JIA Xinyu

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EDUCATION

National University of Singapore   **Singapore, Singapore**
Ph.D. Candidate in Biomedical Engineering   *2020.08 - present*
Jilin University   **Changchun, China**
B.Eng. in Vehicle Engineering   *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, CasADi, qpOASES, QuadProg, Eigen, Numpy, RT-Linux, Xenomi, 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 Robot 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 Lead (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)   **2014.11 - 2015.11**
Member of Suspension Group (Responsibility: Design and optimization of 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