

Dhruv Krishna

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EDUCATION

IIT JODHPUR

BTECH IN MECHANICAL
ENGINEERING

Expected Dec 2021
CGPA: 8.65
(upto 4th semester)

SIR PADAMPAT SINGHANIA EDU. CENTRE

HIGHER SECONDARY (CBSE)
2016| Kanpur, UP
Percentage: 89.9%
SECONDARY (CBSE)
2014| Kanpur, UP
Cum GPA: 10/10

COURSEWORK

RELEVANT COURSES

Linear Algebra and Calculus
Complex analysis and Differential
Equations
Probability, Statistics and Random
Processes
Computer Programming
Engineering Mechanics
Mechatronics
Mechanics of Solids
Thermodynamics
Machining Science and Metrology*
Kinematics of Machines and Mechanisms

AUDIT

Introduction to Robotics
SLAM in Robotics*
Introduction to Machine Learning
Reinforcement Learning
MATLAB programming

SKILLS

PROGRAMMING

• C • C++ • Python
• Arduino • HTML • CSS

SOFTWARES

• MATLAB • Adams
• Cinderella

AREAS OF EXPERTISE

• Reinforcement Learning
• Autonomous Navigation
• Machine Learning

*Ongoing

PROJECTS AND EXPERIENCES

QUALITY BIASED INCREMENTAL RRT FOR OPTIMAL MOTION PLANNING | SUMMER INTERNSHIP

May 2019 - Present | Guide: Prof. Suril V. Shah

- Aim to bias the nodes of Rapidly Exploring Tree for better and faster solution trajectories using **Deep Reinforcement Learning**.
- Introduced goal bias as a hyperparameter for better results.
- Implementing the qRRT algorithm on **Pioneer 3-DX** mobile robot

AUTONOMOUS NAVIGATION OF MOBILE ROBOTS | BTECH PROJECT

February 2019 - April 2019 | Guide: Prof. Suril V. Shah

- Mapped the environment through Microsoft KINECT Sensor using **Real Time Appearance Based Mapping** (RTAB-Map)
- Navigated the **Pioneer-3 DX** Mobile robot in the mapped environment autonomously

HANDWRITTEN DIGIT RECOGNITION | SELF PROJECT

Aug 2018 - Sep 2018

- Self coded **Back Propagation** algorithm to recognise handwritten digits for a 3 layer Neural Network on **MATLAB**.
- Trained the Neural Network on 60,000 images and got an accuracy of 92%

TREMOR SUPPRESSING GLOVES | 7TH INTER IIT TECH MEET

Nov 2018 - Dec 2018 | IIT Bombay

- Created a light weight and cheaper solution to suppress Parkinson Tremors for the project of Parkinson Tremor Suppression hosted by **BETiC Lab, IIT Bombay**
- The prototype **secured first position** among the top 21 institutions for technical education (IITs) in India

CNC ENGRAVER | GYMKHANA PROJECT

June 2018 - Aug 2018 | IIT Jodhpur

- Wrote an **Arduino** code to control the speed of 2 Stepper motors simultaneously and independently
- Used **Bresenham's Algorithm** for simple contours like Lines and Arcs
- Coded a **G Code interpreter** on Arduino for arbitrary contours and simulated on MATLAB

VOICE CONTROLLED ROOM AUTOMATION | SELF PROJECT

Oct 2017 - Nov 2017

- Made my room voice controlled by using **Google IFTTT** to send voice commands to Cloud Server which were retrieved and processed by ESP8266.
- Servo motors were used as actuators to switch the lights and fan.

HONORS AND ACHIEVEMENTS

- **First position** among 21 IITs in BETiC Medical Challenge hosted by Indian Institute of Technology Bombay during 7th Inter IIT Tech Meet.
- **Gold Level** on Hackerrank in C++ (5 Star)
- Placed among the top **0.5% of 1.4 million** applicants in JEE Advanced 2017

VOLUNTEERING AND LEADERSHIP EXPERIENCES

2017	Student Volunteer	Student Placement Cell
2018	Team Captain	BETiC Medical Challenge
2018	Vice Captain	Robotics Club IIT Jodhpur
2018	Innovation Head	NIMBLE Organizing Team