Shail Jadav

TU Wien
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https://shailjadav.github.io/

Education

PhD in Mechanical Engineering   July-2018 to Dec-2023

Indian Institute of Technology Gandhinagar

Thesis: *"Human-Inspired Learning Controllers and
Motion Planners for Robotic Manipulators"*
Adviser: Prof. Harish PM
Gold Medal for Outstanding Innovation

Bachelor's in Biomedical Engineering   July 2013- April 2017

Gujarat Technological University
Second rank in college and third rank in university

Professional Experience

Visiting Research Scholar   May 2023 -October 2023

Technical University of Vienna (TU Wien)
Project: *Shared Autonomy for Human Robot Interaction*
Adviser: Prof. Dongheui Lee & Prof. Christian Ott

Visiting Research Scholar   May 2019 -July 2019

The University of Texas at Austin
Project: *Development of ankle cuff for gait trainer robot*
Adviser: Prof. James Sulzer

Project associate   October 2017 -June 2018

Indian Institute of Technology Gandhinagar
*Developed a device [PDEYE] to detect early onset of
Parkinson's disease based on pupillary light reflex& conducted
clinical study for the device*
Adviser: Prof. Harish PM & Dr. Vruntang Kumar

Project assistant   July 2017-October 2017

Indian Institute of Technology Gandhinagar
*Designed a device [PDEYE] to detect early onset of Parkinson's
disease based on pupillary light reflex*
Adviser: Prof. Harish PM & Dr. Vruntang Kumar

Summer Intern   June 2017-July 2017

Indian Institute of Technology Gandhinagar
*Developed a remote control high-frequency vibration
stimulation belt for rest tremor suppression in Parkinson's disease*
Adviser: Prof. Harish PM & Dr. Vruntang Kumar

Biomedical Engineer   April 2017-June 2017
AIMS Hospital, Ahmedabad
Leader in the technical support during surgeries and implementation of the
new medical equipment.
Quality assurance and quality control of medical devices

Teaching Experience

Graduate Teaching Fellow [Mechatronics]   August 2022 – December 2023
Indian Institute of Technology Gandhinagar
Taught undergraduate course on mechatronics along with
Prof. Madhu Vadali

Graduate Teaching Fellow [Control Theory]   January 2022 – April 2022
Indian Institute of Technology Gandhinagar
Taught undergraduate course on control theory along with
Prof. Madhu Vadali

Teaching Assistant
Indian Institute of Technology Gandhinagar
ME LAB II: Enabled students to do "learning-by-doing"
Writing: Enabled students for scientific writing

Grants

Overseas Research Fellowship (~INR 650000)   May 2023 – October 2023
Indian Institute of Technology Gandhinagar
Shared Autonomy for Human Robot Interaction
Outcome: ICRA 24 paper

NIDHI PRAYAS grant for product development (~INR 700000)   July 2022 - December 2023
Department of Science and Technology (Govt. Of India)
Development of analog adaptive motor driver for robots
Outcome: Motor drivers in commercialization phase

Student Travel Grant | SPARC (~INR 400000)   May 2019 – July 2019
Department of Science and Technology (Govt. Of India)
Study of Locomotor Adaptation Using a Single degree of freedom Gait
Trainer
Outcome: Journal paper

IEEE RAS Student Travel Grant (~ 2500$)   May 2024
IEEE Robotics & Automation Society
To attend the best robotics conference ICRA in Japan

IITGN Travel Grant (~ INR 100000)   May 2024
Indian Institute of Technology Gandhinagar
To attend ICRA 24 in Japan

Publications

[J1]	Shail Jadav and Harish PM	Configuration and Force-field Aware Variable Impedance Control with Faster Re-learning	Journal of Intelligent & Robotic Systems (Q1) Link
[J2]	Shail Jadav and Harish PM	Utilization of Manipulator Redundancy for Torque Reduction During Force Interaction	ASME Letters in Dynamic Systems and Control Link
[J3]	Shail Jadav, Karthik Karvaje, Sujay Kadam, Vineet Vashista, James Sulzer, Ashish Deshpande, and Harish PM	Kinematic Analysis and Validation of a Customizable Single Degree-of-freedom Gait Trainer Device	ASME Journal of Medical Devices Link
[J4]	Shah Vrutang, Shail Jadav, Sachin Goyal, and Harish PM	A Machine-Learning-Based Method to Detect Degradation of Motor Control Stability with Implications to Diagnosis of Presymptomatic Parkinson's Disease: A Simulation Study	MDPI Applied Sciences Link
[C1]	Shail Jadav, Johannes Heidersberger, Christian Ott, and Dongheui Lee	Shared Autonomy via Variable Impedance Control and Virtual Potential Field for Encoding Human Demonstrations	IEEE International Conference on Robotics and Automation 2024 Link
[C2]	Suyash Patidar, Shail Jadav, and Harish PM	Redundancy in Planar Robotic Manipulator: A Comparison of Redundancy Configurations for Force Production Tasks	IEEE Indian Control Conference 23 Link
[C3]	Shail Jadav, Shubhankar Riswadkar, Sujay Kadam, and Harish PM	Variable Impedance Learning Control with Faster Re-learning and Reduced Initial Errors in Re-perturbation for Robots Operating in Divergent Force Fields	ACM Advances In Robotics 2023 Link
[C4]	Shubhankar Riswadkar, Shail Jadav, and Harish PM	A Novel Approach for Combining Feedback and Feedforward Control in DC Motor Control: A Smooth Switching Strategy for Time-Varying Systems with Noisy Feedback	ACM Advances In Robotics 2023 Link

Reviewer Service

IEEE Transaction on Robotics
IEEE International Conference on Robotics and Automation (ICRA)
ACM Advances in Robotics

IEEE International Conference on Rehabilitation Robotics

Invited Talks

[T1] March 2023   Advances in motion control and entrepreneurship   NIT Sikkim

[T2] March 2023   Advances in motion control   PDEU

Awards

[A1] 2024   Gold Medal for Outstanding Innovation (Among all graduating students, 13 Convocation of IITGN)

[A2] 2023   Winner Regional Finale of Boeing BUILD

[A2] 2017   Runner-up at Google India Hackathon

Relevant Course Work

Human Robot Interaction	Digital Control Systems
Introduction to Robotics	Nonlinear Control
Modern Control Theory	Fundamentals of Neuroscience
Control Theory	Classics in Brain Science

Hobbies

Tinkering with Electronics & Embedded System | Musical Instruments | Cooking | Relaxing in Nature