ZHANG RONGKUI

Tsinghua University
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EDUCATION

Tsinghua University   Beijing, China
Bachelor's in Mechanical Engineering (Experimental Class)   Sep 2022 – Present

Sep 2022 – Present
- Major GPA: 3.73/4.00; Ranked top 20% in the department,with strengths in robotics, control systems, and mechatronic design.

SELECTED AWARDS AND HONORS

Tsinghua University Scholarship, sponsored by Weichai Power(top30%,awarded for academic excellence) 2022-2023
Tsinghua General Scholarship(top20%,awarded for general excellence)   2023-2024

ACADEMIC PROJECT

- *Robotics Winter Camp, Tsinghua University (Third Prize，Team Leader)*   *Beijing, China*

    -Led a team to design a robotic car using SolidWorks and implemented route selection and high-speed tracking algorithms with C.
    -Demonstrated proficiency in microcontroller hardware debugging and image processing.

- *Tsinghua AI Challenge (Third Prize，Team Leader)*   *Beijing, China*

    - Developed algorithms in C to control space mining, construction, and real-time combat in a competitive multiplayer AI challenge.
    - Designed and optimized resource allocation and movement strategies for spacecraft, enhancing team performance in the tournament.

- *Mechatronic System Design Practice (Team Leader)*   *Beijing, China*

    - Led the design and manufacturing of an autonomous vehicle, utilizing SolidWorks, AutoCAD, and 3D printing for a fully custom design.
    - Developed and implemented the vehicle's hardware and software systems using C in the STM32 framework, including debugging, architecture design, and algorithm development.
    -Achieved multiple tasks such as object grabbing, line tracking, obstacle avoidance, and maze solving, breaking the previous record for line tracking performance.

- *Robotics-Controlled Chess and Drawing System with QARM Robotic Arm (Team Leader)*   *Beijing, China*

    - Designed and developed a QARM four-axis robotic arm system enabling human-machine interaction for chess-playing and drawing tasks.
    - Integrated 3D-printed end-effector components, distributed system architecture, and TCP/IP communication to enhance flexibility and precision. Implemented decision-making algorithms using Visual Studio and D-H kinematics in MATLAB/Simulink for motion control.
    -The innovative system design and adaptive end-effector are in preparation for patent submission.

INTERNSHIP

- *AI & Robotics Lab, Tsinghua University Shenzhen Graduate School*   *Beijing, China*

- Calibrated and operated motion-capture systems (OptiTrack & Motive) to collect spatial and kinematic data from a six-axis robotic arm. Established real-time communication with MATLAB for simulation modeling and inverse kinematics calculations.
-Conducted error correction, data interpolation, and time-series data processing to support data-driven robotic arm control for research projects.