

STEVEN GONG

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🎓 EDUCATION

Australian National University (QS TOP 30) Feb.2024 - Nov.2025

M.S. Computing (Advanced), GPA:6.43 / 7.0

Beijing Institute of Technology (Project 985) 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 Supervisor: 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

Cloth Simulation with AVX and OpenMP Optimization

Sept. 2024 - Oct. 2024

ANU COMP6464 High Performance Scientific Computation Course Project, Instructor: Prof. Haibo Zhang

- Designed and implemented a 2D cloth simulation under gravity, incorporating Hooke's law for elastic interactions and accurate collision detection with a spherical object.
- Corrected velocity components during collisions to ensure realistic physical behavior, integrating damping factors to model friction between the cloth and the sphere.
- Optimized the simulation kernel using SSE/AVX intrinsics, achieving a 50% reduction in force calculation time and improving computational efficiency.
- Parallelized the simulation with OpenMP, employing block-wise distribution and round-robin scheduling, achieving near-linear speedup with up to 24 threads on the Gadi supercomputer.
- Conducted Roofline analysis using Intel Advisor to identify memory-bound and compute-bound regions, optimizing vectorization and parallelization for balanced performance.
- Evaluated performance across different problem sizes, analyzing scalability and bottlenecks, and documenting findings in a detailed technical report with performance data and insights.

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.

Personal Web Develop and Backend Implementation

June.2024 - now

- Employed the Friday Theme framework for agile development of the homepage interface, incorporating features for personal information display, blog management, and project showcasing.
- Designed and implemented RESTful web services and APIs using the Express.js framework, significantly enhancing system interoperability and operational efficiency.
- Utilized MongoDB to track web page visits, daily traffic, and visitor IP addresses, and developed data visualization tools to present access metrics effectively.
- Deployed the application on Microsoft Azure, ensuring scalability, performance, and continuous integration.

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.

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