

# ZHANG RONGKUI

Tsinghua University  
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## EDUCATION

### Tsinghua University

Bachelor's in Mechanical Engineering (Experimental Class)

Beijing, China  
Sep 2022 – Present

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- 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)* Jan. 2023

- 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)* Mar. 2024

- 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)* Jul. 2024

- 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)* Dec. 2024

- 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.