

Hao Luan

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EDUCATION

Harbin Institute of Technology

Bachelor of Engineering in Automation

Shenzhen, CHN

Sep. 2017 – Jul. 2021 (expected)

- Major GPA: 3.744/4.000
- Overall GPA: 3.793/4.000

RESEARCH EXPERIENCE

Undergraduate Research Assistant

MAS Lab, Harbin Institute of Technology

Oct. 2019 – Present

Shenzhen, CHN

Supervisor: Assoc. Prof. Jie Mei

School of Mechanical Engineering and Automation, HITSZ

- Conducting research on distributed consensus of multi-agent systems (MAS) with state constraints, parameter uncertainties, and external disturbances under switching directed graphs.
- Developed distributed consensus algorithms for MAS with first- or second-order agent dynamics, tackling constraints on agents' position states under switching directed communication networks.

Visiting Research Student

Robotic Laboratory, Sun Yet-sen University

Nov. 2015 – May 2016

Guangzhou, CHN

Supervisor: Prof. Hui Cheng

School of Data and Computer Science, SYSU

- Optimized and implemented a centralized offline task-allocation algorithm for multi-robot systems based on the Ant Colony System, as a core team member.
- Presented at the concluding report and oral defense.

PROJECTS

Unmanned Palletizing Using Six-axis Robot Arm

Apr. 2020 – Jul. 2020

Advisor: Prof. Yunjiang Lou, Associate Dean

- Designed robot manipulator control algorithms using forward and inverse kinematics and LFPB trajectory planning. Built position management system to add, store, modify and delete position information of objects.
- Achieved fast palletizing motions with high accuracy.

Vision-Based Auto Parking

Oct. 2019 – Dec. 2019

Advisor: Prof. Haoyao Chen

- Identified a specific parking sign by adopting filtering, color segmentation, perspective transformation, Canny edge detection and rectangle envelope.
- Designed an online close-loop controller to control angular and linear velocities of an autonomous car, by employing multiple control schemes and using image information of the detected parking sign.
- Integrated searching, detection, and motion control on ROS and successfully realized fully automated parking.

HONORS & AWARDS

Honorable Mention in Mathematical Contest In Modeling	2020
Undergraduate Academic Merit Scholarship (third class)	2019, 2020
Undergraduate Academic Merit Scholarship (second class)	2018
Third Prize in the National Olympiad in Informatics in Provinces (Guangdong)	2017
Honor Roll in the American Mathematics Competition 12, and invited to AIME	2016

SKILLS

Languages: English, Mandarin Chinese, Cantonese

Programming: C/C++, Julia, Pascal, Python

Tools: Git, Matlab, Mathematica, Microsoft Office, ROS, VS Code, \LaTeX

EXTRACURRICULAR ACTIVITIES

Volunteer services at 2018 Hong Kong Universities and Colleges Forum at HITSZ

2018

Playing soccer on HITSZ Student Soccer Team

2017 – Present