

# Xinyu Jia

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## EDUCATION

### National University of Singapore

Ph.D. Candidate in Biomedical Engineering

Singapore, Singapore

2020.08 - present

### Jilin University

B.Eng. in Vehicle Engineering

Changchun, China

2014.09 - 2018.06

## RESEARCH INTEREST

Motion Planning, Motion Control, Robot Locomotion, Robot Manipulation, Trajectory Optimization, Model Predictive Control, Optimal Control, Robust Control, Robot System Design, Mechatronics

## SKILLS AND EXPERTISE

**Programming:** C++, Python, MATLAB

**Libraries and Tools:** ROS, Gazebo, MoveIt, CoppeliaSim, Pinocchio, Crocoddyl, CasADi, QuadProg, qpOASES, Ipopt, Eigen, Numpy, pthreads, CMake, Arduino, CAN, UDP, TTL, CATIA, AutoCAD, Adams, ANSYS, Altium Designer

**Language:** Chinese (mother tongue), English (fluent)

## WORK EXPERIENCE

### National University of Singapore, Singapore

2022.04 - 2023.04

Research Engineer (Project: software & hardware development of a 18-DoF quadruped manipulator [Link](#))

### National University of Singapore, Singapore

2021.07 - 2022.03

Research Assistant (Project: software & hardware development of a 12-DoF bimanual cobot [Link](#))

### Shenzhen DJI Technology Co., Ltd., China

2018.07 - 2020.06

Mechanical Engineer (Project: hardware development for autonomous driving)

### Shenzhen DJI Technology Co., Ltd., China

2018.01 - 2018.05

Chassis Engineer (Intern) (Project: simulation and evaluation of vehicle chassis)

## COMPETITION EXPERIENCE

### 2018 Formula Student Combustion China (FSCC)

2017.12 - 2018.06

Technical Consultant (Responsibility: overall technical direction of Gspeed Formula Racing Team [Link](#))

### 2018 Formula Student Electric China (FSEC)

2017.12 - 2018.06

Technical Consultant (Responsibility: initiator of monocoque chassis project; technical support)

### 2017 Formula Student China (FSC)

2016.12 - 2017.11

Technical Leader (Responsibility: development of race car chassis; overall technical direction of the team)

### 2016 Formula Student China (FSC)

2015.12 - 2016.11

Head of Suspension Group (Responsibility: development of race car suspension system)

### 2015 Formula Student China (FSC)

2014.12 - 2015.11

Member of Suspension Group (Responsibility: design and optimization of suspension upright structure)

## PUBLICATIONS

- X. Jia, J. Yang, T. Shi, W. Wang, Y. Pan and H. Yu, "Robust Precision Motion Control based on Enhanced Unknown System Dynamics Estimator for High-DoF Robot Manipulators," *IEEE/ASME Transactions on Mechatronics*, 2024.
- X. Jia, J. Yang, K. Lu, Y. Pan and H. Yu, "Enhanced Robust Motion Control based on Unknown System Dynamics Estimator for Robot Manipulators," in *IEEE International Conference on Robotics and Automation (ICRA)*, 2024.
- J. Yang, X. Jia, Z. Hou, Y. Pan and H. Yu, "Robust Reference Tracking of Linear Uncertain Systems via Uncertainty Estimation and Composite Control," in *IEEE Conference on Decision and Control (CDC)*, 2023.
- K. Lu, S. Han, X. Jia and H. Yu, "Inverse Optimal Adaptive Prescribed Performance Control With Application to Compliant Actuator-Driven Robot Manipulators," in *IEEE Conference on Decision and Control (CDC)*, 2023.

## HONORS AND AWARDS

- **Competition:** National Champion of FSCC 2018, First Prize of FSC 2017, Second Prize of FSC 2016
- **Academics:** Third Class Scholarship & Individual Scholarship in 2018, Third Class Scholarship in 2015