



Dikshant
Civil Engineering
Indian Institute of Technology, Bombay

180040033
B.Tech.
Gender: Male
DOB: 12-12-2000

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2022	8.91

Pursuing a Minor degree in the Department of **Electrical Engineering**, IIT Bombay

SCHOLASTIC AND TECHNICAL ACHIEVEMENTS

- Currently ranked **7th** based on merit in a class of **112 students** in department of Civil Engineering ('21)
- Recipient of **Kishore Vaigyanik Protsahan Yojana(KVPY)** Fellowship awarded by Govt. of India ('18)
- Received **Special Mention** for exemplary contribution to institute technical culture by hostel council ('20)

RESEARCH EXPERIENCE AND INTERSHIPS

Multi-Agent Patrolling (Apr '20 - Apr '21)

Guides: Prof. Leena Vacchani and Prof. Arpita Sinha, Department of Systems & Control IIT Bombay

- Submitted a research paper to the **ACM Journals** on issue on Multi-agent Systems and Services in the IoT
- Delineated a multi-agent patrolling algorithm using **Deep Q Network** Reinforcement Learning technique
- Forged an interface between **ROS** and **Webots** simulator for designing a controller for a car on CAIR map

Scalable Multi-Agent RL Training School for Autonomous Driving (May '21 - Aug '21)

Guide: Prof. Matthew Taylor, Intelligent Robot Learning Lab University of Alberta, Canada

- Constructed a pipeline to add **HAMMER** algorithm to facilitate the coordination between multiple ego agents
- Evaluated **PPO**, **DQN** & **SAC** baselines on single & multiple ego agents cases for with(out) traffic scenarios

TECHNICAL PROJECTS

SeDriCa | Unmesh Mashruwala Innovation Cell (Aug '20 - Ongoing)

Working in a 20+ member team aiming to develop a self-driving car capable of traversing on Indian roads

- Leading controls subsystem** to apply Model Predictive Control for trajectory tracking & satisfying constraints
- Implemented **kinematic 2D bicycle model** to capture vehicle motion in normal driving conditions

Intelligent Picking Robot | Flipkart Grid 2.0-Robotics Challenge (Jun '20 - Aug '20)

Led a team of 5 developing an autonomous robotic arm capable of picking and transporting items in warehouse

- Among the top **121 teams** qualified for Stage 3 out of **6000+** registered teams from all over India
- Implemented **YOLOv3** algorithm for object detection & **OpenCV** tactics to gauge possible grasping points

Terrace Farming Bot | Inter IIT Technical Meet 8.0 (Oct '19 - Dec '19)

Worked in a team of 8 to develop an autonomous step climbing robot to perform terrace farming operations

- Fused monocular **visual odometry** and data from MPUs & stepper motor encoders for state estimation
- Implemented a **PID** based position and orientation controller & employed ultrasonic sensors to provide feedback

Person Detection in low-light Near-Infrared Images | Intro to ML (Feb '21 - May '21)

Guide: Prof. Amit Sethi

Course Project

- Effectuated **R101-FPN** and **X101-FPN** object detection models from the Model ZOO of **Detectron 2**
- Attained an accuracy of **98.54%** on test dataset from **X101-FPN** using F1 score evaluation metrics with **IoU**

POSITION OF RESPONSIBILITY

Convener | Electronic and Robotics Club, Institute Technical Council (May '19 - Apr '20)

Part of a 15+ member team that conceptualises and organises events for tech enthusiasts in the Institute

- Ushered **ROS workshop** for beginners during covid quarantine period, attended by **300+ tech enthusiasts**
- Attained a footfall of **600+ participants (30% increase)** in the flagship event: XLR8-2019 with successful execution of the event and achieved the **highest success ratio (92%)** in the last 4 years
- Delivered sessions on **Arduino**, **Raspberry Pi**, **Image Processing** and **Serial Communication Protocols**

TECHNICAL PROFICIENCY

Languages	Python, C++, Matlab, Git, Octave, CSS, HTML, Markdown, L ^A T _E X
Softwares	Webots, Gazebo, CARLA, SUMO, Netedit, TraCi, Simulink, Auto-CAD
Frameworks/Libraries	ROS, Gym, PyTorch, Tensorflow, Keras, OpenCV, Numpy, Pandas, Pygame

EXTRACURRICULARS

- Bagged **1st position** from the hostel in **logic GC**, organized by Maths and Physics Club, IIT Bombay
- Served as an **NCC cadet** in the 2 Maharashtra Engineering Regiment of IITB 2018-19 while being among the selected cadets for the Republic Day Parade '19; awarded with the NCC ATC certificate
- Represented IIT Bombay in Football, Volleyball, Tug of War and Athletics in **Annual Training Camp**
- Counseled school students of BMC under **Career Counseling Campaign** organized by Abhyuday, IIT Bombay