

Zhenghao PENG

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RESEARCH INTERESTS

Robotics, Vision-Language-Action (VLA) Model, Human-in-the-loop Learning, Large-scale RL.

My research focuses on building physically interactive agents that can reason, align with human intent, and generalize across diverse tasks.

I aim to contribute to the next wave of foundation models for robotics—scalable, aligned, and deployable in the real world to improve human well-being.

EDUCATION

University of California, Los Angeles (UCLA)

September 2022 - Present

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

The Chinese University of Hong Kong (CUHK)

August 2019 - July 2022

- MPhil student at the Department of Information Engineering, supervised by [Prof. Bolei Zhou](#).

Shanghai Jiao Tong University (SJTU)

Sept. 2015 - July 2019

- Bachelor of Engineering and member of Zhiyuan Honors 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. Mentored by [Boris Ivanovic](#).
- Working on the embodied understanding and reasoning of Vision-Language-Action model.

Waymo LLC, Mountain View, CA

June 2023 - September 2023

- Research intern in behavior modeling. Mentored by [Justin Fu](#) and [Rowan McAllister](#).
- Used RL as a post-training method to improve the closed-loop behavior of multi-agent behavior model.

Shenzhen Institutes of Advanced Technology (SIAT), Chinese Academy of Sciences

June 2018 - Sept. 2018

- Research intern at Multimedia Research Center, under the supervision of [Prof. Yu Qiao](#).

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

RESEARCH PAPERS

[1] **Zhenghao Peng**, Yuxin Liu, and Bolei Zhou. Infgen: Scenario generation as next-token-group prediction. In *Preprint*, 2025 [[Webpage](#), [PDF](#)]

[2] Yuxin Liu*, **Zhenghao Peng***, Xuanhao Cui, and Bolei Zhou. Adv-bmt: Bidirectional motion transformer for safety-critical traffic scenario generation. In *Preprint*, 2025 [[Webpage](#), [PDF](#)]

- [3] **Zhenghao Peng**, Zhizheng Liu, and Bolei Zhou. Data-efficient learning from human interventions for mobile robots. *2025 IEEE International Conference on Robotics and Automation (ICRA)*, 2025 (**ICRA 2025**) [[Webpage](#), [PDF](#)]
- [4] **Zhenghao Peng**, Wenjie Luo, Yiren Lu, Tianyi Shen, Cole Gulino, Ari Seff, and Justin Fu. Improving agent behaviors with rl fine-tuning for autonomous driving. *European Conference on Computer Vision*, 2024 (**ECCV 2024**) [[PDF](#)]
- [5] Yunsong Zhou, Michael Simon, **Zhenghao Peng**, Sicheng Mo, Hongzi Zhu, Minyi Guo, and Bolei Zhou. Simgen: Simulator-conditioned driving scene generation. *Advances in Neural Information Processing Systems*, 2024 (**NeurIPS 2024**) [[PDF](#), [Webpage](#)]
- [6] Brandon J. McMahan, **Zhenghao Peng**, Bolei Zhou, and Jonathan C. Kao. Shared autonomy with ida: Interventional diffusion assistance. *Advances in Neural Information Processing Systems*, 2024 (**NeurIPS 2024**) [[PDF](#)]
- [7] **Zhenghao Peng**, Wenjie Mo, Chenda Duan, Quanyi Li, and Bolei Zhou. Learning from active human involvement through proxy value propagation. *Advances in Neural Information Processing Systems*, 2023 (**NeurIPS 2023 Spot-light**) [[PDF](#), [Webpage](#)]
- [8] Quanyi Li*, **Zhenghao Peng***, Lan Feng, Zhizheng Liu, Chenda Duan, Wenjie Mo, and Bolei Zhou. Scenarionet: Open-source platform for large-scale traffic scenario simulation and modeling. *Advances in Neural Information Processing Systems*, 2023 (**NeurIPS 2023**) [[PDF](#), [Code](#), [Webpage](#)]
- [9] Linrui Zhang, **Zhenghao Peng**, Quanyi Li, and Bolei Zhou. Cat: Closed-loop adversarial training for safe end-to-end driving. In *7th Annual Conference on Robot Learning*, 2023 (**CoRL 2023**) [[PDF](#), [Code](#), [Webpage](#)]
- [10] Lan Feng*, Quanyi Li*, **Zhenghao Peng***, Shuhan Tan, and Bolei Zhou. Trafficgen: Learning to generate diverse and realistic traffic scenarios. In *2023 International Conference on Robotics and Automation (ICRA)*. IEEE, 2023 (**ICRA 2023**) [[PDF](#), [Code](#), [Webpage](#)]
- [11] Zhenghai Xue, **Zhenghao Peng**, Quanyi Li, Zhihan Liu, and Bolei Zhou. Guarded policy optimization with imperfect online demonstrations. In *International Conference on Learning Representations*, 2023 (**ICLR 2023**) [[PDF](#), [Code](#), [Webpage](#)]
- [12] Quanyi Li, **Zhenghao Peng**, Haibin Wu, Lan Feng, and Bolei Zhou. Human-AI shared control via policy dissection. *Advances in Neural Information Processing Systems*, 2022 (**NeurIPS 2022**) [[PDF](#), [Code](#), [Webpage](#)]
- [13] Qihang Zhang, **Zhenghao Peng**, and Bolei Zhou. Learning to drive by watching youtube videos: Action-conditioned contrastive policy pretraining. *European Conference on Computer Vision*, 2022 (**ECCV 2022**) [[PDF](#), [Webpage](#)]
- [14] Quanyi Li*, **Zhenghao Peng***, Zhenghai Xue, Qihang Zhang, and Bolei Zhou. Metadrive: Composing diverse driving scenarios for generalizable reinforcement learning. *IEEE transaction on Pattern Analysis and Machine Intelligence*, 2021 (**TPAMI**) [[Paper](#), [Code](#), [Webpage](#)]
- [15] Mingxin Huang, Yuliang Liu, **Zhenghao Peng**, Chongyu Liu, Dahua Lin, Shenggao Zhu, Nicholas Yuan, Kai Ding, and Lianwen Jin. Swintextspotter: Scene text spotting via better synergy between text detection and text recognition. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, 2022 (**CVPR 2022**)
- [16] Quanyi Li*, **Zhenghao Peng***, and Bolei Zhou. Efficient learning of safe driving policy via human-AI copilot optimization. In *International Conference on Learning Representations*, 2022 (**ICLR 2022**) [[PDF](#), [Code](#), [Webpage](#)]
- [17] **Zhenghao Peng***, Quanyi Li*, Chunxiao Liu, and Bolei Zhou. Safe driving via expert guided policy optimization. In *5th Annual Conference on Robot Learning*, 2021 (**CoRL 2021**) [[PDF](#), [Code](#), [Webpage](#), [Poster](#)]
- [18] **Zhenghao Peng**, Quanyi Li, Ka Ming Hui, Chunxiao Liu, and Bolei Zhou. Learning to simulate self-driven particles system with coordinated policy optimization. *Advances in Neural Information Processing Systems*, 34, 2021 (**NeurIPS 2021**) [[PDF](#), [Code](#), [Webpage](#), [Poster](#)]
- [19] Quanyi Li*, **Zhenghao Peng***, Qihang Zhang, Chunxiao Liu, and Bolei Zhou. Improving the generalization of end-to-end driving through procedural generation. *arXiv preprint arXiv:2012.13681*, 2020 [[PDF](#), [Repo](#), [Webpage](#)]
- [20] **Zhenghao Peng**, Hao Sun, and Bolei Zhou. Non-local policy optimization via diversity-regularized collaborative exploration. *arXiv preprint arXiv:2006.07781*, 2020 [[PDF](#)]
- [21] Zhuoran Song, Dongyu Ru, Ru Wang, Hongru Huang, **Zhenghao Peng**, Jing Ke, Xiaoyao Liang, and Li Jiang. Approximate random dropout. In *Design, Automation & Test in Europe Conference & Exhibition, 2019. DATE'19*. IEEE, 2019 [[PDF](#)]

[22] **Zhenghao Peng**, Xuyang Chen, Chengwen Xu, Naifeng Jing, Xiaoyao Liang, Cewu Lu, and Li Jiang. Axnet: Approximate computing using an end-to-end trainable neural network. In *Proceedings of the 2018 International Conference on Computer-Aided Design. ICCAD'18*. IEEE/ACM, 2018 [[PDF](#)]

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
- CS260R Reinforcement Learning, UCLA, 2023 Fall
- CS269 Seminar on Reinforcement Learning, UCLA, 2022 Fall
- IERG5350 Reinforcement Learning, CUHK, Term 1, 2021-22
- CSCI2100E Data Structures, CUHK, Term 2, 2020-21
- IERG5350 Reinforcement Learning, CUHK, Term 1, 2020-21
- IERG6130 Seminar on Reinforcement Learning, CUHK, Term 2, 2019-20

PROFESSIONAL SERVICES

Reviewer: NeurIPS, ICML, CVPR, ECCV, ICLR, CoRL, RSS, IROS, ICRA, AAAI, TNNLS, IJCV, ICCV