Siddhant Saoji

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Education

University of California San Diego — La Jolla, CA
Master of Science, Electrical and Computer Engineering (Intelligent Systems, Robotics, and Control) — *Expected 2023*
- Courses: Probabilistic Reasoning and Decision-Making, Linear systems Theory, Statistical Learning 1

Indian Institute of Technology Jodhpur — Jodhpur, India
Bachelor of Technology, Mechanical Engineering— Specalization: Robotics and Mobility Systems — *2017- 2021*
- CGPA 8.98/10 (Department Rank 1)
- Courses: Introduction to Robotics, Artificial Intelligence, Swarm Robotics Autonomous Systems

Experience

Existential Robotics Laboratory — June 2021 -Present
Advisor: Prof. Nikolay A. Atanasov —Student Researcher — *La Jolla, CA*
- Working on Hierarchical IRL for long horizon interactive tasks in realistic robotic environment.
- Investigated various Interactive environments for Embodied AI and trained RL agent in them

ISRO Inertial Systems Unit — June 2020 -August 2020
Advisor: Mr Durairaj R and Dr Suril V Shah —Internship — *Thiruvananthapuram, India*
- Integrated MoveIt path planning and perception pipeline with Gazebo for the task of obstacle avoidance during manipulation in static environments.
- Created the URDF and simulated the humanoid robot designed by ISRO.

Division of Robotics, IOC-UPC (BarcelonaTech) — April 2020- September 2020
Advisor: Prof. Jan Rosell — Internship — *Barcelona, Spain*
- Worked on Task and motion planning for mobile manipulators.
- Developed multiple ROS packages and implemented on TiaGo robot.

Projects

Vision based control and Motion Planning for Half Humanoid Robot — January 2020 – June 2021
Advisor: Dr Suril V Shah — Indian Space Research Organisation, RESPOND Project — *IIT Jodhpur, India*
- Set up and controlled the custom half humanoid developed by ISRO using ROS and MoveIt.
- Extracted pose using vision data in 3D Cartesian space to implement motion planning with and without obstacles.
- Implemented eye to hand Image Based Visual Servoing in Joint Space for the custom robot

Featureless Visual Servoing for Tumbling Objects — June 2020 – December 2020
Advisor: Dr Suril V Shah, Dr. Rajendra Nagar — Research Project — *IIT Jodhpur, India*
- Created a dataset of 600k videos of tumbling objects using Blender.
- Extracted static features of tumbling object from the optical flow image data using CNN.
- Simulated Position Based Visual Servoing by using the extracted features of the tumbling object on VRep.

Technical Skills

Programming Languages: Python, C/C++
Robotics Tools: Robot Operating System(ROS), MATLAB, Raspberry Pi, Arduino, NodeMCU, Beaglebone
Software: ADAMS, Cinderella, Gazebo, VRep, MoveIt!, GraspIt!, The Kautham Project

Achievements

- **Semi-finalist** in **DST** and **Texas Instruments** India Innovation Challenge Design Contest 2019
- 1st Runner Up in **Microsoft** code.fun.do++ 2019 hackathon at IIT Jodhpur.
- **Semi-finalist** in **DST** and **Texas Instruments** India Innovation Challenge Design Contest 2018

Extracurricular

- Represented institute Quiz club at 4th Inter-IIT Cultural Meet, 2019 at IIT Bombay.
- Represented college basketball team in Sangram 2018 at IIT Roorkee.
- Represented IIT Jodhpur Robotics team at Tech-Fest 2018, organized by IIT Bombay.