, Quartus

EXTRACURRICULARS

- Participated in Common Yoga Protocol and **Yogathon** on the 8th International Yoga Day [Jun 2022]
- Attended **Code the Pixels** event on image processing, and wrote code for an invisibility cloak [Jun 2022]
- Built a QFH antenna resonant at **137 MHz**, using **RG-58** coaxial cable and PVC pipes [May 2022]
- Secured first position in **Jhatka GC** organised by Electronics and Robotics Club [Mar 2022]
- Received and decoded **SSTV** encoded images from ISS under the **ARISS** programme [2021]
- Part of the Plate Champion team in Under-15 SPCT Inter-School **Cricket** Tournament [2016]