

Aman Singh

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EDUCATION

Indian Institute of Science <i>Doctor of Philosophy in Cyber-Physical Systems</i>	Bengaluru, India August 2022 – Present
Indian Institute of Technology Roorkee <i>Bachelor of Technology in Mechanical Engineering</i>	Roorkee, India July 2015 – May 2019

PROFESSIONAL EXPERIENCE

Project Associate <i>RBCCPS, Indian Institute of Science</i>	Jan 2021 – July 2022 Bengaluru, India
Verification Engineer <i>Oski Technology</i>	July 2019 – Jan 2021 Gurugram, India

SELECTED PUBLICATIONS

COMPAct: Computational Opt. & Automated Modular Design of Planetary Act. <i>A. Singh, D. Kapa, S. Joshi, and S. Kolathaya</i> Paper-Link Video-Link	ICRA 2026 Submitted
A Co-Design FW for Energy-Aware Monoped Jumping, Detailed Act. Model <i>A. Singh, A. Mishra, D. Kapa, S. Joshi and S. Kolathaya</i> Paper-Link Video-Link	Humanoids 2025 Accepted
Comparison between ESSPG & ISSPG Actuators for Legged Robots <i>A. Singh, D. Kapa, P. Chedda, and S. N. Y. Kolathaya</i> Paper-Link	AIR 2025 Accepted
A Chain-Driven, Sandwich-Legged Quadruped Robot: Design and Exp. Analysis <i>A. Singh, B. G. Goswami, K. Nehete, and S. N. Y. Kolathaya</i> Paper-Link Video-Link	AIR 2025 Accepted

PATENTS

Low-cost sandwiched robotic leg design for legged locomotion <i>Aman Singh, Shishir Kolathaya</i> Patent-certificate	Indian Patent Office (IPO) Accepted
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PROJECTS AND COMPETITIONS

Human inspired biped walking Video <i>Project Assistant</i>	August 2018 – April 2019 <i>Dr. M. M. Joglekar, MIED, IIT Roorkee</i>
<ul style="list-style-type: none">Designed a human inspired, control law partitioning based controller for a 2-D biped robotDesigned and fabricated a 2D biped robot test-bed, restricted to walk on a circular trajectoryImplemented the controller on the test-bed to achieve 2D bipedal walking	
Design and fabrication of a legged robot prototype: Phase II <i>Research Intern</i>	May 2018 – July 2018 <i>Dr. Lionel Birglen, Polytechnique Montreal</i>
<ul style="list-style-type: none">Designed a compliant leg mechanism, based on a Hoeken's Pantograph mechanism based rigid leg designDeveloped a simulation to analyze the leg design in MATLABOptimized the link lengths and thickness of compliant joints to meet the required end effector trajectoryBuilt the leg mechanism using Delrin material with the help of a laser cutting machine for experimental validation	
NEM CON: ABU Robocon 2018 Video <i>Team Leader</i>	June 2017 – March 2018 <i>Dr. Shailesh Ganpule, MIED, IIT Roorkee</i>
<ul style="list-style-type: none">Developed a manually operated and an autonomous robot, for solving a problem statement named NEMCONDeveloped a 3 omni wheel based navigation and two ball transferring mechanisms for the manually operated robotDeveloped a 4 mecanum wheel based navigation and 3 ball collect and throw mechanisms for the auto robotAchieved 7th position among 109 teams across the country and also won the "Best Innovative Design" award	
Frisbee throwing robot: ABU Robocon 2017 <i>Technical Team Member</i>	June 2016 – March 2017 <i>Dr. Avinash Kumar Swain, MIED, IIT Roorkee</i>
<ul style="list-style-type: none">Designed and built a frisbee throwing robot to navigate, throw and land frisbees on 7 different elevated platformsDesigned a 4 wheel Mecanum drive robot with two independent frisbee throwing mechanismsDesigned a reloading mechanism for each throwing mechanism with maximum capacity of 25 Frisbees	