Mingjing Liang

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Education

National University of Singapore Aug 2020 - Jun 2021

Master in Mechanical Engineering GPA: 4.5/5.0

– Relevant Modules: Deep Learning for Robotics, Neural Networks, Advanced Robotics.

National University of Singapore Research Institute (Suzhou) Sep 2019 - Jul 2020

Joint Educational Programme in Mechanical Engineering GPA: 4.0/4.0

– Award: Outstanding Student of Joint Educational Programme (ME-CLASS 2019)

Sichuan University Sep 2016 - Jul 2019

Bachelor in Mechanical Engineering GPA: 3.3/4.0

– Award: Secondary Scholarship of Sichuan University

Experience

Autonomous Driving Research Engineer Sep 2021 - present

Planning and Control Team, X-lab, GAC R&D Center

– Developed and optimized motion planning algorithms for autonomous vehicles, addressing challenges in decision-making and multi-agent interaction.

– Researched neural network models for planning tasks, focusing on end-to-end solutions for improved decision-making.

– Enhanced trajectory generation methods using fleet data and machine learning to improve safety and efficiency in uncertain environments.

Projects

Data-driven Planning System Jan 2023 - present

– Designed a multi-modal neural network with a space-time attention mechanism, enhancing model robustness and decision quality.

– Developed an end-to-end imitation learning pipeline and deployed it using ROS2 for real-time applications.

– Contributed to a log-based simulator (LogSim) to align simulated environments with real-world fleet dynamics.

Bézier Curve-based Lateral Planning Jan 2022 - Dec 2022

– Engineered a real-time path planner leveraging Bézier curves, generating smooth and efficient paths under environmental constraints.

Publications and Patents

Liang, Mingjing, Xun Gao, Yulong Wang, et al. (2024). "Planning in Autonomous Driving Using Imitation Learning With Research on Data Aggregation". In: *2024 International Symposium on Intelligent Robotics and Systems (ISoIRS)*, pp. 12–16. DOI: 10.1109/ISoIRS63136.2024.00010.

Liang, Mingjing, Xun Gao, Shu Zhang, et al. (2024). "An optimization-based post-processing method for rough initial solutions of decision planning models". Application filed.

Liang, Mingjing, Wenru Liu, et al. (2024). "An iterative training method for decision planning models based on corrective sample data collection". Patent CN118520923A. URL: https://patents.google.com/patent/CN118520923A.

Liang, Mingjing, Huan Min, et al. (2022). "A path planning algorithm considering lane change time and dynamic obstacles". Under Substantive Examination.

Skills

Frameworks and Tools	PyTorch, ROS, CARLA, Linux, MATLAB
Programming Languages	C++, Python