

Jesse Zhang

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RESEARCH INTERESTS

I'm a 3rd-year PhD student interested in deep reinforcement learning, offline skill learning, and policy generalization. My specific thesis topic is "scalable policy adaptation with foundation model guidance." My previous work spans hierarchical, offline, and model-based reinforcement learning, robotics and supervised grasping, and program synthesis.

EDUCATION

University of Southern California , Los Angeles, CA <i>Ph.D.</i> in Computer Science (Advisors: Erdem Biyik, Joseph Lim, Jesse Thomason)	2020 - Present GPA: 4.00/4.00
UC Berkeley , Berkeley, CA <i>B.A.</i> in Computer Science (Highest Distinction)	2016 - 2020 GPA: 3.96/4.00

CONFERENCE PAPERS

- [C6] Dweep Trivedi*, **Jesse Zhang***, Shao-Hua Sun, and Joseph J. Lim. "Learning to Synthesize Programs as Interpretable and Generalizable Policies", *Advances in Neural Information Processing Systems*, 2021
- [C5] **Jesse Zhang***, Haonan Yu*, and Wei Xu. "Hierarchical Reinforcement Learning by Discovering Intrinsic Options", *International Conference on Learning Representations*, 2021
- [C4] Avi Singh, Albert Yu, Jonathan Yang, **Jesse Zhang**, Aviral Kumar, and Sergey Levine. "COG: Connecting New Skills to Past Experience with Offline Reinforcement Learning", *Conference on Robot Learning*, 2020
- [C3] **Jesse Zhang**, Brian Cheung, Chelsea Finn, Sergey Levine, and Dinesh Jayaraman. "Cautious Adaptation For Reinforcement Learning in Safety-Critical Settings", *Proceedings of the 37th International Conference on Machine Learning*, 2020
- [C2] **Jesse Zhang**, Jack Sullivan, Vasudev Venkatesh PB, Kyle Tse, Andy Yan, John Leyden, Kalyanaraman Shankari, and Randy H Katz. "TripAware: Emotional and Informational Approaches to Encourage Sustainable Transportation via Mobile Applications", *Proceedings of the 6th ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation*, 2019
- [C1] Brian Yang, **Jesse Zhang**, Vitchyr Pong, Sergey Levine, and Dinesh Jayaraman. "REPLAB: A Reproducible Low-Cost Arm Benchmark for Robotic Learning", *2019 International Conference on Robotics and Automation (ICRA)*, 2019

JOURNAL PAPERS

- [J1] **Zhang, Jesse**, Jiangyi Xia, Xin Liu, and John Olichney. "Machine Learning on Visibility Graph Features Discriminates the Cognitive Event-Related Potentials of Patients with Early Alzheimer's Disease from Healthy Aging", *Brain Sciences*, 2023

PREPRINTS AND WORKSHOP PAPERS

- [P5] **Jesse Zhang***, Karl Pertsch*, Jiahui Zhang, Taewook Nam, Sung Ju Hwang, Xiang Ren, and Joseph J Lim. "SPRINT: Scalable Semantic Policy Pre-training via Language Instruction Relabeling", *ICML Submission. Spotlight at LangRob Workshop at CoRL*, 2023

- [P4] Linghan Zhong, Ryan Lindeborg, **Jesse Zhang**, Joseph J Lim, and Shao-Hua Sun. “Hierarchical Neural Program Synthesis”, *ArXiv Preprint*, 2023
- [P3] **Jesse Zhang***, Karl Pertsch*, Jiefan Yang, and Joseph J Lim. “Minimum Description Length Skills for Accelerated Reinforcement Learning”, *ICLR 2021 Self-Supervision for Reinforcement Learning Workshop*, 2021
- [P2] Kalyanaraman Shankari, Jonathan Fuerst, Mauricio Fadel Argerich, Eleftherios Avramidis, and **Jesse Zhang**. “MobilityNet: Towards A Public Dataset For Multi-Modal Mobility Research”, *ICLR Climate Change AI Workshop 2020*, 2020
- [P1] Daiyaan Arfeen* and **Jesse Zhang***. “Unsupervised Projection Networks for Generative Adversarial Networks”, *ICCV 2019 Sensing, Understanding, and Synthesizing Humans Workshop*, 2019

HONORS AND AWARDS

- Highlighted Reviewer Award (top 8%), ICLR 2022
- Distinguished Reviewer Award (top 8%), NeurIPS 2021
- Honors in Computer Science, UC Berkeley 2020

EXPERIENCE

- Research Intern* February - August 2021
 NAVER CLOVA AI Research, Seongnam, Korea
 - Research in robot learning, human-robot interaction, and large language models (Project mentor: Minsuk Chang)
- Research Intern* January - August 2020
 Horizon Robotics, Cupertino, CA
 - Research in hierarchical RL + unsupervised skill discovery (Mentors: Wei Xu and Haonan Yu)
- Undergraduate Researcher* January 2019 - August 2020
 BAIR: Berkeley Artificial Intelligence Research, Berkeley, CA
 - Research in robot learning, model-based RL, offline RL (Advised by Sergey Levine + Dinesh Jayaraman)
- Undergraduate Researcher* May 2018 - August 2018
 UC Davis Center for Mind and Brain, Davis, CA
 - Research in graph theory and machine learning for dementia classification (Advised by John Olichney)

TEACHING

- Graduate Student Instructor*, USC Spring 2023
 CSCI-566 Deep Learning (Jesse Thomason)
 - Held office hours and mentored project teams, integrated Gradescope for grading assignments.
- Graduate Student Instructor*, USC Spring 2022
 CSCI-360 Intro to AI (Bistra Dilkina)
 - Held discussion sections and office hours, created written homework assignments, wrote exam questions.
- Graduate Student Instructor*, USC Fall 2020
 CSCI-566 Deep Learning and its Applications (Joseph J. Lim)
 - Gave 2 lectures, prepared assignments/exams, held office hours, and mentored 6 teams for final projects
- Undergraduate Student Instructor*, UC Berkeley Fall 2019
 CS 188: Intro to AI (Anca Dragan)

- Lead a discussion section and held office hours
- Received a teaching rating of 4.75/5.00, 0.42 above the department average

Course Reader, UC Berkeley

Spring 2019

CS 170: Algorithms/Intro to CS Theory (Lucas Trevisan and Prasad Raghavendra)

- Held office hours and volunteered to write problems for and help run extra sections on difficult material

MENTORING

USC Masters Students

- Jiahui Zhang In Progress

USC Undergraduate Students

- Jiefan Yang 2020-2021

USC Visiting Scholars

- Sarthak Bhagat 2020-2021
- Dweep Trivedi NeurIPS 2021

SERVICES

Reviewer

- NeurIPS, ICML, ICLR, CoRL, JMLR, IEEE ITSC, ICLR Workshops

INVITED TALKS

“Learning to Synthesize Programs as Interpretable and Generalizable Policies”

- AIPlans Workshop at NeurIPS 2021 December 2021

SELECTED PRESS COVERAGE

- [P1] “REPLAB: A low-cost benchmark platform for robotic learning,” by Ingrid Fadelli, *Tech Xplore*, May 29, 2019.

Last Update : May 9, 2023