Dr. Sri Harsha Turlapati (currently Research Fellow @ CARTIN, NTU)

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Research statement

My current research goal is to produce useful data from haptic demonstrations for learning algorithms in contact rich manipulation tasks. So far, we have used two modalities to do this - (i) sensorized tools and (ii) bilateral tele-operated robots.

Research Interests

Learning from haptic demonstrations, Mixed2Real frameworks, Geometry, Sim2Real

Robots and equipment I have worked with

Kinova Gen3, HAPTION Virtuose 6D TAO TREX, HEBI SEA, Kuka iiwa, PhaseSpace X2E Motion capture, PTI Pheonix Visualeyez, ATI Mini40, Quanser QPIDe

Select publications

Planning for Quasi-Static Manipulation Tasks via an Intrinsic Haptic Metric: A Book Insertion Case Study
IEEE RAL 2025

Robotic valve turning: axial misalignment estimation from reaction torques
IROS 2024

Sensorized gripper for human demonstrations (Best paper award)
SIMM 2024

Identification of Intrinsic Friction and Torque Ripple for a Robotic Joint with Integrated Torque Sensors with Application to Wheel-Bearing Characterization
MDPI

Fast Kinematic Re-Calibration for Industrial Robot Arms
MDPI

Tracing curves in the plane: Geometric-invariant learning from human demonstrations
PLoS ONE

Towards Haptic-Based Dual-Arm Manipulation
MDPI

Read more of my research at Google Scholar

Patents and TDs

U.S. Patent No. 12,220,814 Master-Slave Robot Arm Control System and Control Method Issued: February 11, 2025

- **Assignees:** Delta Electronics Int'l Singapore Pte Ltd; Nanyang Technological University
- **Link:** US12220814B2

NTUitive TD 2024-462 Adaptive Robotic Wrist for Versatile Object Handling

NTUitive TD 2022-273 Identification of intrinsic friction and torque ripple for a robotic joint with integrated torque sensors

Education

NTU Singapore

PhD, Mechanical and Aerospace Engineering, 2022

- Topic: **Towards haptic intelligence in robots by learning from demonstration**
- Advisor: Domenico Campolo

Experience

NTU Singapore

Research Fellow **Aug 2022-25**
Research Associate **Mar-Aug 2022**
Teaching Assistant,
MA2009 (Introduction to Electrical Circuits & Electronic Devices) **2022-25**
MA2011 (MECHATRONICS SYSTEMS INTERFACING) **2022-25**

IIIT Hyderabad, INDIA

Research Assistant **2015 - 2017**
Includes current M.S research, coursework and research/consulting projects.

Teaching Assistant **2016**
Head Teaching Assistant, Digital Logic and Processors

Skills

C, C++, Python, Java	MATLAB, Blender, ROS	Solidworks
MSC Adams	PyBullet	OpenCV

Coursework (NTU)

Engineering
Manufacturing Control & Automation
Prototype & Rapid Prototyping
Robotics & Intelligent Sensors
Space Environment & Spacecraft Systems Engineering

Teaching
University Teaching for Teaching Assistants

Coursework (IIIT)

Robotics
Mobile Robotics
Intro to Robotics
Digital Image Processing
Optimization Methods
Design of Mechanisms
Computer Vision
Statistical Methods in AI
Machine Learning

Electronics
Embedded Hardware Design
Electromagnetic theory and Applications
Signals and Systems
Digital Signal Processing

Honors and Awards

TEDxNTU

Nanyang award for Teamwork **2019**
Mr and Mrs Kwok Chin Yan Award for Student Initiative Award **2019**

Volunteering

Committee member, **Tan Seow Chiap - POWERS Scholarship** **2024-25**
Research Fellow representative, **SWE@NTU** **2023-24**
Advisor, **TEDxNTU** **2021**
Chairman, **TEDxNTU** **2020**