# Zizhao **Wang**

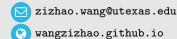
zizhao.wang@utexas.edu · https://wangzizhao.github.io/

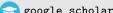
#### Research focus

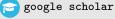
World model Reinforcement learning Causality Robot learning

#### Service

- · Co-organizer, workshop on Causality for Robotics: Answering the Question of Why, **IROS 2023**
- · Program Committee, workshop on Generalization in Planning, NeurIPS 2023
- · Reviewer, ICML, NeurIPS, ICLR, ICRA, IROS, RA-L









## **EDUCATION**

University of Texas at Austin	<b>PhD</b> , Electrical and Computer Engineering advisor: <b>Peter Stone</b>	2020-
<b>Columbia University</b>	MS, Computer Science	2018 - 2019
University of Michigan	<b>BS</b> , Computer Engineering (dual degree program)	2016 - 2018
<b>Shanghai Jiao Tong University</b>	BS, Electrical and Computer Engineering	2014 - 2018

## Work Experience

2024	RESEARCH INTERN Enhance world model with object-centric representation.	Microsoft Research
2024	RESEARCH INTERN Improve the robustness of motion prediction in autonomous of causal relationships between vehicles.	Honda Research Institute Iriving by reasoning about the

## SELECTED RESEARCH EXPERIENCE

#### World Model + Causality

Reason about causal relationships between different state factors (e.g., how objects depend on each

Improve world model's generalization and learning efficiency.

#### Unsupervised Reinforcement Learning (RL) + Causality

Reason about interactions between different state factors.

Propose novel intrinsic motivation and skill discovery algorithms to improve RL sample efficiency.

## SELECTED PUBLICATIONS

See google scholar for a complete list of publications.

- 1. SkiLD: Unsupervised Skill Discovery Guided by Local Dependencies, In Review Zizhao Wang\*, Jiaheng Hu\*, Caleb Chuck\*, Stephen Chen, Roberto Martín-Martín, Amy Zhang, Scott Niekum, Peter Stone.
- 2. Disentangled Unsupervised Skill Discovery for Efficient Hierarchical Reinforcement Learning, In Review
  - Jiaheng Hu, **Zizhao Wang**, Peter Stone, Roberto Martín-Martín
- 3. Building Minimal and Reusable Causal State Abstractions for Reinforcement Learning ( oral), AAAI 2024

Zizhao Wang\*, Caroline Wang, Xuesu Xiao, Yuke Zhu, and Peter Stone.

- 4. ELDEN: Exploration via Local Dependencies, NeurIPS 2023 Zizhao Wang\*, Jiaheng Hu\*, Roberto Martín-Martín, and Peter Stone.
- 5. Causal Dynamics Learning for Task-Independent State Abstraction (oral), ICML 2022 Zizhao Wang, Xuesu Xiao, Zifan Xu, Yuke Zhu, and Peter Stone.
- 6. Learning to Correct Mistakes: Backjumping in Long-horizon Task and Motion Planning, CoRL 2022
  - Yoonchang Sung\*, Zizhao Wang\*, and Peter Stone.
- 7. Task-Independent Causal State Abstraction, NeurIPS 2021, robot learning workshop Zizhao Wang, Xuesu Xiao, Yuke Zhu, and Peter Stone.
- 8. CLAMGen: Closed-Loop Arm Motion Generation via Multi-view Vision-Based RL, IROS
  - Iretiayo Akinola\*, **Zizhao Wang**\*, and Peter Allen.
- 9. From Agile Ground to Aerial Navigation: Learning from Learned Hallucination, IROS 2021 Zizhao Wang, Xuesu Xiao, Alexander J Nettekoven, Kadhiravan Umasankar, Anika Singh, Sriram Bommakanti, Ufuk Topcu, and Peter Stone.
- 10. APPLE: Adaptive Planner Parameter Learning from Evaluative Feedback, RAL 2021 Zizhao Wang, Xuesu Xiao, Garrett Warnell, and Peter Stone.
- 11. APPLI: Adaptive Planner Parameter Learning from Interventions, ICRA 2021 Zizhao Wang, Xuesu Xiao, Bo Liu, Garrett Warnell, and Peter Stone.
- 12. Variational Objectives for Markovian Dynamics with Backward Simulation. ECAI 2020 Antonio Khalil Moretti\*, **Zizhao Wang**\*, Luhuan Wu\*, Iddo Drori, and Itsik Pe'er.