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   Computer Vision

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