

Hongyi Chen

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EDUCATION	Carnegie Mellon University , 3rd year Ph.D in Robotics; May 2028 (Expected) Georgia Institute of Technology , M.S in Robotics; May 2023 Carnegie Mellon University , M.S in Electrical and Computer Engineering; May 2021 Peking University , B.A in Economics; June 2019 Beijing University of Chemical Technology (BUCT) , B.S in Applied Mathematics; June 2018	
SELECTED PUBLICATIONS	[1] Hongyi Chen , Tony Dong, Tiancheng Wu, Liquan Wang, Yash Jangir, Yaru Niu, Yufei Ye, Homanga Bharadhwaj, Zackory Erickson, Jeffrey Ichnowski. Dexterous Manipulation Policies from RGB Human Videos via 3D Hand-Object Trajectory Reconstruction. <i>arXiv</i> , 2026. [PDF] [2] Hongyi Chen , Yunchao Yao, Yufei Ye, Zhixuan Xu, Homanga Bharadhwaj, Jiashun Wang, Shubham Tulsiani, Zackory Erickson, Jeffrey Ichnowski. Web2Grasp: Learning Functional Grasps from Web Images of Hand-Object Interactions. <i>arXiv</i> , 2025. [PDF] [3] Hongyi Chen , Abulikemu Abuduweili, Aviral Agrawal, Yunhai Han, Harish Ravichandar, Changliu Liu, Jeffrey Ichnowski. KOROL: Learning Visualizable Object Feature with Koopman Operator Rollout for Manipulation. <i>8th Annual Conference on Robot Learning (CoRL)</i> , 2024. [PDF] [4] Hongyi Chen , Yunchao Yao, Ruixuan Liu, Changliu Liu, Jeffrey Ichnowski. Automating Robot Failure Recovery Using Vision-Language Models With Optimized Prompts. <i>American Control Conference (ACC)</i> , 2025. [PDF] [5] Hongyi Chen , Yilun Du, Yiye Chen, Patricio A. Vela, Joshua B. Tenenbaum. Planning with Language Models through Iterative Energy Minimization. In: <i>The International Conference on Learning Representations (ICLR)</i> , 2023. [PDF]	
ROBOT MANIPULATION	Samsung Research America , Mountain View, CA Advisor: <i>Zhe Zhang</i> and <i>Kris Hauser</i>	Jul 2025 – Sep 2025
RESEARCH EXPERIENCE	<ul style="list-style-type: none">Developed <i>VideoManip</i>, which reconstructs explicit 3D hand-object trajectories from human videos for dexterous robot hand manipulation policy training.Adopted <i>Web2Grasp</i>, which leverages reconstructed hand-object interactions from images to enable grasping with the dexterous Inspire hand on the G1 humanoid and with a parallel gripper on the robot arm.	
	Carnegie Mellon University , Pittsburgh, PA Advisor: <i>Jeffrey Ichnowski</i> and <i>Zackory Erickson</i> , Robotics Institute	Aug 2023 – present
	<ul style="list-style-type: none">Proposed <i>Web2Grasp</i>, that uses reconstructed hand-object interaction from web images to train a functional grasping model for multifinger robotic hands.Proposed <i>KOROL</i>, which learns flexible visual features for Koopman dynamics without the need to manually defined object states, and demonstrated that KOROL, using learned object features, outperforms Koopman dynamics based on ground-truth states.Investigated how optimizing visual and text prompts can enhance the spatial reasoning of VLMs, enabling them to function effectively as black-box controllers for both motion-level position correction and task-level recovery from unknown failures.	
ROBOT PLANNING & LEARNING	Massachusetts Institute of Technology , Cambridge, MA Advisor: <i>Joshua B. Tenenbaum</i> , Department of Brain and Cognitive Sciences	Jun 2022 – Sep 2022
RESEARCH EXPERIENCE	<ul style="list-style-type: none">Proposed an iterative planning approach with masked language models through energy minimization, showcasing unique benefits like task generalization and plan composition.	
	Georgia Institute of Technology , Atlanta, GA Advisor: <i>Patricio A. Vela</i> , School of Electrical and Computer Engineering; Advisor: <i>Danfei Xu</i> , School of Interactive Computing	Dec 2021 – May 2023
	<ul style="list-style-type: none">Developed a hybrid planner combining symbolic and neural methods for parsing human instructions and task planning, alongside a semantic graph neural network for guided object search in home-assistant robots. Deployed the instruction-following pipeline on AI2THOR simulator and physical Stretch robot.	
	Carnegie Mellon University , Pittsburgh, PA Advisor: <i>Changliu Liu</i> , Robotics Institute	Jan 2021 – May 2022
	<ul style="list-style-type: none">Applied safe control theory with reinforcement learning (RL) to navigate crowded, dynamic, and uncertain environments, ensuring theoretical safety guarantees and achieving a significantly higher probability of collision-free navigation.	