

Zihan Qiao

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EDUCATION

- KTH Royal Institute of Technology**, Stockholm, Sweden Aug 2019 – Jun 2021
M.S. Systems, Control and Robotics
- Zhejiang University**, Hangzhou, China Aug 2015 – Jun 2019
B.S. Electrical Engineering (Automation)

TECHNICAL EXPERTISE

- **Robotics & AI:** ROS, SLAM, Path Planning (A*, MPC), Computer Vision (OpenCV), PyTorch, Keras, Reinforcement Learning (DQN), HuggingFace (Transformers, Diffusion Models), OpenAI Gym
- **Languages:** Python, C/C++, MATLAB/Simulink, JavaScript, SQL, Verilog/VHDL
- **Tools & Infrastructure:** Linux, Docker, Git, CI/CD, Google Cloud Platform, Jira
- **Miscellaneous:** Video Edit (Content Creator, 1M+ views), Magician and Cardist, Pro Xiangqi and Bridge player, Film Lover and Volunteer

WORK EXPERIENCE

- BorgWarner** (Consultant via Combine AB), Landskrona Sept 2023 – Aug 2025
- Developed and tuned MATLAB/Simulink control models for hybrid powertrain actuator systems across 16 functional units; identified parameter drift issues causing intermittent MIL/SiL failures, improving verification pass rate across three product variants from 10% to 80%.
 - Led migration of 89 TPT test files to a multi-ParameterSet architecture, enabling parallel validation against multiple vehicle variant calibrations in a single regression run; authored a standardized 16-step migration guide, cutting full regression runtime by 40%.
- Volvo Group Trucks Technology** (Consultant via Combine AB), Gothenburg Oct 2022 – Jun 2023
- Resolved an ESC tell-tale fault unresolved across teams by tracing a signal timing misconfiguration through CAN-analyzer recordings, SE-tool definitions, and .dbc files; coordinated fix with IC engineers, clearing a blocker before the vehicle program milestone.
 - Designed the SW architecture for AVIOM (Autonomous Vehicle Input Output Module): defined six redundant pressure sensor placements for the autonomous brake system, created LDC structures in SE-tool, and implemented SWC containers in DaVinci Developer, delivering a production-ready handover package.
- KTH Formula Student Driverless**, Stockholm – *Perception & Navigation Engineer* Aug 2019 – Jun 2021
- Built real-time ROS perception (Python/C++) for stereo-camera cone detection; resolved a frame-rate bottleneck bringing detection latency within the 50ms control loop deadline.
 - Implemented MPC path tracking deployed on a real electric race car; tuned cost function for trajectory smoothness vs. speed, achieving stable laps at competition velocity on an untested track layout.

PROJECTS

- CRTexas – Clash Royale x Texas Holdem Game Mode** – Personal Project [Can play from here](#) Jul 2025 - Present
- Built a full-stack web app with Python/Flask and vanilla JS, featuring a seed-based card dealing algorithm that generates reproducible card pools shared across players in the same session.
 - Implemented real-time deck statistics (avg elixir, 4-card cycle) and one-click Clash Royale deep-link deck import, with bilingual (CN/EN) i18n and mobile-first responsive UI; deployed on PythonAnywhere.
- Deep RL for Adaptive Traffic Signal Control** – Master Thesis, KTH Nov 2020 – Jun 2021
- Designed a DQN agent with rollout look-ahead in PyTorch for real-time signal phase optimization; outperformed fixed-timing baselines and standard DQN in throughput and average vehicle delay across varying traffic densities.
- Autonomous Drone – Vision, SLAM & Mission Planning** [Demo Video](#) Feb 2020 – Jun 2020
- Built autonomous drone system (Python/ROS) integrating CV landmark recognition, SLAM mapping, and A* path planning; demonstrated full pickup-and-return mission in a physical indoor obstacle environment.
- Driverless Robot Car – Visual Recognition** – UWA Research Intern (Published) Jul 2018 – Aug 2018
- SVM-based visual recognition and path generation on an EyeBot autonomous car platform (Python/C).