Quanyi Li

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EDUCATION

University of Edinburgh, School of Informatics   Edinburgh, UK
M.S by Research. at Institute of Perception, Action and Behaviour (IPAB)   Sep 2022-Sep 2023

Beijing University of Posts and Telecommunications (BUPT)   Beijing, CN
B.S. in Communication Engineering   Aug 2016-Jun 2020

PUBLICATIONS

[1] Pan He, **Quanyi Li**, Xiaoyong Yuan, Bolei Zhou, A Holistic Framework Towards Vision-based Traffic Signal Control with Microscopic Simulation, *(Preprint)*

[2] Xiao Chen, **Quanyi Li**, Tai Wang, Tianfan Xue, Jiangmiao Pang, GenNBV: Generalizable Next-Best-View Policy for Active 3D Reconstruction, Conference on Computer Vision and Pattern Recognition *(CVPR 2024)*

[3] Junfeng* Long*, Zirui* Wang*, **Quanyi Li**, Jiawei Gao, Liu Cao, Jiangmiao Pang, Hybrid Internal Model: A Simple and Efficient Learner for Agile Legged Locomotion, International Conference on Learning Representations *(ICLR 2024)*

[4] **Quanyi Li***, Zhenghao Peng*, LanFeng*, Zhizheng Liu, Chenda Duan, Wenjie Mo, Bolei Zhou, ScenarioNet: Open-source platform for large-scale traffic scenario modeling and simulation. Advances in Neural Information Processing Systems, 35, 2023 *(NeurIPS 2023)*

[5] Zhenghao Peng, Wenjie Mo, Chenda Duan, **Quanyi Li**, Bolei Zhou, Learning from Active Human Involvement through Proxy Value Propagation, Advances in Neural Information Processing Systems, 35, 2023 *(NeurIPS 2023)*

[6] Linrui Zhang, Zhenghao Peng, **Quanyi Li**, Bolei Zhou, CAT: Closed-loop Adversarial Training for Safe End-to-End Driving, Conference on Robot Learning, 2023 *(CoRL 2023)*

[7] Zhenghai Xue, Zhenghao Peng, **Quanyi Li**, Zhihan Liu, and Bolei Zhou. Guarded Policy Optimization with Imperfect Online Demonstrations. International Conference on Learning Representations *(ICLR 2023)*

[8] **Quanyi Li***, Lan Feng*, Zhenghao Peng*, Shuhan Tan, Bolei Zhou. TrafficGen: Learning to Generate Diverse and Realistic Traffic Scenarios. IEEE International Conference on Robotics and Automation *(ICRA 2023)*

[9] **Quanyi Li**, Zhenghao Peng, Haibin Wu, Lan Feng, Bolei Zhou. (2022). Human-AI Shared Control via Frequency-based Policy Dissection. Advances in Neural Information Processing Systems, 35, 2022 *(NeurIPS 2022)*

[10] **Quanyi Li***, Zhenghao Peng*, Zhenghai Xue, Qihang Zhang, & Bolei Zhou. (2022). MetaDrive: Composing Diverse Driving Scenarios for Generalizable Reinforcement Learning. IEEE transactions on pattern analysis and machine intelligence *(TPAMI 2022)*

[11] **Quanyi Li***, Zhenghao Peng*, & Bolei Zhou. (2021). Efficient Learning of Safe Driving Policy via Human-AI Copilot Optimization. In International Conference on Learning Representations *(ICLR 2022)*

[12] **Quanyi Li***, Zhenghao Peng**, Chunxiao Liu, & Bolei Zhou. (2021). Safe Driving via Expert Guided Policy Optimization. In 5th Annual Conference on Robot Learning, 2021 *(CoRL 2021)*

[13] Zhenghao Peng, **Quanyi Li**, Chunxiao Liu, & Bolei Zhou. (2021). Learning to Simulate Self-driven Particles System with Coordinated Policy Optimization. Advances in Neural Information Processing Systems, 34, 2021 *(NeurIPS 2021)*

[14] **Quanyi Li***, Zhenghao Peng*, Qihang Zhang, Chunxiao Liu, & Bolei Zhou. (2021). Improving the Generalization of End-to-End Driving through Procedural Generation. Computer Vision and Pattern Recognition *(CVPR 2021 workshop)*

[15] **Li, Q.**, Yao, H., Mai, T., Jiang, C., & Zhang, Y. (2019). Reinforcement-learning-and belief-learning-based double auction mechanism for edge computing resource allocation. *IEEE Internet of Things Journal*, 7(7), 5976–5985.

(* indicates joint first authors)

EXPERIENCE

Oxa
Senior Applied Scientist

Oxford, UK
Jan 2024-Present

- Build autonomous driving testing system with machine learning
- Conduct research on safety-critical driving scenario generation

Shanghai AI Lab
Research Intern (supervisor: [Jiangmiao Pang](#))

Shanghai, CN
May 2022-Feb 2023

- Built codebase for data-driven robotics control in IsaacGym. Robots can then perform agile obstacle avoidance in dynamic environments
- 3D world and object reconstruction with Omniverse

Multimedia Lab at CUHK
Research Assistant (supervisor**:** [Bolei Zhou](#))

Hong Kong SAR
Jul 2020-May 2022

- Build infrastructure for generablizable autonomous driving policy learning and scenario generation research
- Study interpretable, safe and efficient end-to-end control methods

SenseTime Technology Co. Ltd.
R & D Intern (supervisor**:** [Chunxiao Liu](#))

Beijing, CN
Aug 2019-Jul 2020

- Build decision making module for self-driving vehicle using STL, OpenCV and ROS, achieving lane keeping, overtaking, yielding, which are tested in both simulator and on real vehicle
- Proposed principles and criteria of traffic scenario design, by which a great deal of cases is generated automatically and randomly to cover common driving scenes as much as possible
- Conducted research of application of RL in autonomous driving

Future Network Lab at BUPT
Research Assistant (supervisor: [Haipeng Yao](#))

Beijing, CN
Dec 2018-Jul 2020

- Led project for resource allocation in edge computing system, and proposed a belief learning based resource allocation algorithm
- Modeled the traffic flow and congestion problem in software-defined network (SDN) and introduced MARL cooperation algorithm to solve network congestion problem (*[code](#)*)

SKILLS & SERVICES

Programming: Python, C++, SQL, Arduino C, VHDL, Verilog, Tensorflow, Pytorch, ROS
Data Analysis: Pandas, Matplotlib, Scipy, Numpy, Seaborn
Development Tools: Vim, Git, Repo, Linux, Docker, [Github,](#) Latex (Overleaf)
Language Certificate: GRE: 322 (154+168), TOEFL: 110 (R: 29, L: 27, S: 25, W: 29)
Conference Reviewer: ICML 2022, NeurIPS 2022, CoRL 2022, ICRA 2023, ICML 2023, NeurIPS 2023, CoRL 2023, ICLR 2024, ICML 2024, CVPR 2024, RSS 2024