

Zhan Ling

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EDUCATION

University of California, San Diego, La Jolla, California, USA 2019.9–Now
Doctor of Philosophy, Computer Science and Engineering, Advisor: Prof. Hao Su
Master of Science, Computer Science and Engineering

Tsinghua University, Beijing, China 2015.8–2019.7
Bachelor of Engineering, Institute for Interdisciplinary Information Sciences (IIIS)
Special Pilot Class of Computer Science (founded by Turing Award Laureate, Prof. Andrew Chi-Chih Yao)

RESEARCH INTEREST

My research interests focus on developing an intelligent agent capable of solving a wide range of tasks and learning from interactions with the environment. I have extensively explored several areas, including imitation learning, reinforcement learning, physical simulation, robotics, and reasoning. Currently, my primary research objective is to enhance the **reasoning capabilities of foundation models**.

PUBLICATIONS AND PREPRINTS

(*, **, ***, indicates equal contribution)

1. [Unleashing the Creative Mind: Language Model As Hierarchical Policy For Improved Exploration on Challenging Problem Solving](#). **Zhan Ling**, Yunhao Fang, Xuanlin Li, Tongzhou Mu, Minglu Lee, Reza Pourreza, Roland Memisevic, Hao Su. Preprint.
2. [Deductive Verification of Chain-of-Thought Reasoning](#). **Zhan Ling***, Yunhao Fang*, Xuanlin Li, Zhiao Huang, Minglu Lee, Roland Memisevic, Hao Su. *Neural Information Processing Systems (NeurIPS) 2023*.
3. [On the Efficacy of 3D Point Cloud Reinforcement Learning](#). **Zhan Ling***, Yunchao Yao*, Xuanling Li, Hao Su. Preprint.
4. [Distilling Large Vision-Language Model with Out-of-Distribution Generalizability](#). Xuanlin Li*, Yunhao Fang*, Minghua Liu, **Zhan Ling**, Zhuowen Tu, Hao Su. *IEEE / CVF International Conference on Computer Vision (ICCV) 2023*.
5. [Reparameterized Policy Learning for Multimodal Trajectory Optimization](#). Zhiao Huang, Litian Liang, **Zhan Ling**, Xuanlin Li, Chuang Gan, Hao Su. Deep Reinforcement Learning Workshop, Neural Information Processing Systems(NeurIPS) 2022; *International Conference on Machine Learning (ICML) 2023*, **Oral**.

6. [PartSLIP: Low-Shot Part Segmentation for 3D Point Clouds via Pretrained Image-Language Models](#). Minghua Liu, Yin hao Zhu, Hong Cai, Shizhong Han, **Zhan Ling**, Fatih Porikli, Hao Su. *IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR) 2023*.
7. [ManiSkill2: A Unified Benchmark for Generalizable Manipulation Skills](#). Jiayuan Gu*, Fanbo Xiang*, Xuanlin Li**, **Zhan Ling****, Xiqiang Liu**, Tongzhou Mu**, Yihe Tang**, Stone Tao**, Xinyue Wei**, Yunchao Yao**, Xiaodi Yuan, Pengwei Xie, Zhiao Huang, Rui Chen, Hao Su. *International Conference on Learning Representations (ICLR) 2023*.
8. [Frame Mining: a Free Lunch for Learning Robotic Manipulation from 3D Point Clouds](#). Minghua Liu*, Xuanlin Li*, **Zhan Ling***, Yangyan Li, Hao Su. *Conference on Robot Learning (CoRL) 2022*.
9. [Improving policy optimization with generalist-specialist learning](#). Zhiwei Jia, Xuanlin Li, **Zhan Ling**, Shuang Liu, Yiran Wu, Hao Su. *International Conference on Machine Learning (ICML) 2022*.
10. [Close the Visual Domain Gap by Physics-Grounded Active Stereovision Depth Sensor Simulation](#). Xiaoshuai Zhang*, Rui Chen*, Ang Li**, Fanbo Xiang**, Yuzhe Qin**, Jiayuan Gu**, **Zhan Ling****, Minghua Liu**, Peiyu Zeng**, Songfang Han***, Zhiao Huang***, Tongzhou Mu***, Jing Xu, Hao Su. *IEEE Transactions on Robotics (T-RO) 2023*.
11. [Approximate Convex Decomposition for 3D Meshes with Collision-Aware Concavity and Tree Search](#). Xinyue Wei*, Minghua Liu*, **Zhan Ling**, Hao Su. *ACM Transactions on Graphics (Proceedings of SIGGRAPH) 2022*.
12. [ManiSkill: Generalizable Manipulation Skill Benchmark with Large-Scale Demonstrations](#). Tongzhou Mu*, **Zhan Ling***, Fanbo Xiang*, Derek Yang*, Xuanlin Li*, Stone Tao, Zhiao Huang, Zhiwei Jia, Hao Su. *Neural Information Processing Systems (NeurIPS) Datasets and Benchmarks Track 2021*.
13. [State Alignment-based Imitation Learning](#). Fangchen Liu, **Zhan Ling**, Tongzhou Mu, Hao Su. *International Conference on Learning Representations (ICLR) 2020*.

WORK EXPERIENCES

Qualcomm AI Research, San Diego 2023.6-2023.9

System 2 Team

Interim Engineering Intern, Host: Mingu Lee, Reza Pourreza, Roland Memisevic

Unleashing the Creative Mind: Language Model As Hierarchical Policy For Improved Exploration on Challenging Problem Solving

- An improved exploration strategy via using language model as hierarchical policy. Details can be found in the paper [\[1\]](#).

Qualcomm AI Research, Remote 2022.10-2023.6

System 2 Team

Support Engineering, Host: Mingu Lee, Roland Memisevic

Deductive Verification of Chain-of-Thought Reasoning

- A step-by-step verification algorithm for the reasoning chain. Details can be found in the paper [2].

Qualcomm AI Research, Remote 2022.6-2022.9

System 2 Team

Interim Engineering Intern, Host: Mingu Lee, Roland Memisevic

Code Execution with Language Model

- Develop a random python code generator.
- Modify the Python interpreter to provide full execution of the given code.

X, the moonshot factory, Remote 2020.6-2020.9

Mineral Project

AI Resident, Host: Lianghao Li, Kangkang Wang

Lane detection for agriculture images

- Developed a lane detection algorithm based on Hough transformation in Python and accelerate it speed with Cython.

Improved weed detection with lane detection

- Developed a weed detection based on EfficientDet.
- Combined the lane detection with the weed detection model to improve the weed detection performance.

AWARDS AND SERVICES

Conference Reviewer: CVPR 2022-2024, ICCV 2021, 2023, ECCV 2022, 2024, NeurIPS 2023, ICLR 2024, ICML 2024, ACCV 2024.

Journal Reviewer: T-RO, RA-L.

Workshop Reviewer:

Generalizable Policy Learning in the Physical World, The International Conference on Learning Representations (ICLR), 2022.

Interdisciplinary Exploration of Generalizable Manipulation Policy Learning: Paradigms and Debates, Robotics: Science and Systems (RSS), 2023.

Challenge Organizer or Contributor:

[SAPIEN ManiSkill Challenge 2021](#)

[SAPIEN ManiSkill Challenge 2022](#)

Awards:

Outstanding Freshman Scholarship, 2015

First Prize in National Olympiad in Informatics(NOI), China, 2014

TECHNIQUE SKILLS

Programming: Python, C, C++

Deep Learning: PyTorch, Tensorflow, Jax, Pytorch CUDA extension

Large Models Related Skills: Quantization, Distributed training, Fine-tuning, Pre-training dataset processing

Parallel Computing: MPI, OpenMP, CUDA, AVX

Simulation: SAPIEN, MuJoCo

Additional Skills: Pybind, ROS

last updated: March 25, 2024