

Jie Zhou

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EDUCATION

Beijing University of Chemical Technology (BUCT, 211, ARWU:201-300) 2019.09-2023.06

Major: Mechanical Design, Manufacturing and Automation

● GPA: 3.72/4.33 (Ranking: 1/153)

Harbin Institute of Technology, Shenzhen (HITSZ, 985, C9)

2023.09-2025.06

Major: Mechanical Engineering, master

The Hong Kong University of Science and Technology

2025.09-present

HONOURS AND SCHOLARSHIPS

- First-class Scholarship, **HITSZ**, 2024
- Outstanding graduate of Beijing, **Beijing**, 2023
- Outstanding Competition Scholarship, **BUCT**, 2023
- **National Scholarship** × 2, 2022, 2021
- Li Wen Yang Yan Scholarship, **Social Fund**, 2020
- Excellent Student ×2, **BUCT**, 2020, 2021

AWARDS ABOVE PROVINCIAL LEVEL

1. *The 12th Mathorcup Mathematical Challenge, 1st prize in China*, 2022
2. *Shenzhen Cup National Modeling Competition, China (rank16)*, 2021
3. *National Training Program of Innovation and Entrepreneurship*, 2021
4. *China Mechanical Innovation Design Competition, 2nd prize in Beijing*
5. *The 8th national internet+ Innovation and Entrepreneurship Competition, 2nd prize in Beijing*

PUBLICATIONS

1. **Jie Zhou**, Yang Chen, Jianheng Guo, Yiming Li, Bing Li, and Yao Li, "Environment-Adaptive Navigation Method for Biorobots Enhanced by the Innate Nature of Insects," (**JCR Q1**)IEEE Transactions on Automation Science and Engineering, vol. 23, pp. 1032–1046, 2026. doi: 10.1109/TASE.2025.3636291.
2. **Jie Zhou**, Yuan Fang, Yang Chen, Yao Li, and Bing Li, "Modeling of the Constant-Current Stimuli Response of a Bio-Robot for Long-Term Motion Control," 2024 IEEE International Conference on Robotics and Biomimetics (ROBIO), Bangkok, Thailand, 2024, pp. 1452–1457. doi: 10.1109/ROBIO64047.2024.10907459.
3. Yiming Li, Xingyu Li, **Jie Zhou**, Chenfeng Xie, Yao Li, and Bing Li, "Cockroach's Turning Strategy Enhanced Hexapod Robot with Flexible Torso," 2025 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Hangzhou, China, 2025, pp. 5559–5564. doi: 10.1109/IROS60139.2025.11246679.

RESERARCH & ENGINEERING

In HKUST: Robotics and Materials Design Laboratory

Research topic: Theory and Applications of Electromagnetic Pulse Systems

Advisor: assistant prof. Richard Gu;

Phd student, 2025.09-present

- We want to do fundamental research on Electromagnetic Pulse Systems, including particle magnetization in fluids, and the dynamic response of constrained magnets under pulsed magnetic fields.
- I have built a palm-sized pulse generator with 100 W charging power and an adjustable energy range of 0–128 J.

In HITSZ: State Key Laboratory of Robotics and Systems (Shenzhen)

Environment-Adaptive Navigation Method for Biorobots Enhanced by the Innate Nature of Insects

Advisor: assistant prof. Yao Li & full prof. Bing Li;

Master student; 2024.11-2025.12

- This study focused on the two major obstacles in the current development of cockroach robot: habituation and lack of basic model.
- **Article main work:** two new methods, one new model.

- Method1: A constant current stimuli bio-robot driving method achieves twice the effective stimulation times of previous methods.
- Method2:A bio-robotic navigation method consistent with insect's innate nature, enabling low-cost, high-precision, and rapid navigation.
- New Model: stimulated-motion response is the basic movement process of cockroach bio-robots, but it hasn't been quantitatively described by anyone. I model it using a machine-learning approach in conjunction with theoretical extrapolation and validation.
- Hosted all the works, including idea, surgery, hardware, experiments, program and article.

Research on autonomous navigation technology of pipeline bio-robot motion control

Key Technologies R & D Program of Shenzhen

Advisor: full prof. Yao Li

Graduate researcher; 2023.03-2024.06

- Aimed to develop a bio-robot for pipeline maintenance that enabled navigation, localization and image retrieval.
- Electronic backpack hardware was designed, which consisted of UWB position module, camera module, wi-fi module, DAC module and voltage conversion module with stm32.
- UWB and IMU fusion positioning ensured positioning error not more than 10 cm.

In BUCT

Roll dung beetle - a biomimetic robot with multiple motion modes *Project leader; 2021.09-2022.05*

- Independently designed and built a low-cost biomimetic robot with crawling and rolling modes.
- **Achievement: China Student Mechanical Innovation Design Competition, 2nd prize in Beijing.**

ROS-based quadruped robot *Project core member 2020.6-2021.9*

- Developed mechanical design, inverse kinematics, trot-gait control, and ROS-based LiDAR mapping.
- **Achievement: National Training Program of Innovation and Entrepreneurship, China, 2021; The 8th national "Internet+" Innovation and Entrepreneurship Competition, 2nd prize in Beijing.**

National Award Mathematical Modeling Essay *All served as research leader*

- **An investigation of base station planning problem based on clustering-genetical algorithm.**
 - Achievement: *The 12th Mathorcup Mathematical Modeling Challenge, 1st prize in China, 2022.*
- **Reinforcement Learning with Control Variables Evaluation Algorithm in Canine Sheep game.**
 - Achievement: *Shenzhen Cup National Mathematical Modeling Competition, China (rank16), 2021.*

Skills

- **Core Skills:** Hardware (Electronic Design, Mechanical Design)
- **Programming:** C++, Python, Qt, VB, WeChat small-program development
- **Software:** MATLAB, Solidworks, Altium Designer, AutoCAD.
- **OS:** Linux, ROS.
- Won one soccer champion and made it out of the group stage in basketball 2 times.
- **Self-awareness:** I consider myself an outstanding hardware and mechanical engineer, and a decent programmer.