

Utsav Singh

PERSONAL DATA

ADDRESS: CSE Department, IIT Kanpur, India
PHONE: +91-9532489121
INSTITUTE EMAIL: utsavz@iitk.ac.in, utsavz@cse.iitk.ac.in
ALTERNATE EMAIL: utsavsingh1990@gmail.com
HOMEPAGE: <https://utsavz.github.io/>
GOOGLE SCHOLAR: <https://scholar.google.com/citations?user=VzkTu6kAAAAJ>
LINKEDIN: <https://in.linkedin.com/in/utsavz/>

RESEARCH INTERESTS

Hierarchical & Bilevel Reinforcement Learning, Large Language Models (LLMs) & Reasoning, Robotics & Embodied Intelligence, Natural Language Processing, AI Alignment, Diffusion Models.

PUBLICATIONS

1. **Direct Preference Optimization for Primitive-Enabled Hierarchical Reinforcement Learning**, Utsav Singh, Souradip Chakraborty, Wesley A. Suttle, Brian M. Sadler, Derrik E. Asher, Anit Kumar Sahu, Mubarak Shah, Vinay P. Namboodiri, Amrit Singh Bedi, *accepted at International Conference on Learning Representations, (ICLR) 2026*.
2. **CRISP: Curriculum Inducing Primitive Informed Subgoal Prediction for Hierarchical Reinforcement Learning**, Utsav Singh, Vinay P. Namboodiri, *accepted at the Fortieth AAAI Conference on Artificial Intelligence, (AAAI) 2026*.
3. **On the Sample Complexity Bounds of Bilevel Reinforcement Learning**, Mudit Gaur, Utsav Singh, Amrit Singh Bedi, Raghu Pasupathy, Vaneet Aggarwal, *accepted at the Thirty-Ninth Conference on Neural Information Processing Systems, (NeurIPS) 2025*.
4. **PEAR: Primitive Enabled Adaptive Relabeling for boosting Hierarchical Reinforcement Learning**, Utsav Singh, Vinay P. Namboodiri, *accepted at the Thirteenth International Conference on Learning Representations, (ICLR) 2025*.
5. **PIPER: Primitive-Informed Preference-based Hierarchical RL via Hindsight Relabeling**, Utsav Singh, Wesley A. Suttle, Brian M. Sadler, Vinay P. Namboodiri, Amrit Singh Bedi, *accepted at International Conference on Machine Learning, (ICML) 2024*.
6. **Reinforcement Learning with Textual Feedback via Natural Language Actor Critic**, Utsav Singh, Sidhaarth Sredharan Murali, Souradip Chakraborty, Amrit Singh Bedi, *under review at International Conference on Machine Learning, (ICML) 2026*.
7. **LGR2: Language Guided Reward Relabeling for Accelerating Hierarchical Reinforcement Learning**, Utsav Singh, Prमित Bhattacharyya, Vinay P. Namboodiri, *under review at the Intelligent Robots and Systems, (IROS) 2026*.
8. **Mitigating Reward Hacking in Inference-Time Alignment of T2I Diffusion Models via Distributional Regularization**, Kevin Zhai, Utsav Singh, Anirudh Thatipelli, Souradip Chakraborty, Anit Kumar Sahu, Furong Huang, Amrit Singh Bedi, Mubarak Shah, *under review at International Conference on Machine Learning, (ICML) 2026*.
9. **Repair Aware Forgetting: An Iterative Approach to Unlearning in T2I Diffusion Models**, Soumik Ghosh, Kevin Zhai, Utsav Singh, Souradip Chakraborty, Amrit Singh Bedi, Mubarak Shah, *under review: International Conference on Machine Learning, (ICML) 2026*.
10. **Hierarchical Contrastive Control: Stabilizing Hierarchical Reinforcement Learning via Contrastive Future State Density Estimation**, Utsav Singh, *under review at International Conference on Machine Learning, (ICML) 2026*.

WORK EXPERIENCE

UPCOMING: SUMMER 2026	Postdoctoral Researcher at UNIVERSITY OF CENTRAL FLORIDA Advised by Dr. Mubarak Shah and Dr. Amrit Singh Bedi.
MAR 2026 – MAY 2026	Project Engineer at INDIAN INSTITUTE OF TECHNOLOGY, KANPUR Advised by Prof. Arnab Bhattacharya.
AUG 2024 - FEB 2025	Visiting Research Scholar at UNIVERSITY OF CENTRAL FLORIDA Leveraging Hierarchical Reinforcement Learning and Preference-based Learning to solve robotic control tasks. Advised by Dr. Amrit Singh Bedi and Dr. Mubarak Shah.
JUNE 2017 – JUNE 2022	Teaching Assistance-ship at INDIAN INSTITUTE OF TECHNOLOGY, KANPUR Machine Learning, Visual Recognition, Introduction to Programming, Introduction to Game Theory, Computer Graphics, Software Development and Operations.
AUG 2017 – SEPT 2017	Research Internship at HACKLABS, BANGALORE Complex Robotic Manipulation via Imitation Learning. Advised by Dr. Pulkit Agrawal
JULY 2013 – SEPT 2014	Assistant System Trainee at TATA CONSULTANCY SERVICES Developed enterprise software solutions

EDUCATION

PH.D.	in COMPUTER SCIENCE AND ENGINEERING Indian Institute of Technology Kanpur , Kanpur, India 2017 – 2025 Thesis: Learning to Solve Complex Control Tasks via Hierarchical Strategies Advisor: DR. VINAY P. NAMBOODIRI AND DR. SUNIL E. SIMON
M.TECH.	in COMPUTER SCIENCE AND ENGINEERING Indian Institute of Technology Kanpur , Kanpur, India 2015 – 2017 Thesis: RT-CNN: Recurrent Strategies for CNN Based Multiple Object Tracking Advisor: DR. VINAY P. NAMBOODIRI AND DR. SUNIL E. SIMON
B.TECH.	in COMPUTER SCIENCE AND ENGINEERING Harcourt Butler Technological Institute , Kanpur, India 2009 – 2013
INTERMEDIATE	in CBSE BOARD Krishna Public School, Meerut, UP, India 2008
HIGH SCHOOL	in CBSE BOARD National Public School, Sahibabad, UP, India 2006

TECHNICAL SKILLS

TECHNICAL SKILLS: TensorFlow, Keras, PyTorch, HuggingFace, MuJoCo, OpenAI Gym, Scikit-learn, Docker, Git.
PROGRAMMING LANGUAGES: Python, C, C++, Java, Android.

SCHOLARSHIPS AND CERTIFICATES

QUALCOMM INNOVATION FELLOWSHIP 2023 INDIA	Finalist
PH.D. INSTITUTE FELLOWSHIP	Teaching Assistant-ship by MHRD
M.TECH. INSTITUTE FELLOWSHIP	Teaching Assistant-ship by MHRD
MICROSOFT RESEARCH INDIA ACADEMIC OUTREACH	Travel Grant 2024
ICML 2024 AND ICLR 2025	Travel funding support
VOLUNTEERING AT ICML 2025	Recognized for volunteering efforts
GRADUATE APTITUDE TEST IN ENGINEERING (GATE) 2015	AIR 343 in CS
JOINT ENTRANCE SCREENING TEST (JEST) 2015	AIR 15
JOINT ENTRANCE EXAMINATION (JEE) 2009	Extended Merit List
UP STATE ENTRANCE EXAMINATION (UPSEE) 2009	AIR 1053
OPENCV AND PYTHON, TECHKRITI 2019 AT IIT KANPUR	Tutorials
ROBOTICS WORKSHOP, INCORD 2012 AT HBTI KANPUR	Coordinator

PROFESSIONAL SERVICE

REVIEWER: International Conference on Machine Learning (ICML)
Conference on Neural Information Processing Systems (NeurIPS)
International Conference on Learning Representations (ICLR)
AAAI Conference on Artificial Intelligence (AAAI)
Conference on Computer Vision and Pattern Recognition (CVPR)

WORKSHOP PRESENTATIONS

- *Generative Models for Robot Learning Workshop*, ICLR 2025.
- *Towards Robots with Human-Level Abilities Workshop*, ICLR 2025.
- *Models of Human Feedback for AI Alignment Workshop*, ICML 2024.
- *Aligning RL Experimentalists and Theorists Workshop*, ICML 2024.
- *Reinforcement Learning Beyond Rewards Workshop*, RLC 2024.

EXTRACURRICULAR ACHIEVEMENTS

- *Completed Ironman 70.3 Triathlon*, Goa, November 2023.
- *Completed KhardungLa Challenge Ultra Marathon* (72 km at 5300m), 2019.
- *Completed 5-year Hindustani Classical Vocal Music training* from Prayag Sangeet Samiti.
- *Completed Manali to Leh Cycling Expedition* (560 km), 2018 and 2019.
- *Completed Lamkhaga Pass Trek* and 11 other treks.
- *Completed Tata Mumbai Marathon* in 2018 and 2019.
- *Coordinator at Adventure Club*, IIT Kanpur, 2019.
- *Music Coordinator at cultural event Impressions*, IIT Kanpur, 2020.
- *Second runner-up at Singing Competition*, TCS Pune, Sahyadri Park.
- *Completed Yes+ Workshop* (2009) with the Art of Living.
- *Completed Advance course* (2012, 2021) with the Art of Living