

RESEARCH INTERESTS

My research focuses on **Embodied AI** and **Continual Learning**, along with natural language processing, skill learning, world models, and representation learning, to build scalable cognitive agents that can perceive, act, and learn continuously and sample-efficiently in physical and virtual environments. I am also interested in developmental psychology, behavioral emergence, and consciousness.

Areas: Embodied AI, Natural Language Processing, Computer Vision, Deep Learning, Machine Learning, Developmental Psychology, Cognitive Science

EDUCATION

Johns Hopkins University, Baltimore, MD, US 08/2025 - 05/2030 (expected)
Ph.D. in Computer Science
Advisor: Tianmin Shu, Daniel Khashabi

University of Michigan, Ann Arbor, MI, US 08/2022 - 04/2024
M.S. in Robotics
Certificate, Cognitive Science
GPA: 4.00/4.00
Advisor: Joyce Chai

University of Massachusetts Amherst, Amherst, MA, US 09/2018 - 05/2022
B.S. in Computer Science
GPA: 3.85/4.00

PUBLICATIONS

* → equal contribution. † → equal advising.

- [P.1] **Zheyuan Zhang***, Zehao Wen*, Alvin Zhang, Andrew Wang, Jianwen Xie, Daniel Khashabi†, Tianmin Shu†. “AgentOdyssey: Open-Ended Long-Horizon Text Game Generation for Test-Time Continual Learning Agents”. In *Submission*. 2026.
- [P.2] Hongxin Zhang*, **Zheyuan Zhang***, Zeyuan Wang*, Zunzhe Zhang, Lixing Fang, Qinhong Zhou, Chuang Gan. “Ella: Embodied Social Agents with Lifelong Memory”. In *Submission*. 2026.
- [C.1] Qinhong Zhou*, Hongxin Zhang*, Xiangye Lin*, **Zheyuan Zhang***, Yutian Chen, Wenjun Liu, Zunzhe Zhang, Sunli Chen, Lixing Fang, Qiushi Lyu, Xinyu Sun, Jincheng Yang, Zeyuan Wang, Bao Chi Dang, Zhehuan Chen, Daksha Ladia, Jiageng Liu, Chuang Gan. “Virtual Community: An Open World for Humans, Robots, and Society”. In *The Fourteenth International Conference on Learning Representations (ICLR)*. 2026.
- [C.2] **Zheyuan Zhang***, Fengyuan Hu*, Jayjun Lee*, Freda Shi, Parisa Kordjamshidi, Joyce Chai, Ziqiao Ma. “Do Vision-Language Models Represent Space and How? Evaluating Spatial Frame of Reference Under Ambiguities”. In *The Thirteenth International Conference on Learning Representations (ICLR)*, **Oral Presentation (1.8%)**. 2025.

- [C.3] Yuncong Yang*, Jiageng Liu*, **Zheyuan Zhang**, Siyuan Zhou, Reuben Tan, Jianwei Yang, Yilun Du, Chuang Gan. “MindJourney: Test-Time Scaling with World Models for Spatial Reasoning”. In *Advances in Neural Information Processing Systems 39 (NeurIPS)*. 2025.
- [C.4] Shane Storcks, Itamar Bar-Yossef, Yayuan Li, **Zheyuan Zhang**, Jason J. Corso, Joyce Chai. “Transparent and Coherent Procedural Mistake Detection”. In *Proceedings of the 2025 Conference on Empirical Methods in Natural Language Processing (EMNLP), Long Papers*. 2025.
- [C.5] Hongxin Zhang*, Zeyuan Wang*, Qiushi Lyu*, **Zheyuan Zhang**, Sunli Chen, Tianmin Shu, Yilun Du, Behzad Dariush, Kwonjoon Lee, Chuang Gan. “Compositional World Models for Embodied Multi-Agent Cooperation”. In *The Thirteenth International Conference on Learning Representations (ICLR)*. 2025.
- [C.6] **Zheyuan Zhang**. “A Combinatorial Approach to Neural Emergent Communication”. In *Proceedings of the 31th International Conference on Computational Linguistics (COLING)*. 2025.
- [C.7] Keunwoo Peter Yu, **Zheyuan Zhang**, Fengyuan Hu, Shane Storcks, Joyce Chai. “Eliciting In-Context Learning in Vision-Language Models for Videos Through Curated Data Distributional Properties”. In *Proceedings of the 2024 Conference on Empirical Methods in Natural Language Processing (EMNLP), Long Papers*. 2024.
- [C.8] **Zheyuan Zhang***, Shane Storcks*, Fengyuan Hu, Sungryull Sohn, Moontae Lee, Honglak Lee, Joyce Chai. “From Heuristic to Analytic: Cognitively Motivated Strategies for Coherent Physical Commonsense Reasoning”. In *Proceedings of the 2023 Conference on Empirical Methods in Natural Language Processing (EMNLP), Long Papers*. 2023.
- [C.9] **Zheyuan Zhang**, Huiliang Shang. “Low-cost Solution for Vision-based Robotic Grasping”. In *Proceedings of the 2021 International Conference on Networking Systems of AI (INSAI), **Second Prize Excellent Paper Award***. 2021.

RESEARCH EXPERIENCE

Honda Research Institute , Research Intern Adviser: Hossein Nourkhiz Mahjoub, Vaishnav Tadiparthi	San Jose, CA, US 05/2026 - 08/2026
MIT-IBM Watson AI Lab , Visiting Researcher Microsoft Research , Research Collaboration Adviser: Chuang Gan	Cambridge, MA, US 06/2024 - 05/2025
University of Michigan SLED Research Lab , Research Assistant Adviser: Joyce Chai	Ann Arbor, MI, US 11/2022 - 05/2024
LG AI Research , Research Collaboration Adviser: Honglak Lee	Ann Arbor, MI, US 11/2022 - 11/2023
Fudan University RAS Lab , Research Intern Adviser: Huiliang Shang, Ruijiao Li	Shanghai, CN 06/2021 - 08/2021

HONORS AND AWARDS

Gold Reviewer. International Conference on Machine Learning (ICML).	2026
Oral Presentation (1.8%). International Conference on Learning Representations (ICLR).	2025
Chancellor’s Award, \$40,000 USD (total). UMass Amherst.	2018-2022

Dean's List Honors (all semesters). UMass Amherst.

2018-2022

Second Prize Excellent Paper Award. INSAI 2021 Conference.

2021

TEACHING

Graduate Student Instructor (GSI)

Winter 2024, Fall 2023

EECS 492: Introduction to Artificial Intelligence

Topics: Search, Constraint Satisfaction Problems, Logic and Inference, Uncertainty, Bayesian Networks, Decision Trees, Linear Regression, Neural Networks and Generative AI, Nonparametric Methods, Decision Theory, Reinforcement Learning, Game Theory

Guest Lectures

Apr. 2024 University of Michigan, Host: Alexander Rodríguez, Laura Wendlandt

Nov. 2023 University of Michigan, Host: Emily Mower Provost, Alexander Rodríguez

ACADEMIC SERVICE

Conference Reviewing

Natural Language Processing

ACL

Machine Learning

ICML, ICLR

Workshop Reviewing

Natural Language Processing

ACL-SRW, EACL-SRW

Machine Learning

NeurIPS Pluralistic Alignment

Robotics

RSS Continual Robot Learning from Humans

OTHER PROJECTS

1. Bot Lab: Autonomous Ground Vehicle from Low-level Control, SLAM to Planning and Exploration 2022
2. Clara in Wonderland: 3D Open-world Adventure Game (Unity, C#) 2021
3. Quanin: Automatic Stock Screener (Python, C#) 2021
4. Blockchain From Scratch (C++) 2020
5. Findurcourse.com: Node.js Web Application (HTML/CSS, JavaScript, PostgreSQL) 2020
6. ZiZoyaOS: 32-Bit Operating System From Scratch (Assembly, C) 2020

SKILLS

- Programming Languages: Python, C/C++, C#, JavaScript, MATLAB, Visual Basic, Pascal
- Other Computer Languages and Software: HTML/CSS, SQL, L^AT_EX, Blender, Unity, Unreal Engine