RUTAV SHAH

rutavms@utexas.edu | shahrutav.github.io | github.com/ShahRutav

EDUCATION

The University of Texas at Austin August 2022 - Now
Ph.D. student in Computer Science *Austin, USA*
Advisors: Professor Roberto Martín Martín and Professor Yuke Zhu
Research Focus: Foundation Models, Robotics

Indian Institute of Technology, Kharagpur July 2018 - April 2022
Undergraduate in Computer Science, GPA: 9.64/10 *Kharagpur, India*
Advisors: Dr. Vikash Kumar and Professor Abir Das
Research Focus: Representation Learning, Domain Adaptation, Robotics

EXPERIENCE

Robotics and AI Institute June. 2025 - Aug. 2025
Graduate Research Intern *Boston, USA*
Scaling short-term memory for robots

KLA-Tencor Corporation Feb. 2022 - July 2022
Algorithm Research & Development Intern *Chennai, India*
Developed GPU-accelerated implementation of Random Decision Forests

Developer for JEE Advanced'2021 Sept. 2021 - Dec. 2021
Supervisor: Professor Mainack Mondal and Professor Debajit Chakraborty *IIT Kharagpur, India*
Implemented algorithm for seat allocation and designed website for JEE Advanced'2021

Robotics Institute Summer Scholar (RISS) program June 2021 - Aug. 2021
Advisors: Dr. Vikash Kumar and Professor Abhinav Gupta *Carnegie Mellon University, USA*
Research in learning generalizable policy using representation learning.

Autonomous Ground Vehicle (AGV) Lab April 2019 - Dec. 2020
Advisor: Professor Debajit Chakraborty *IIT Kharagpur, India*
Developed planning algorithms and tested them on Mahindra E2O for autonomous navigation.

PUBLICATIONS & MANUSCRIPTS

* Equal contribution. † Equal advising

Scaling Short-Term Memory Of Visuomotor Policies For Long-Horizon Tasks
Rutav Shah, Rajat Kumar Jenamani, Xiaohan Zhang, Lingfeng Su, Roberto Martín-Martín, Yuke Zhu, Deva Ramanan, Karl Schmeckpeper
Technical Report, 2025

MimicDroid: In-Context Learning for Humanoid Robot Manipulation from Human Play Videos
Rutav Shah, Shuijing Liu*, Qi Wang*, Zhenyu Jiang*, Sateesh Kumar, Mingyo Seo, Roberto Martín-Martín, Yuke Zhu
Technical Report, 2025

SCIZOR: Self-Supervised Data Curation for Large-Scale Imitation Learning
Yu Zhang, Yuqi Xie, Huihan Liu*, **Rutav Shah***, Michael Wan, Linxi "Jim" Fan, Yuke Zhu
Technical Report, 2025

Casper: Inferring Diverse Intents for Assistive Teleoperation with Vision Language Models
Huihan Liu, **Rutav Shah**, Shuijing Liu, Jack Pittenger, Mingyo Seo, Yuchen Cui, Yonatan Bisk, Roberto Martín-Martín, Yuke Zhu
Conference on Robot Learning, 2025

BUMBLE: Unifying Reasoning and Acting with VLMs for Building-Wide Mobile Manipulation
Rutav Shah, Albert Yu, Yifeng Zhu, Yuke Zhu†, Roberto Martín Martín†
IEEE, International Conference on Robotics and Automation (ICRA), 2025

LOTUS: Continual Imitation Learning for Robot Manipulation Through Unsupervised Skill Discovery
Weikang Wan, Yifeng Zhu*, **Rutav Shah***, Yuke Zhu
IEEE, International Conference on Robotics and Automation (ICRA), 2024

Open X-Embodiment: Robotic Learning Datasets and RT-X Models
Open X-Embodiment Collaboration
Best Conference Paper Award
IEEE, International Conference on Robotics and Automation (ICRA), 2024

MUTEX: Learning Unified Policies from Multimodal Task Specifications
Rutav Shah, Roberto Martín-Martín†, Yuke Zhu†
Conference on Robot Learning (CoRL), 2023

RoboHive: A Unified Framework for Robot Learning
Vikash Kumar, **Rutav Shah***, Gaoyue Zhou*, Vincent Moens, Vittorio Caggiano, Jay Vakil, Abhishek Gupta, Aravind Rajeswaran
Neural Information Processing Systems (NeurIPS) Track on Datasets and Benchmarks, 2023

Inflatable Fingertips with Stretchable Pressure Sensors for Adaptive Grasping and Manipulation
Hongyang Shi, **Rutav Shah**, Zhengjie Li, Heeyong Huh, Yuke Zhu, Nanshu Lu
IROS Workshop on IPPC for Physically and Contextually-Aware Robot Autonomy, 2023

RRL: Resnet as Representation for Reinforcement Learning
Rutav Shah*, Vikash Kumar*
International Conference on Machine Learning (ICML), 2021

Contrast and Mix: Temporal Contrastive Video Domain Adaptation with Background Mixing
Aadarsh Sahoo, **Rutav Shah**, Rameswar Panda, Kate Saenko, Abir Das
Neural Information Processing Systems (NeurIPS), 2021

TEACHING & OUTREACH

Podcast: Kinematic Conversations with Ilir Aliu — Nov. 2024
Link: `youtu.be/A7Vx6NDLaz4`

Organizer of Robot Learning Reading Group — April. 2022 - Now
Website: `ut-robotlearning.github.io` — *UT Austin, USA*

Graduate Teaching Assistant — Jan. 2024 - April 2024
RBT350: Gateway to Robotics, Undergraduate Course — *UT Austin, USA*

Graduate Teaching Assistant — Aug. 2023 - Dec. 2023
RBT350: Gateway to Robotics, Undergraduate Course — *UT Austin, USA*

Teaching Assistant — April 2022
Math Camp for students of *Grade 9-12*, Epsilon Camp, Raising a Mathematician — *Online*

RoboLaunch — Aug. 2021 - Dec. 2021
Outreach program to increase high-school engagement in robotics. — *Carnegie Mellon University, USA*

ACHIEVEMENTS

- **1st Position, Bosch Mid-Prep, Inter-IIT TechMeet**, *Indian Institute of Technology, India, 2022*
- **Runner Up Position, Intelligent Ground Vehicle Competition (IGVC)**, *Oakland University, USA, 2019*
- **2nd Position, Mathematical Olympiad**, *Indian Institute of Technology, Kharagpur, 2019*
- **JEE Advanced, All India Rank 257 (Top 0.1%)**, *Indian Institute of Technology (IITs), 2018*
- **KVPY, All India Rank 278 (Top 1%)**, *Department of Science and Technology, Government of India, 2017*
- **Merit in Indian National Mathematical Olympiad**, *Homi Bhabha Centre for Science Education, 2016*