

Hejia Zhang

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<https://hejazhang.me>

Education

Ph.D. in Computer Science , University of Southern California Advisor: Prof. Stefanos Nikolaidis	<i>01/2020 – Present</i>
M.S. in Computer Science , University of Southern California Advisor: Prof. Gaurav Sukhatme & Prof. Stefanos Nikolaidis	<i>2019</i>
B.E. in Bioengineering , Zhejiang University Advisor: Prof. Hui Fang	<i>2017</i>

Awards

Qualcomm Innovation Fellowship Abstract Selection	<i>2020</i>
NeurIPS Travel Award	<i>2019</i>
Viterbi Best Research Award, USC	<i>2019</i>
Class III Scholarship for Academic Excellence, ZJU	<i>2015 – 2016</i>
Class II Scholarship for Academic Excellence, ZJU	<i>2013 – 2014</i>

Teaching

Introduction to Machine Learning (CSCI 467) , University of Southern California. Teaching Assistant	<i>Fall 2022</i>
Introduction to Programming (CSCI 103L) , University of Southern California. Teaching Assistant	<i>Spring 2021</i>
Robotics (CSCI 545) , University of Southern California. Teaching Assistant	<i>Fall 2020</i>
Introduction to Artificial Intelligence (CSCI 360) , University of Southern California. Teaching Assistant	<i>Spring 2020</i>

Services

Reviewer: IROS, ICRA, CASE, HRI, NeurIPS (Demo Track), THRI, RA-L, T-RO.

Media Coverage

Learning Collaborative Robot Plans from YouTube Videos: Paper of the Month by Kinova Robotics.

Robotic Hair Brushing: Fortune.

Outreach

USC Viterbi SHINE program Research Mentor	<i>Summer 2020</i>
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Mentoring

Haoyang Chen, MS student at USC.

Jie Zhong, MS student at USC.

Zechen Wang, Undergraduate student at USC.

Jiahang Zhang, Undergraduate students at USC.

Ruth Berkun, High school student mentoring through the USC Viterbi SHINE program.

Publications

In Submission

[P1] Shivin Dass¹, Karl Pertsch¹, **Hejia Zhang**, Youngwoon Lee, Joseph J. Lim, Stefanos Nikolaidis. **Assised Teleoperation for Scalable Robot Data Collection**. Under Review.

¹Equal contribution

Journal Articals

- [J2] Ryan Julian, Eric Heiden, Zhangpeng He, **Hejia Zhang**, Stefan Schaal, Joseph J. Lim, Gaurav S. Sukhatme, Karol Hausman. **Scaling Simulation-to-Real Transfer by Learning a Latent Space of Robot Skills**. *International Journal of Robotics Research (IJRR)*, Vol 39, Issue 10–11, 2020.
- [J1] Chaoyang Zhu, Kejie Huang, Shuyuan Yang, Ziqi Zhu, **Hejia Zhang**, Haibin Shen. **An Efficient Hardware Accelerator for Structured Sparse Convolutional Neural Networks on FPGAs**. *IEEE Transactions on Very Large Scale Integration Systems (TVLSI)*, Vol 28, Issue 9, 2020.

Refereed Conference Publications

- [C4] **Hejia Zhang**, Shao-Hung Chan, Jie Zhong, Jiaoyang Li, Sven Koenig, Stefanos Nikolaidis. **A MIP-Based Approach for Multi-Robot Geometric Task-and-Motion Planning**. *In The 18th IEEE International Conference on Automation Science and Engineering (CASE)*, 2022.
- [C3] **Hejia Zhang**¹, Matthew Fontaine¹, Amy Hoover, Julian Togelius, Bistra Dilkina, Stefanos Nikolaidis. **Video Game Level Repair via Mixed Integer Linear Programming**. *In The 16th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment (AIIDE-20)*, 2020. (Oral Presentation; 25% acceptance rate).
- [C2] **Hejia Zhang**, Po-Jen Lai, Sayan Paul, Suraj Kothawade and Stefanos Nikolaidis. **Learning Collaborative Action Plans from Unlabeled Youtube Videos**. *In International Symposium on Robotics Research (ISRR)*, 2019.
- [C1] Ryan Julian¹, Eric Heiden¹, Zhangpeng He, **Hejia Zhang**, Stefan Schaal, Joseph J. Lim, Gaurav S. Sukhatme, Karol Hausman. **Scaling simulation-to-real transfer by learning composable robot skills**. *Presented at International Symposium on Experimental Robotics (ISER)*, 2018.

Refereed Workshop Publications and Abstracts

- [W5] Shivin Dass, Karl Pertsch, **Hejia Zhang**, Youngwoon Lee, Joseph J. Lim, Stefanos Nikolaidis. **Assisted Teleoperation for Scalable Robot Data Collection**. *In Conference on Robot Learning (CoRL) Workshop on Pre-training Robot Learning*, 2022.
- [W4] **Hejia Zhang**, Shao-Hung Chan, Jie Zhong, Jiaoyang Li, Sven Koenig, Stefanos Nikolaidis. **A MIP-Based Approach for Multi-Robot Geometric Task-and-Motion Planning**. *In Southern California Robotics Symposium (SCR)*, 2022.
- [W3] **Hejia Zhang** and Stefanos Nikolaidis. **Robot Learning Collaborative Manipulation Plans from YouTube Cooking Videos**. *In Robotics: Science and Systems (R:SS) Workshop on Emergent Behaviors in Human-Robot Systems*, 2020.
- [W2] **Hejia Zhang**, Eric Heiden, Stefanos Nikolaidis, Joseph J. Lim, and Gaurav S. Sukhatme. **Auto-conditioned Recurrent Mixture Density Networks for Learning Generalizable Robotic Manipulation Skills**. *In Southern California Robotics Symposium (SCR)*, 2019.
- [W1] Zhanpeng He¹, Ryan Julian¹, Eric Heiden, **Hejia Zhang**, Stefan Schaal, Joseph J. Lim, Gaurav S. Sukhatme, Karol Hausman. **Simulator Predictive Control: Using Learned Task Representations and MPC for Zero-Shot Generalization and Sequencing**. *Presented at Conference on Neural Information Processing Systems (NeurIPS) Deep Reinforcement Learning Workshop*, 2018.

Hands-On Demonstrations

- [D1] Eura Shin, **Hejia Zhang**, Rey J Pocius, Nathaniel Dennler, Heather Culbertson, Naghmeh Zamani and Stefanos Nikolaidis. **Robot-assisted hair-brushing**. *Presented at Conference on Neural Information Processing Systems (NeurIPS)*, 2019.

Technical Reports

- [T3] **Hejia Zhang**, Jie Zhong, Stefanos Nikolaidis. **Zero-Shot Imitating Collaborative Manipulation Plans from YouTube Cooking Videos**. *In ArXiv*.
- [T2] Eric Heiden¹, David Millard¹, **Hejia Zhang** and Gaurav S. Sukhatme. **Interactive Differentiable Simulation**. *In ArXiv*.
- [T1] **Hejia Zhang**, Eric Heiden, Stefanos Nikolaidis, Joseph J. Lim, and Gaurav S. Sukhatme. **Auto-conditioned Recurrent Mixture Density Networks for Learning Generalizable Robot Skills**. *In ArXiv*.