Dhruv Krishna

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EDUCATION

B. TECH MECHANICAL ENGG
IIT Jodhpur
Expected Dec 2021
CGPA: 8.49
(upto 6th semester)

HIGHER SECONDARY (CBSE)
S.P.S.E.C
2016| Kanpur, UP
Percentage: 89.9%

SECONDARY (CBSE)
S.P.S.E.C
2014| Kanpur, UP
Cum GPA: 10/10

LINKS

Github:// dhruvsasuke
LinkedIn:// dhruv-krishna

ACHIEVEMENTS

- Former selected intern at Carnegie Melon University
- First position among 21 IITs in BETiC Medical Challenge
- Gold Level on Hackerrank in C++ (5 Star)

COURSEWORK

RELEVANT COURSES
Linear Algebra and Calculus
Complex analysis and Differential Equations
Probability, Statistics and Random Processes
Computer Programming
Mathematical Physics
Nanosensors
Engineering Mechanics
Mechatronics
Kinematics of Machines and Mechanisms

AUDIT
Introduction to Robotics
SLAM in Robotics*
Introdction to Machine Learning
Reinforcement Learning

SKILLS

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

SOFTWARES
• Gazebo • MATLAB • Adams
• Cinderella

*Ongoing

EXPERIENCES

ISRO INTERTIAL SYSTEMS UNIT | Summer Internship
June 2020 - August 2020 | Thiruvananthapuram, India

- Created the URDF for the robot designed by ISRO
- Simulated the robot in Gazebo by creating Velocity and Trajectory controller for the robot using ROS Control package
- Integrated MoveIt path planning and perception pipeline with Gazebo for the task of obstacle avoidance during manipulation in static environments

SMART ROBOT GROUP | Summer Internship
June 2020 - August 2020 | National University of Singapore

- Discussed and presented the recent developments and breakthroughs in the field of Smart Robotics and Robot Imagination weekly
- Compared the performance of various state of the art pose estimation networks on the Linemod and Occluded Linemod datasets
- Fine tuned the networks to improve the performance of the network on dataset for kitchen utensils

PROJECTS UNDERTAKEN

FEATURELESS VISUAL SERVOING FOR TUMBLING OBJECTS* | Research Project
June 2020 - Present | Guide: Dr. Suril V. Shah, Dr. Rajendra Nagar

- Created a dataset of 600k videos of tumbling objects on blender and calculated optical flow in coarse to fine manner
- Extracted static features of tumbling object from the calculated optical flow using Convolutional Neural Networks
- Performed Position Based Visual Servoing by using the extracted features of the tumbling object

VISION BASED MANIPULATION AND GRASPING USING 7-DOF ROBOTIC ARM* | Indian Space Research Organisation (I.S.R.O)
January 2020 - Present | Guide: Prof. Suril V. Shah

- Simulated the Reachy 7 DoF Robotic Arm in Gazeboby adding actuators and Velocity Controllers using ROS Control package
- Created the URDF and controllers for custom robot designned by ISRO and controlled it in Gazebo
- Implemented eye to hand image based visual servoing in Joint Space in Gazebo for the custom robot

QUALITY BIASED INCREMENTAL RRT FOR OPTIMAL MOTION PLANNING | Research Internship
May 2019 - September 2019 | Guide: Prof. Suril V. Shah

- Biased 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

AUTONOMOUS NAVIGATION OF MOBILE ROBOTS | B. Tech 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