哈爾濱工業大學 HARBIN INSTITUTE OF TECHNOLOGY

Sinuo Cheng (程思诺)

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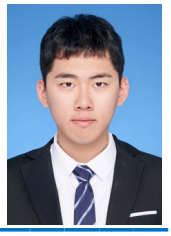

Education

Bachelor: Intelligent Vehicle Engineering, Harbin Institute of Technology
Master: Mechanical Engineering, Harbin Institute of Technology (Expected Graduation: 2027)

Research Interests and Skills

Current Research Topics: Perception, Mapping and Navigation for Planetary Rovers
Programming Skills: C, C++, Python **Development Skills:** ROS, IAR, Keil
Simulation Platform: Gazebo, IsaacSim

Personal Experience

- **2020-2023: Intelligent Vehicle Student Innovation Team**

Joined as a member in 2020; served as team leader during 2021 to 2023.
Developed perception and control algorithms on microcontrollers and built the vehicle's hardware system.

- **2023-Present: State Key Laboratory of Robotics and Systems & State Key Laboratory of Aerospace Mechanism**

Under the guidance of Prof. Liang Ding, an NSFC Distinguished Young Scholar recipient.
Conducting research on autonomous navigation, perception and mapping for planetary rovers.

- **Summer 2024: HIT Hot Air Balloon Digital Tech Co., Ltd. (Intern)**

Developed perception, planning, and control algorithms for mobile robots with ROS integration.

Projects

- 2020-2021: PID-Based Mecanum-wheel AGV Design (Freshman Project, Leading, A+)
- 2021-2022: Deep Learning-Based Multi-Task Smart Vehicle Design (Undergraduate Research Project, Leading, A+)
- Summer 2023: Intelligent Vehicle Platform Development (Perception Module, Independent Project)
- 2023-2024: Terrain-Complexity-Aware Multi-Mode Navigation System for Planetary Rovers (Undergraduate Thesis, Independent Project, A+)
- 2025-Present: Online Active Perception of Physical Properties for Planetary Rovers in Unknown Lunar Terrain (Master's Thesis, Independent Project, Ongoing)

Papers

Sinuo Cheng, Ruyi Zhou, Wenhao Feng, Huaiguang Yang, Haibo Gao, Zongquan Deng, Liang Ding*. VLM-Empowered Multi-Mode System for Efficient and Safe Planetary Navigation. (**IROS 2025**)

Selected Honors and Awards

- **National First Prize**, National English Competition for College Students (2022)
- **National Second Prize**, National Smart Car Competition for College Students
- **Provincial First Prize**, National Mathematical Contest in Modeling
- **Outstanding Graduate**, Harbin Institute of Technology
- **Postgraduate Highest Level Scholarship**, Harbin Institute of Technology
- **Outstanding League Cadre & Student Cadre**, Harbin Institute of Technology