

Aman Singh

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EDUCATION

Indian Institute of Science

Doctor of Philosophy in Cyber-Physical Systems

Bengaluru, India

August 2022 – Present

Indian Institute of Technology Roorkee

Bachelor of Technology in Mechanical Engineering

Roorkee, India

July 2015 – May 2019

PROFESSIONAL EXPERIENCE

Project Associate

RBCCPS, Indian Institute of Science

Jan 2021 – July 2022

Bengaluru, India

Verification Engineer

Oski Technology

July 2019 – Jan 2021

Gurugram, India

SELECTED PUBLICATIONS

COMPAct: Computational Opt. & Automated Modular Design of Planetary Act.

ICRA 2026

A. Singh, D. Kapa, S. Joshi, and S. Kolathaya | [Paper-Link](#) | [Video-Link](#)

Submitted

A Co-Design FW for Energy-Aware Monoped Jumping, Detailed Act. Model

Humanoids 2025

A. Singh, A. Mishra, D. Kapa, S. Joshi and S. Kolathaya | [Paper-Link](#) | [Video-Link](#)

Accepted

Comparison between ESSPG & ISSPG Actuators for Legged Robots

AIR 2025

A. Singh, D. Kapa, P. Chedda, and S. N. Y. Kolathaya | [Paper-Link](#)

Accepted

A Chain-Driven, Sandwich-Legged Quadruped Robot: Design and Exp. Analysis

AIR 2025

A. Singh, B. G. Goswami, K. Nehete, and S. N. Y. Kolathaya | [Paper-Link](#) | [Video-Link](#)

Accepted

PATENTS

Low-cost sandwiched robotic leg design for legged locomotion

Indian Patent Office (IPO)

Aman Singh, Shishir Kolathaya | [Patent-certificate](#)

Accepted

PROJECTS AND COMPETITIONS

Human inspired biped walking | [Video](#)

August 2018 – April 2019

Project Assistant

Dr. M. M. Joglekar, MIED, IIT Roorkee

- Designed a human inspired, control law partitioning based controller for a 2-D biped robot
- Designed and fabricated a 2D biped robot test-bed, restricted to walk on a circular trajectory
- Implemented the controller on the test-bed to achieve 2D bipedal walking

Design and fabrication of a legged robot prototype: Phase II

May 2018 – July 2018

Research Intern

Dr. Lionel Birglen, Polytechnique Montreal

- Designed a compliant leg mechanism, based on a Hoeken's Pantograph mechanism based rigid leg design
- Developed a simulation to analyze the leg design in MATLAB
- Optimized the link lengths and thickness of compliant joints to meet the required end effector trajectory
- Built the leg mechanism using Delrin material with the help of a laser cutting machine for experimental validation

NEM CON: ABU Robocon 2018 | [Video](#)

June 2017 – March 2018

Team Leader

Dr. Shailesh Ganpule, MIED, IIT Roorkee

- Developed a manually operated and an autonomous robot, for solving a problem statement named NEMCON
- Developed a 3 omni wheel based navigation and two ball transferring mechanisms for the manually operated robot
- Developed a 4 mecanum wheel based navigation and 3 ball collect and throw mechanisms for the auto robot
- Achieved 7th position among 109 teams across the country and also won the "Best Innovative Design" award

Frisbee throwing robot: ABU Robocon 2017

June 2016 – March 2017

Technical Team Member

Dr. Avinash Kumar Swain, MIED, IIT Roorkee

- Designed and built a frisbee throwing robot to navigate, throw and land frisbees on 7 different elevated platforms
- Designed a 4 wheel Mecanum drive robot with two independent frisbee throwing mechanisms
- Designed a reloading mechanism for each throwing mechanism with maximum capacity of 25 Frisbees