



Manav Doshi
Mechanical Engineering
Indian Institute of Technology Bombay

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B.Tech.
Gender: Male
DOB: 26/12/2002

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

Pursuing a **Dual Minor** in **AI and Data Science** and **Computer Science and Engineering**

SCHOLASTIC ACHIEVEMENTS

- Secured an **All India Rank 896** in **JEE Advanced** out of over **0.15 million** candidates appearing nationwide (2020)
- Achieved **99.84** percentile in **JEE Main** among over a pool of **1 million** students appearing across the nation (2020)

KEY TECHNICAL PROJECTS

IARC | *Project AeRoVe, Unmesh Mashruwala Innovation Cell, IIT Bombay* (Oct 2021 - Present)

Working towards International Aerial Robotics Competition (IARC) - world's longest running aerial robotics challenge

- Achieved an accuracy of over **95%** by training deep learning models like **YOLOv4** for custom class detection
- Developed algorithms to augment positional accuracy using state estimation techniques like **Kalman Filters**
- Decreased inference time of model by **300%** by optimizing detection and tracking algorithms by building **TensorRT engines in C++** using the Python library while deploying deep learning algorithms on **Nvidia Jetson Xavier NX**

DRDO's UAV-Guided UGV Navigation Challenge | *Inter IIT Tech Meet 10.0* (Mar 2022)

*Secured **third place** in DRDO's navigation challenge among **12** other IITs as a part of the **10th InterIIT Tech Meet***

- Designed robust algorithms to assist in UGV navigation through snow covered terrains using **drone feedback**
- Used **OpenCV** and deep learning techniques like **YOLOv4-tiny** to calculate vehicle position and velocity vector

UAV Challenge | *International Conference on Unmanned Aircraft Systems 2022* (May 2022)

- Implemented **3D obstacle avoidance algorithms** such as **View Field Histogram** to guide UAV through arena
- Accurately localised drop location using custom dictionary **Aruco marker detection** by processing UAV imagery

DIY FaceApp | *Summer of Code, Web and Coding Club, IIT Bombay* (Mar 2021 - Jul 2021)

- Assessed and implemented a paper on **Deep Convolutional Generative Adversarial Networks** (DCGAN)
- Trained GAN models on **200,000+** images from **CelebA Dataset** to generate celebrity faces using **Adam Optimizer**

Customer Segmentation | *Course Project | Prof Amit Sethi* (Nov 2021)

- Grouped data by implementing clustering techniques like **KMeans, Mean Shift and Hierarchical Clustering**
- Achieved a silhouette score of **0.587** by optimising KMeans and using dimensionality-reduction methods like **t-SNE**

Visual Explanation for CNNs | *Winter in Data Science, Analytics Club, IIT Bombay* (Jan 2022)

- Surveyed various papers on techniques to visualise and plot hidden layers in a **Convolutional Neural Network**
- Implemented algorithms like Class Activation Maps, Gradient Based Class Activation Maps, Occlusion Sensitivity and Saliency Maps on frameworks like **PyTorch and TensorFlow** to generate heatmaps showing pixel importance

POSITIONS OF RESPONSIBILITY

Manager | *Unmesh Mashruwala Innovation Cell, IIT Bombay* (Apr 2022 - Present)

*Team of **80+** students working on developing cutting-edge autonomous aerial and ground vehicles for competitions*

- Managing a team of **22**, responsible for developing the team's website and increasing social media outreach
- Managed a budget of **1.5+ million INR** and responsible for procuring required equipment for the core team

Department Research Co-ordinator | *Undergraduate Academic Council, IIT Bombay* (May 2022 - Present)

*Part of **7** member team responsible for securing and improving research opportunities for **6000+** UG students*

- Securing research opportunities to bolster the participation of **800+** students and inculcate UG research culture
- Ideated the Summer Undergraduate Research Program, administered **16** research project entries from **7** professors and their allocations amongst **150+** applicants on the basis of rigorous interviews and statements of purpose

EXTRACURRICULAR ACTIVITIES

Sport	<ul style="list-style-type: none">Part of IIT Bombay's football team in Mumbai District Football AssociationPlaced second in Institute Football League - IIT Bombay's annual sports competitionTook over 8 years of coaching lessons in Shotokan Karate achieving 3rd Kyu
Leadership	<ul style="list-style-type: none">Managing a group of 4 freshmen in CodeWars - India's first bot programming contestLeading 10 freshmen in Summer of Code to develop a Generative Adversarial NetworkMentored 4 students during the S.T.A.R training program to use ROS, Gazebo and OpenCVGuiding 6 sophomores in the department, providing general and academic counsel