

Dhruv Kool Rajamani

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2015 - 2019 Graduation, BTech. Mechatronics Engineering, Manipal Institute of Technology, KA 8.83^{/10}

2012 - 2014 AISSCE, CBSE Delhi Vasant Valley School, Delhi 95.00%

ACHIEVEMENTS

- Best Rover team from Asia, 8th out of 82 teams at the URC 2017. ([link](#))
- Offered INSIPIRE scholarship by DST, Government of India for top 1% score in AISSCE 2014 – Declined
- Best paper presentation at the iACT-2017 conference.

INTERNSHIPS

- **BioRob** Prof. Auke Jan Ijspeert, Dr.Hamed Razavi, Jonathan Arreguit
École polytechnique fédérale de Lausanne (EPFL) January 2018 - Present
 - **Implementation of Walking Controller COMAN Robot (COMpliant HuMANoid Platform):**
Developed *OROCOS-RTT* and *ROS Packages* for simulating experiments on walking and stepping. ([video](#))
 - **Development of a Neuromechanical framework to study animal locomotion ¹:**
Developed a ROS package to simulate modular tetrapoda models with neuromechanical control algorithms.
- **Autonomous Robotics Lab** Dr.Sudipto Mukherjee
Indian Institute of Technology, Delhi 2017 - 2018
 - **Development of an Underactuated Flexible Manipulator using Differential Flatness:**
Designed a 4-link planar manipulator on MATLAB with a *flat controller* with trajectory tracking. ([video](#))

EXPERIENCE

- **Biorobotics Group** Manipal Institute of Technology, KA
Co-Founder 2018 - Present
 - **Neuromechanical Controller for a Humanoid:**
Leading a team of researchers on developing a neuromechanical controller for the COMAN using Central Pattern Generators.
 - **ROS Package for the Pleurobot:**
Leading a team of researchers on developing a ROS Package for the Pluerobot (BioRob, EPFL).
- **Teaching Assistant** Manipal Institute of Technology, KA
MTE-3003 2018 - Present
 - **Robot Dynamics and Control (MTE-3003):**
Teaching Robot Dynamics through ROS and evaluating final project.
- **Mars Rover Manipal [1 - 3]** Manipal Institute of Technology, KA
Robotic Arm Lead, Research Lead, Mechanical Member 2015 - 2017
 - **Development of a Mars Rover Prototype:**
Developed an autonomous Rover with a 6-DOF Robotic Arm, to traverse Martian like terrain and steep gradients upto 1m.

PROJECTS

- Obstacle detection and Path planning for an autonomous robot using computer vision and fuzzy logic.
- Traffic Detection using a Kalman Filter and Feature detection in MATLAB.
- LQR based control of a 3-link Linear Inverted Pendulum on a cart (LIP).

TECHNICAL SKILLS

- **Robotics & Programming:** ROS, OROCOS, GazeboSim, C++, Python, C#, MATLAB, L^AT_EX, Arduino
- **CAD & CAM:** ANSYS Mechanical Workbench, ADAMS, Soliworks, CATIA V6, AutoCAD, Blender

PUBLICATIONS & PRESENTATIONS

1. **Rajamani, D. K.**, et al. **Design and development of a linear jawed gripper for unstructured environments.** Manipal Journal of Science and Technology 3, no. 1 (June 2018). ([link](#))
2. **Rajamani, D. K.**, et al. **Design Overview of a Planetary Exploration Rover for Unstructured Terrain.** 3rd International and 18th National Conference on Machines & Mechanisms.
3. **Rajamani, D. K.**, et. all. **Design and Development of a Linear Jawed Gripper for Unstructured Environments.** International Conference on Applied Sciences, Engineering & Technology.(ISBN: 978-93-5279-058-6)
4. **Rajamani, D. K.**, et. all. **A comparative Analysis of Industrial Grade Parallel Gripper and Linear Grippers.** ISAB Industrial Automationand Control TechEvent Day, ISA Bangalore. ([Best Paper Award](#))

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