Mr. Runyu Ma

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EDUCATION

09/2022 -present **Tu delft**
Msc Mechanical Engineering: track biomechanical design

09/2018-07/2022 **Beihang University**
Bsc Mechanical Engineering
***GPA**: 3.64 / 4.00 (87.5/100)*
Honours: First Prize of Innovation and Entrepreneurship Scholarship
Selected Coursework: Automatic Control 99/100, Environment Perception and Path Planning of Intelligent Robot 93/100, Computer Science 93/100, Intelligent Robotics 92/100

PROJECT/RESEARCH EXPERIENCE

Research Intern **Institute of Automation, Chinese Academy of Science (CASIA)**
Supervisor: Hongbin Liu (King's college London & CASIA)
07/2021- 09/2022 **A Hybrid Force-Magnetic Control Scheme for Flexible Medical Device Steering**
- ✧ Achieved force control algorithm of 7 DOFs robot arm with electromagnet end-effector.
- ✧ Achieved 3-D navigation of the distal tip of continuum robot with a control scheme based on pseudo-rigid-body model.

BSc project **Control System design of EUROBOT Competition 2022**
Supervisor: Abdelkader El Kamel (Ecole Centrale Lille)
- ✧ Implemented visual-aid object manipulating system.
- ✧ Implemented localization system based on EKF algorithm (confusion of IMU and odometry feedback) and particle filter algorithm (confusion of Lidar feedback with EKF result).
- ✧ Implemented navigation and motion planning system based on Dijkstra and TEB algorithm.

Robot competition **Beihang Robot Team**
Supervisor: prof. Rong Liu (Beihang university)
07/2019-07/2020 **ROBOCON Quadruped Robot Competition** TOP 1 in China, FIRST PRIZE 1/39
- ✧ Implement control system of a 12-DOFs force control quadruped robot in both simulation and real robot.
- ✧ Deployed MPC algorithm to compute the force in each leg and EKF algorithm to localize the robot by confusing the feedback from IMU and leg kinematics.

07/2019-07/2020 **ROBOCON "ROBO RUGBY 7s" Competition** TOP 9 in China, FIRST PRIZE 9/118
07/2020-07/2021 **ROBOCON "Throwing Arrows into Pots" Competition** 3rd Winner, FIRST PRIZE 3/97

SKILLS

Programming: Python, C++, MATLAB
Softwares&Tools: ROS, Gazebo, Webots, OpenCV, PyTorch, Tensorflow, Git
Hardware: Raspberry Pi, STM32, Odrive(a brushless servo motor drive)