

KE GUO

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EDUCATION

The University of Hong Kong 2019.09 - 2023.11
PhD in Computer Science

Zhejiang University 2015.09 - 2019.06
Bachelor in Automation. GPA 3.82/4.0

RESEARCH INTERNSHIP

Autonomous Driving Lab of Alibaba 2022.03 - 2023.12

WORK EXPERIENCE

Autonomous Driving Lab of Alibaba 2023.12 - present
Trajectory Prediction Engineer

RESEARCH FIELD

Artificial Intelligence, Intelligent Transportation, Autonomous Driving, Traffic Simulation

PUBLICATIONS

K. Guo, Z. Miao, W. Jing, W. Liu, W. Li, D. Hao, J. Pan. LASIL: Learner-Aware Supervised Imitation Learning For Long-term Microscopic Traffic Simulation. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024.

W. Liu, W. Jing, L. Gao, **K. Guo**, X. Gang, Y. Liu. TraCo: Learning Virtual Traffic Coordinator for Cooperation with Multi-Agent Reinforcement Learning. In *Conference on Robot Learning (CoRL)*, 2023.

K. Guo, W. Jing, J. Chen, J. Pan. CCIL: Context-conditioned imitation learning for urban driving. In *Robotics: Science and Systems (RSS)*, 2023.

K. Guo, W. Liu, J. Pan. End-to-End Trajectory Distribution Prediction Based on Occupancy Grid Maps[C]. In *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 2242-2251, 2022.

K. Guo, D. Wang, T. Fan, J. Pan. VR-ORCA: Variable responsibility optimal reciprocal collision avoidance[J]. *IEEE Robotics and Automation Letters*, 6(3): 4520-4527, 2021. (Also accepted by ICRA 2021)

Y. Chen, **K. Guo**, Y. Pan. Robust supervised learning based on tensor network method[C]. In *Youth Academic Annual Conference of Chinese Association of Automation (YAC)*, pages 311-315, 2018.

T. Ye, C. Hu, S. Huang, L. Gao, F. Li, J. Wang, W. Xiao, **K. Guo**, H. Zheng, K. Li, K. Yu, W. Jing. FusionAD: Multi-modality Fusion Based Model for Prediction and Planning Tasks of Autonomous Driving. In *IEEE Robotics and Automation Letters (RAL, Under Review)*, 2024.

D. Zhang, J. Liang, Q. Wang, **K. Guo**, Z. Miao, D. Hao, R. Xiong, Y. Wang. PEP: Policy-Embedded Trajectory Planning for Autonomous Driving. In *European Conference on Computer Vision (ECCV, Under Review)*, 2024.

RESEARCH EXPERIENCE

LASIL: Learner-Aware Supervised Imitation Learning For Long-term Microscopic Traffic Simulation 2022.11 - 2023.11

- Proposed a learner-aware supervised multi-agent imitation learning method to solve covariate shift issue
- Achieved better short-term and long-term simulation realism than baseline methods like SUMO

CCIL: Context-Conditioned Imitation Learning for Urban Driving 2021.12 - 2022.10

- Proposed a method to infer ego-vehicle's future trajectory based on only the context without its history
- Achieved state-of-the-art performance on two large-scale urban driving benchmarks: Lyft and nuPlan.

End-to-End Trajectory Distribution Prediction Based on Occupancy Grid Maps 2020.11 - 2021.11

- Developed an end-to-end method for predicting trajectory distributions for traffic participants
- Improved the accuracy of the prediction distribution by exploiting the occupancy grid maps

Variable Responsibility Optimal Reciprocal Collision Avoidance 2019.09 - 2020.10

- Implemented a method of collision-free movement for multiple robots without information interchange
- Adjusted robot's responsibility distribution for avoiding other robots based on their surroundings

Robust Supervised Learning Based on Tensor Network Method 2017.12 - 2018.12

- Developed a model of robust supervised learning using tensor networks
- Improved the robustness of training on residual tensor networks and enabled parallel training

ACADEMIC SERVICES

Reviewer of CVPR, ICRA, IROS, IEEE Robotics and Automation Letters, IEEE Transactions on Neural Networks and Learning Systems

SKILLS

Python, C++, Matlab, TOEFL score 105

AWARDS

Scholarship of Zhejiang University

Excellent student of Zhejiang University

Research and innovation scholarship of Zhejiang University

Postgraduate Scholarship of The University of Hong Kong

TEACHING ASSISTANT

COMP2121 Discrete Mathematics in 2020-2023 at The University of Hong Kong