XIMAN ZHANG

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EDUCATION

Southern University of Science and Technology (SUSTech) Shenzhen, China
Bachelor of Robotics Engineering 2020.9–2024.6

- **Major GPA: 3.65/4.0**
- **Upper-class GPA: 3.88/4.0**
- **Grand Prize for School Motto Scholarship (2023), top 4 of all ~5000 undergraduates**
- **Selected Courses:**

Fundamentals of Control Engineering **(A+)**
Machine Society and Ecological Civilization **(A+)**
Modern Control and Estimation **(A)**
Mechatronic Systems **(A)**
Robot Modeling and Control **(A+)**
Robot Operating System **(A)**
Sensors and Actuators **(A)**
Collaborative Robot Learning **(A-)**

WORKING EXPERIENCES

Robot Mobility and Manipulation (ROMA) Lab SUSTech, Shenzhen, China

- **Research Assistant**, Supervisor: Prof. Zhenzhong Jia 2024.8-Present

- **Current work:** applying and comparing the performance of QDD motors **(**exploring more complex actions such as jumping), utilizing proprioceptive-based actuation and sensing to study terrain classification, wrapping up 2 journal papers

PUBLICATIONS

- Zhuolun Li, Jiajun Long, **Ximan Zhang**, *et al*. "Experimental Characterization and Comparison of Three Typical Omnidirectional Mobile Robots," 2023 International Conference on Advanced Robotics and Mechatronics (IEEE-ARM), Sanya, China, 2023, pp. 1162-1168.
  DOI: 10.1109/ICARM58088.2023.10218777
- Haoran Wang, Cunxi Dai, Siyuan Wang, **Ximan Zhang**, *et al*. "Ubiquitous Field Transportation Robots with Robust Wheel-Leg Transformable Modules," under review. arXiv:2410.18507
- Jingjing Shi, **Ximan Zhang**, *et al*. An experiment design on the measurement of operation parameter of vertical elevator using an electronic balance[J]. Physics and Engineering, 2023. (in Chinese)

RESEARCH EXPERIENCES

All of the following projects are conducted in Prof. Zhenzhong Jia'Lab (SUSTech ROMA Lab)

Experimental Analysis and Kinematics Comparison of Omnidirectional Mobile Robots 2022.11-2023.06

- Experimented with three different OMR configurations: 4WD-4WS, ASOC, and Mecanum
- Utilized trajectory following control on real robot platforms: different directional and square motions
- Analyzed motor data, robot velocity, and visual odometry (Intel T265 camera)
- Wrote paper: prepared kinematics analysis figures and experiment photos; wrote the kinematics part; helped with editing the companion video **[Paper published at IEEE ARM-2023]**

Omnidirectional Mobile Robots for Indoor and Outdoor Application 2022.08-2023.07

- Be a key team member, **17k USD project grant** from the **provincial-level** key project of the Guangdong Science and Technology Innovation Strategic Special Fund ("Climbing Plan") in 2022. (one of the only two teams in the entire university)
- Learnt about the design and production of 4 omnidirectional robots, controlled and participated in the experimental study of ASOC (two generations), Mecanum, and 4WD-4WS robots
- Enhanced problem-solving skills; accumulated experience in data analysis and report writing

Proprioceptive-based Actuation and Sensing for RHex-type Robots 2023.08-2024.7

- Focused on the undergraduate thesis and current major project for the Research Assistant position
- Based on quasi-direct-drive (QDD) concept, designed and built a six-legged robot named QDD-SmallRhex, performed preliminary comparative study with SmallRhex robot (36:1 drive) in the lab
- Designed and built QDD-Rhex with slip-ring design to add pressure-sensing array in the robot leg
- Built a single-leg testing platform using 6-axis F/T sensor to evaluate the ground reaction force (GRF) sensing performance of pure-QDD sensing, and hybrid QDD+pressure sensing method
- Generated robot motion control through Webots simulation and real hardware, covering walking, turning, and stair-climbing maneuvers; used machine learning to analyze force sensing accuracy

INTERNSHIP

Shenzhen Maifei Precision (Multi-Field Precision) Co., LTD 2022.07-2022.08
Supervisor: Prof. Yongbo Wu at SUSTech MEE department

- Received the second prize in the “Multi-Field Youth Talents" award for outstanding performance
- Gained proficiency in COMSOL software; designed a side cutter tip to enhance cutting efficiency
- Created engineering drawings for the tool design; coordinated manufacturing processes, and conducted testing and optimization of the assembled tools

SELECTED COMPETITIONS AND AWARDS

An analysis of network buzzwords and college students’ thought guidance -- based on a survey report of 1056 students from high-level universities of science and technology in Guangdong 2023.03-2023.05
Prof. Mingzheng Teng, SUSTech

- **Project leader**, won the **second prize** of Guangdong Province in the “Challenge Cup” National College Student Curriculum Academic Science and Technology Works Competition

Measurement and application of operating parameters of vertical elevator based on electronic scale
Lecturers: Xu Tingting, Wang Xiaofeng 2022.03-2022.05

- Won the **third prize** (national level) in China University Physics Experiment Competition

The second-class Undergraduate scholarship 2023

EXTRACURRICULAR ACTIVITIES

- Officiated as a bilingual host at the World Cup qualifier match in Shenzhen, China 2023.11
- Outstanding Team and Excellent Individual Award, Winter Vacation Alumni Visit Program 2021
- An active member of the College Student Association, responsible for the publicity, official account maintenance, and promotion for special events 2020.09-Present
- Volunteer in rescuing stray animals and promoted public interest organizations, total for 74 hours

SKILLS

Software: Solidworks, Webots, Arduino, STM32, COMSOL, VSCode, Word, PowerPoint
Coding/Programming: C/C++, MATLAB, Python, Java, ROS/ROS2