STEVEN GONG

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🎓 EDUCATION

Australian National University, Canberra, Australia   Feb.2024 - Dec.2025
M.S. Computing

Beijing Institute of Technology, Beijing, China   Sep.2018 - Jun.2022
B.S. Computer Science and Technology

👥 EXPERIENCE

Shenzhen Yimeizhi Technology Co., Ltd Shenzhen, China   Mar.2023 - Dec.2023
Computer Vision Algorithm Engineer   HR Manager: Wenxian Gan

• Designed and optimized algorithms for an Automatic Optical Inspection system to detect defects in PCB.

Beijing Institute of Technology Beijing, China   Jul.2022 - Jan.2023
Research Assistant   Supervisor: Prof. Jianwei Gong

• Conducted research on trajectory prediction and decision-making processes for autonomous vehicles.

ByteDance, Quality Lab Beijing, China   Oct.2021 - Feb.2022
Algorithm Engineer Intern   Supervisior: Zhao Zhang

• Optimized reinforcement learning algorithms in the software testing tool Fastbot.
• Enhanced test coverage and problem interception rate, significantly improving efficiency and quality.

📖 PUBLICATIONS

- **Leveraging Multi-Stream Information Fusion for Trajectory Prediction in Low Illumination Scenarios: A Multi- channel Graph Convolutional Approach** *HaiLong Gong*, ZiRui Li, Chao Lu, GuoDong Du, JianWei Gong, IEEE Transactions on Intelligent Transportation Systems (T-ITS).

- **Towards Online Risk Assessment for Human-robot Interaction: A Data-driven Hamilton-Jacobi-Isaacs Reachability Approach**, *HaiLong Gong*, ZiRui Li, Chao Lu, JianWei Gong, 26th IEEE International Conference on Intelligent Transportation Systems (ITSC2023).

- **Towards Safe, efficient and Co-operative Decision-making for CAVs in Mixed Autonomy: An Attention-Enhanced Graphic Reinforcement Learning Approach** *HaiLong Gong*, ZiRui Li, RunHao Zhou, Qi Liu, Chao Lu, JianWei Gong, The 4th Symposium on Management of Future Motorway and Urban Traffic Systems 2022 (MFTS 2022).

- **Fast and Accurate: Perception System of a Formula Student Driverless Car** *HaiLong Gong*, Yunji Feng, TaiRan Chen, ZuoOu Li, YunWei Li, 2022 6th International Conference on Robotics, Control and Automation (ICRCA 2022).

- **Real-time Motion Planning and Control for a Formula Student Driverless Car** TaiRan Chen, *HaiLong Gong*, XinYu Gao, ChenRui Huang, Xiang Li, ShaoKun Yang, YunJi Feng, Annual Conference of Society of Automotive Engineers of China, 2020.

⚙ SKILLS

- Programming Languages: Python, C/C++, Java, Golang
- Software Development: QT, HTML, CSS, SQL, Algorithms
- Tools for AI & ML: Pytorch, TensorFlow, Keras, OpenCV, Scikit-learn
- Operating Systems and Tools: Linux, Git, Docker, CI/CD
- Languages: English - Fluent, Mandarin - Native speaker

👥 PROJECTS

Race to the Raft: Game Developing in Java   Mar.2024 - June.2024

COMP6710 Structured Programming Course Project, Instructor: Prof. Fabian Muehlboeck

• Conducted thorough analysis and design, creating a comprehensive design document with a detailed sketch of the game architecture, including key Java class declarations and field/method signatures.
• Implemented the game design using object-oriented programming principles in Java, ensuring robust and maintainable code structure.
• Designed a detailed test plan and implemented unit tests to validate functionality and ensure high-quality code.
• Collaborated effectively with teammates using Git for version control, performing regular code reviews to maintain code quality and coherence.

Multi-Source Sensor Fusion-based Trajectory Prediction   May.2022 - Jun.2023

Instructor: Prof. Jianwei Gong, Prof. Chao Lu, Collaborator: Zirui Li

• Proposed an interactive trajectory prediction model based on multi-stream heterogeneous data fusion to enhance accuracy.
• Developed a novel ST-GCN-based embedding method to generate temporal and spatial features of traffic participants' trajectories and speeds, along with an LSTM-based image feature extraction method for self-adaptive attention capture.
• Implemented a flexible and versatile multi-stream heterogeneous data system.

Research on Abnormal Driving Behavior for the safe Autonomy   May.2022 - Jun.2023

Instructor: Assistant Prof. Lili Su, Northeastern University, USA

• Developed efficient algorithms to detect abnormal driving behaviors and improve trajectory prediction through run-time information fusion from surrounding autonomous vehicles.
• Reproduced LSTM, CS-LSTM, and MultiEncoder-SingleDecoder Transformer models for vehicle trajectory prediction and applied information sharing to detect abnormal driving behavior.
• Suggested shortening model reasoning time to enhance real-time performance and usability, aiming to reduce abnormal behavior prediction time to under 100ms using lightweight models or improved algorithms.

Formula Driverless Vehicle Perception System Design and Implementation Nov.2020 - Jun.2021

***Project Leader**, Instructor: Assistant Prof. Jie Cao*

• Designed a fast, accurate, and scalable perception system for a formula student driverless car, enabling object detection, point cloud segmentation, and clustering.
• Implemented PP-YOLO for racetrack cone detection, GPF algorithm for ground segmentation, and Euclidean clustering for cone extraction.
• Achieved stable sensory results by fusing data from stereo cameras and LIDAR, reducing noise and mitigating environmental factors like light and weather.

♡ HONORS AND AWARDS

***Champion**, Formula Student Autonomous China (FSAC), Nation Level*	2020
*1st **Prize**, ByteDance Summer Camp, Nation Level*	2021
*1st **Prize**, "Century Cup" Extracurricular Academic Competition, School Level*	2021
***Excellent Oral Presentation**, 2022 6th International Conference on Robotics and Machine Vision*	2022
*2nd **Class Scholarship**, Beijing Institute of Technology, School Level*	2022
*3rd **Class Scholarship**, Beijing Institute of Technology, School Level*	2019
*3rd **Prize**, 17th "Century Cup" Competition, City Level*	2020
*3rd **Prize**, "Century Cup" Extracurricular Academic Competition, School Level*	2021