Nan Li

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Educational Background

Georgia Institute of Technology — Atlanta, United States
Mechanical Engineering — Aug.2024-Jun.2026 (expected)
Cumulative GPA: **4.0/4.0**
Core Courses: Linear Control, Adv Control Design Implement, Intro to Robotics Research, Mechine Learning

Sichuan University — Chengdu, China
Sichuan University - Pittsburgh Institute — Sep.2020-Jun.2024
Major in Mechanical Engineering
Cumulative GPA: **3.93/4.0** | Rank: **3/81** | TOEFL: **103**
Core Courses: Mechanical Design, Dynamics Systems, Automatic Controls, Linear Algebra, Probability

Research Experience

Multi-agent System Task Allocation and Path Planning
Supervised by Dr. Ye Zhao | Georgia Institute of Technology — Dec. 2024–Present
Core Contents:
- Encode task specifications using Linear Temporal Logic (LTL) formulas;
- Implement the Consensus-Based Auction Algorithm (CBAA) for task allocation in multi-agent systems;
- Apply the D* Lite algorithm for path planning;
- Develop an obstacle-aware clustering method to group tasks before applying CBAA;
- Deploy the task allocation and path planning algorithms on a heterogeneous robot team.

Singularity Free Dynamic Control Allocation for a Tilt-rotor Multirotor Unmanned Aerial Vehicles
Supervised by Prof. Qi Lu | Sichuan University — Jan.2022-Mar.2023
Core Contents:
- Built the barrier function to convert the inequality constraint into an equation constraint to circumvent the singularity problem;
- Introduced the equation constraint via Lagrange's equation and converted this problem to an optimization problem;
- Proved the stability of the adaptive algorithm by using Barbara's Lemma;
- Performed the trajectory simulation on the six-rotor tilt-rotor UAV avoidance singularity problem.

Design and Integration of Automatic Reagent Preparation Machine
Huaxi Medical Robot Research Institute (Leader of this project) | Sichuan University — Aug.2023-Apr.2024
Core Contents:
- Design specific components of the reagent machine;
- Use DH parameters to model the robot arm, enabling precise calculation of its position based on input joint angles;
- Learn the use of QT Creator to develop a user-friendly human-computer interaction interface for controlling the robot arm;

Publications and Workshops

Publications

[1] Xinyi Liu, **Nan Li***(Co-First Author), Yifan Wang, Yuanye Dong, Beining Fu, and Qi Lu **"Singularity Free Dynamic Control Allocation for a Tilt-rotor Multirotor Unmanned Aerial Vehicles"**, Accepted by *IEEE CASE 2023*

[2] Fashu Xu, Wenjun Huang, Hao He, **Nan Li**, Kang Li, and Hongchen He, **"A Segmented Dynamic Movement Primitives-Based Gait Assistive Strategy for Soft Ankle Exosuit"**, Accepted by *ICIRA 2023*

Workshops

[1] **Nan Li**, Haris Miller, Jiming Ren, Alagappan Swaminathan, Samuel Coogan, Karen M. Feigh, and Ye Zhao, **"Resilient Task Allocation and Planning Framework for Heterogeneous Robot Teams"**, ICRA 2025 Workshop

Honors & Awards

Merit Student | Sichuan University — 2020, 2021, 2022
Dean's List | Sichuan University — 2021, 2022
Academic Star | Sichuan University — 2020
First Prize of Academic Scholarship | Sichuan University — 2020
Second Prize of Academic Scholarship | Sichuan University — 2022

Extracurricular Activities

Graduate Assistant, Student Assistant | Georgia Institute of Technology — 2025 Spring-present
Senior Project Leader | Sichuan University - Pittsburgh Institute — 2023-2024
Teaching Assistant | Course of Analytical Geometry and Calculus — 2022 Fall, 2023 Spring
Teaching Assistant | Course of Mechanical Design 1 — 2023 Fall, 2024 Spring
Teaching Assistant | Course of Dynamic Systems — 2023 Fall, 2024 Spring
Peer Advisor | Sichuan University - Pittsburgh Institute — 2021-2022
Leader of Sichuan University - Pittsburgh Institute Debate Team — 2021-2022

Professional Skills

Programming Language: Python, MATLAB, C
Tools: ROS2, Linux, Catia, SolidWorks, LaTeX