

Zhenghao PENG

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LinkedIn Google Scholar

RESEARCH INTERESTS

Reinforcement Learning, Robotics, Multimodal LLM (VLA, VLM) and Human-in-the-loop Learning.

EDUCATION

University of California, Los Angeles (UCLA)

September 2022 - May 2026 (Expected)

- Ph.D. student at the Department of Computer Science, supervised by [Prof. Bolei Zhou](#).

The Chinese University of Hong Kong (CUHK)

August 2019 - July 2022

- M.Phil. in Information Engineering, supervised by [Prof. Bolei Zhou](#) at Multimedia Lab (MMLab).

Shanghai Jiao Tong University (SJTU)

Sept. 2015 - July 2019

- B.Eng. in Naval Architecture and Ocean Engineering. Member of Zhiyuan Honor Program.
- Research assistant supervised by [Prof. Li Jiang](#).

EXPERIENCE

NVIDIA, Santa Clara, CA

June 2025 - Present

- Research intern in Autonomous Vehicle Group at NVIDIA Research. Manager: [Boris Ivanovic](#).
- Integrated Qwen2.5-VL into the autonomous driving with domain-specific encoder/decoder and enabled multi-node FSDP training for large-scale VLA models.
- Curated and augmented in-house AV datasets by designing an automated data quality labeling pipeline.
- Developed a reasoning model leveraging meta-action representations, achieving 15% performance improvement and enhancing interpretability of VLA behaviors.

Waymo, Mountain View, CA

June 2023 - September 2023

- Research intern in behavior modeling. Mentored by [Justin Fu](#) and [Rowan McAllister](#).
- Fine-tuned multi-agent behavior models with reinforcement learning. Our method uses REINFORCE to train large transformer without the value net, similar to GRPO though much earlier than it.
- Reduced collision and off-road rates and improved safety-critical metrics on the Waymo Open Sim Agents Challenge (WOSAC), raising composite performance by 22%.
- Built a new evaluation framework that better ranks and tests autonomous driving planners in realistic scenarios generated by our model.

AWARDS AND HONORS

- Dissertation Year Award 2025-2026, UCLA
- Amazon Fellowship, 2024-2025, UCLA
- University Fellowship, 2023-2024, 2024-2025, UCLA
- The Outstanding Tutors Award 2021 of the Faculty of Engineering, 2021, CUHK
- Teaching Assistant Award, Term 1 2020 - 2021, Term 2 2020 - 2021, CUHK
- Postgraduate Studentship, 2019 - 2022, CUHK
- Zhiyuan Honors Scholarship, 2015 - 2017, SJTU

SELECTED PAPERS

For the complete list of publications, please visit my [Google Scholar](#).

- [12] **Predictive Preference Learning from Human Interventions.**
Haoyuan Cai, [Zhenghao Peng](#), and Bolei Zhou (**NeurIPS 2025**)

- [11] **Embodied Scene Understanding for Vision-Language Models via MetaVQA.**
Weizhen Wang, C. Duan, Zhenghao Peng, Y. Liu, and B. Zhou. (CVPR 2025) [[PDF](#), [Code](#), [Webpage](#)]
- [10] **Data-Efficient Learning from Human Interventions for Mobile Robots.**
Zhenghao Peng, Zhizheng Liu, and Bolei Zhou. (ICRA 2025) [[Webpage](#), [PDF](#)]
- [9] **Improving Agent Behaviors with RL Fine-tuning for Autonomous Driving.**
Zhenghao Peng, Wenjie Luo, Yiren Lu, T. Shen, C. Gulino, A. Seff, and Justin Fu. (ECCV 2024) [[PDF](#)]
- [8] **Learning from Active Human Involvement through Proxy Value Propagation.**
Zhenghao Peng, W. Mo, C. Duan, Q. Li, and Bolei Zhou. (NeurIPS 2023 Spotlight) [[PDF](#), [Webpage](#)]
- [7] **ScenarioNet: Open-Source Platform for Large-Scale Traffic Scenario Simulation and Modeling.**
Quanyi Li*, Zhenghao Peng*, Lan Feng, Zhizheng Liu, Chenda Duan, Wenjie Mo, and Bolei Zhou. (NeurIPS 2023) [[PDF](#), [Code](#), [Webpage](#)]
- [6] **Human-AI Shared Control via Policy Dissection.**
Quanyi Li, Zhenghao Peng, H. Wu, Lan Feng, and Bolei Zhou. (NeurIPS 2022) [[PDF](#), [Code](#), [Webpage](#)]
- [5] **MetaDrive: Composing Diverse Driving Scenarios for Generalizable Reinforcement Learning.**
Quanyi Li*, Zhenghao Peng*, Z. Xue, Q. Zhang, and Bolei Zhou. (TPAMI 2021) [[PDF](#), [Code](#), [Webpage](#)]
- [4] **Efficient Learning of Safe Driving Policy via Human-AI Copilot Optimization.**
Quanyi Li*, Zhenghao Peng*, and Bolei Zhou. (ICLR 2022) [[PDF](#), [Code](#), [Webpage](#)]
- [3] **Safe Driving via Expert Guided Policy Optimization.**
Zhenghao Peng*, Quanyi Li*, C. Liu, and Bolei Zhou. (CoRL 2021) [[PDF](#), [Code](#), [Webpage](#), [Poster](#)]
- [2] **Learning to Simulate Self-Driven Particles System with Coordinated Policy Optimization.**
Zhenghao Peng, Q. Li, K. Hui, C. Liu, and Bolei Zhou. (NeurIPS 2021) [[PDF](#), [Code](#), [Webpage](#), [Poster](#)]
- [1] **Non-local Policy Optimization via Diversity-regularized Collaborative Exploration.**
Zhenghao Peng, Hao Sun, and Bolei Zhou. (arXiv 2020) [[PDF](#)]

OPEN-SOURCE PROJECTS

[MetaDrive](#) is an open-source driving simulator for reinforcement learning and autonomous driving. It has received ~1000 GitHub stars and 350+ citations, and is widely adopted in research community.

For all my open-source projects, please visit my [GitHub](#).

TALKS

- Human-in-the-loop Agent Learning, EECS 598: Action and Perception Guest Lecture, invited by: Stella Yu, May 2024

TEACHING EXPERIENCES

- CS260R Reinforcement Learning, UCLA, 2025 Winter & 2023 Fall & 2022 Fall
- IERG5350 Reinforcement Learning, CUHK, Term 1, 2021-22 & Term 1 and 2, 2020-21 & Term 2, 2019-20

MISCELLANEOUS

- **Reviewer:** NeurIPS, ICML, CVPR, ECCV, ICLR, CoRL, RSS, IROS, ICRA, AAAI, TNNLS, IJCV, ICCV, RA-L, *etc.*
- **Skills:** PyTorch, Jax, Ray, RLLib, ROS2, Docker, Huggingface Transformers, FSDP, *etc.*