Yihan Li

+86 19829160799 | yianleeXJTU@gmail.com | https://yihanli126.github.io/ | GitHub

Research Interests

My interest lies on **robot motion planning, dynamics, control, and optimization.**

Education

Xi'an Jiaotong Univerity, *September 2020 – July 2024*
Bachelor of Automation Engineering, QianXuesen Honor College
Average Score: 87/100
Main courses: Operations Research, Automatic Control Theory, Numerical Analysis, Circuit, Analog and Digital Electronic Technology, etc.

University of California, Berkeley *August 2022 – December 2022*
Visiting Student, EECS
GPA: 3.78/4.0
Selected courses: Signals and Systems (A), Data Structures (A-), Introduction to Control of Unmanned Aerial Vehicles (A-), Introduction to Embedded and Cyber Physical Systems (A-)

Publications

[1] Yifan Zeng*, Suiyi He*, Han Hoang Nguyen, **Yihan Li**, Zhongyu Li, Koushil Sreenath, and Jun Zeng. "i2LQR: Iterative LQR for Iterative Tasks in Dynamic Environments". In: *Accepted by 2023 62nd IEEE Conference on Decision and Control (CDC)* (2023).

Working Manuscripts

[1] Yifan Zeng*, **Yihan Li***, Suiyi He, Koushil Sreenath, and Jun Zeng. "Towards Better Online Maneuver for Autonomous Racing with Multiple Vehicles Through Offline Iterative Learning". In: *To be submitted to IEEE Transactions on Control Systems Technology (CST)* (2023).

Research Experience

UC Berkeley Hybrid Robotics Group *October 2022 – Present*

- Presented a novel joint strategy for planner and controller called Iterative Learned Iterative Linear Quadratic Regulator (i2LQR) suitable for dynamic and random car racing scenario, which out performs the state-of-art Learning Model Predictive Control (LMPC) algorithm.
- Achieved Iterative Model Predictive Path Integral (MPPI) control with regrouping and resample policy to work out the overtaking tendency of static obstacles in car racing scenarios. Working on building Iterative MPPI a combination of scenario generator, planner and controller. Potential publication soon.

Advisor: **Koushil Sreenath @Berkeley Hybrid Robotics Group**

2022 China Robot Competition *April 2022*
Team member in agricultural water-saving irrigation competition track, Achieved the basic motion control of the intelligent car on ROS and the application and test of SLAM for localization.
Advisor: **Tonghui Wu @Xi'an Jiaotong University**

National Undergraduate Research Innovative Training Program *May 2021 – May 2022*
Team member, took part in the work on Fast Boolean Operation of Triangular Network Model Based on GPU.
Advisor: **Yijun Yang @Xi'an Jiaotong university**

Projects

Intelligent Agricultural Irrigating Car *April 2022*
For 2022 China Robot Competition. Still being updated for the following competition in 2023.

Hexapod Robot *November 2022*
Berkeley EECS 149/249(Introduction to Embedded and Cyber Physical Systems) Course Project. Responsible for the motion control and obstacle avoidance of the hexapod robot.

Awards

Third prize in 2022 China Robot Competition *April 2022*
Xi'an Jiaotong University Scholarship *October 2021*
QianXuesen Honor College Outstanding Student of the Year *October 2021*

Professional Service

Reviewer for International Conference on Robotics and Automation (ICRA) 2024 *October 2023*

Skills

Programming Language: C/C++, Python, Java, Matlab
Software: ROS, Git, Latex, MobaXterm
Hardware: Arduino, Raspberry Pi