

# Yiyang Shao

Department of Modern Mechanics  
School of Engineering Science  
University of Science and Technology of China

Phone: +86 19855122003  
Email: [syy2003@mail.ustc.edu.cn](mailto:syy2003@mail.ustc.edu.cn)  
Website: [kevin-shao-ustc.github.io](https://kevin-shao-ustc.github.io)

## Personal Introduction

---

I have experience developing [navigation](#) and [control algorithms](#) for different robots, which has given me a strong understanding of optimal control, SLAM, and path-planning algorithms.

I am a self-motivated and independent learner. My previous experiences cultivated my strong ability to retrieve information and develop new skills independently. I also have a good foundation and intuition in math and physics.

Currently, I am developing navigation and nonlinear control algorithms based on NMPC and RL for a bipedal robot to enable terrain-aware navigation in an uneven environment, as instructed by [Prof. Shiwu Zhang](#).

## Projects and Major Assignments

---

### Reinforcement Learning Algorithm for Imitating Cat Righting Reflex

*Team Leader*

*Shenzhen 01 Academy Summer School 2022*

- I led a team to develop control algorithms imitating the cat's righting reflex based on the TD3 algorithm.

### Replication: 3D Photography on Your Desk

*Independent research*

*Computer Vision 2022 Fall*

- I replicated the classical computer vision paper *3D Photography on Your Desk*

### Neurodynamic Simulation of Demyelinating Neurological Damage Caused by SARS-COV-2

*Team member*

*Electromagnetism 2023 Spring*

- We investigated how SARS-COV-2 damages human brain function by neurodynamic simulation.

### MOBA game AI based on Deep Reinforcement learning

*Team leader*

*Game AI design and practice 2023 Fall*

- We trained a game AI for the MOBA game *King Glory* based on PPO and won first place.

### SLAM and navigation of a sentry robot

*Principle developer*

*Robomaster 2023-2024*

- I developed a navigation system for a mobile robot, which has the preliminary ability to navigate autonomously in uneven environments. Still under development.

### State Estimation and control of a bipedal robot

*Principle Developer*

*Robomaster 2023-2024*

- I proposed a novel slip detection and state estimation strategy, significantly improving the robot's robustness. The method will be published in a paper.

### 3D Pointcloud-Based Ground Robot 6-DoF Path Planning and Motion Control

*Team Leader*

*College Student's Innovation and Entrepreneurship Training Program 2023-2024*

- We aim to enable bipedal robots to autonomously navigate through uneven terrain. Still under development.

Skills and Languages

Programming and Tools	Python, C++/C, Matlab, Mathematica , ROS/ROS2, etc
Robotics	Optimal Control, DRL, Path Planning, SLAM, etc
Languages	English: Toefl 95   French: Basic understanding

Educational Background

2021.9–2025.6	University of Science and Technology of China
	School of Engineering Science · Department of Modern Mechanics
	GPA: 3.79/4.30 (4/143)

Selected Course Grades

Mathematical Analysis B1	95
Linear Algebra B1	96
Probability Theory and Mathematical Statistics	92
Theoretical Mechanics B	99
Statistical Thermodynamics	97
Computer Vision	91
Game AI Design and Practice	1st Place

Awards

JAC NIO Scholarship	Oct 2022
Grand Prize of Zhou Peiyuan Mechanics Competition at Provincial Level	Jun 2023
2nd Prize of RoboMaster 2023 The RoboMaster University Championship	Apr 2023
2nd Prize of RoboMaster 2023 RoboMaster University League	Jun 2023
1st Prize of 2023 Mitsubishi Electrical and Automation Contest Eastern Region	Jun 2023
1st Prize of 2023 SLAMTEC SLAM Autonomous Driving Challenge	Aug 2023
2nd Place of 2023 USTC Artificial Intelligence Innovation Contest	Sep 2023