Zhihai Bi

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Education

- **Fudan University** — Shanghai, China
  Master in Computer Applied Technology, FDU — *Sept. 2021 – June 2024*
  Supervisor: Prof. Hongbin Fang, Institute of AI and Robotics
  GPA: 3.57/4.00
- **Southeast University** — Nanjing, China
  Bachelor in Robot Engineering, SEU — *Sept. 2017 – June 2021*
  GPA: 3.81/4.00

Teaching Experience

Teaching Assistant: INFO130371.01 Introduction to Robotics, FDU — *Spring 2022*

Publications

1. **A Worm-Snake-Inspired Metameric Robot for Multi-Modal Locomotion: Design, Modeling, and Unified Gait Control**
   Zhihai Bi, Qinyan Zhou, Hongbin Fang
   *International Journal of Mechanical Sciences***(Q1,Top)**, 2023.

2. **Design and path planning for a Worm-Snake-Inspired Metameric(WSIM) Robot**
   Zhihai Bi, Jian Xu, Hongbin Fang
   IEEE International Conference on Robotics and Biomimetics(ROBIO), 2022

Selected Projects

- **Design, modeling and control for a worm-snake-inspired robot** *Aug. 2021 – Oct. 2022*
  - A worm-snake-inspired robot with multi-modal locomotion capability is designed.
  - Dynamic models for worm-like and snake-like locomotion modes are established.
  - A unified gait control framework for the multi-modal robot is proposed.

- **Multi-modal planning for the worm-snake-inspired robot** *Oct. 2022 – present*
  - Front-end: Planning based on Hybrid A* considering the kinematics model.
  - Back-end: Mode and trajectory iterative optimization based on quadratic programming.
  - Working paper, target journal: IEEE Robotics and Automation Letters (RAL)

Honors and Awards

- Outstanding Graduate Student Award of Southeast University *2021*
- Principal's scholarship of Southeast University (**Top 1%**) *2017 – 2018*
- Frist Prize of the 10th University Robotics Competition, Jiangsu Province *2019*
- Second Prize of the 15th National Student Intelligent Vehicle Competition *2020*
- School Prize of Fudan University *2021 – 2022*

Skills

- Robot design: Solidworks, STM32, Altium Designer
- Robot modeling: Kinematics and dynamics modeling, Newton Euler and Lagrange
- Robot simulation: Webot, Gazebo, RViz
- Robot Programming: ROS, C/C++, Python, Matlab
- Language: Cantonese(native), Mandarin, English