

EDUCATION

Beihang University (BUAA) – Beijing, China

M. Sc. Eng. in Control Science and Engineering
GPA: 3.78/4.00 (89.80/100.00)

09/2020 – (Expected) 06/2023

Advisors: Prof. [Zhang REN](#), Assoc. Prof. [Liang HAN](#)
School of Automation Science and Electrical Engineering

Beihang University (BUAA) – Beijing, China

B. Eng. in Automation
GPA: 3.78/4.00 (89.70/100.00) | “Outstanding Graduates”

09/2016 – 06/2020

Advisor: Prof. [Lei GUO](#)
ShenYuan Honors College

PUBLICATION & PATENT

[1] **Jinjie Li**, Liang Han*, Zhang Ren, “Indoor Localization for Quadrotors using Invisible Projected Tags”, in *IEEE International Conference on Robotics and Automation (ICRA)*, May 2022. [[pdf](#)] [[video](#)] Accepted

[2] Liang Han, **Jinjie Li**, Zhang Ren, “An Indoor Localization Method based on Invisible Projected Tags”, *Chinese Patent*, 202111154577.4. Substantive Examination Stage

RESEARCH EXPERIENCE

National Key Laboratory of Science and Technology on Aircraft Control, BUAA

09/2020 – Present

Master's Thesis, Master Student Researcher

Advisors: Prof. Zhang REN, Assoc. Prof. Liang HAN

- Design a neural network disturbance observer to model the aerodynamic disturbances among quadrotors efficiently. Add this disturbance model to the standard control scheme to promote the control effect. [*Ongoing*]
- Design a nonlinear model predictive control (NMPC) controller for formation control and trajectory tracking based on the model above. Achieve fast trajectory tracking of three quadrotors in dense formation. [*Ongoing*]
- Propose a low-cost indoor localization method based on invisible projected tags (IPT), providing real-time centimeter-level pose data for quadrotors. *The paper has been accepted by ICRA 2022.*

Human-Machine Interaction (HMI) Lab, Huawei Technologies

08/2020 – 09/2020

Technology Intern

Advisor: Dr. Xuan ZHOU

- Design a force feedback prototype based on piezoelectric sensors, combining different vibration waveforms to provide a natural touch feeling for virtual keyboards.

Sino-French UAV Lab, BUAA

12/2019 – 06/2020

Bachelor's Thesis, Undergraduate Student Researcher

Advisor: Assoc. Prof. Liang HAN

- Implement a multi-quadrotor formation control system in the Gazebo-ROS simulator. Use fiducial tags on the ground for visual localization; combine the results with IMU to improve reliability and accuracy. Employ the Dyna-Q reinforcement learning algorithm to train the aerial robots to maintain a formation.
- Ranked **No.1** in the department (1/33), chosen as *Outstanding Bachelor's Thesis*.

SELECTED PROJECTS

A Simulation Platform for Large-Scale Heterogeneous Swarm Agents

09/2020 – Present

Supported by the Science and Technology Innovation 2030-Key Project, Student Leader

Assoc. Prof. Liang HAN

- Develop a large-scale swarm simulation platform for regional anti-terrorism confrontation scenarios. The number of nodes must be ≥ 2000 ; at least five types of agents are supported, including fixed-wing, quadrotor, tilt-rotor, interceptor, and autonomous vehicle.

Development of a Settable Constant Temperature Controller

02/2018 – 06/2018

Course: *Fundamentals of Analog Electronics*, Team Leader

Advisor: Assoc. Prof. Yao TANG

- Develop a temperature control system for a water tank from scratch, which can be controlled via Bluetooth, powered by 220V, and warmed up or cooled down to a specified temperature in 5 minutes [[details](#)].
- Be invited by the [Lunar Palace 1 Team](#) to design a temperature control system for plant cultivation devices.

Development of Heavy Load and High Maneuverability Aircrafts

07/2017 – 10/2018

Beihang Aeromodelling Team, Leader of the Composite Material Team, Pilot

Advisor: Prof. Zhiqiang WAN

- Develop the composite part of a heavy-load aircraft. Employ carbon and glass fiber reinforced polymer (CGFRP) to make D-box structures, increasing the torsional rigidity by 161.07% [[details](#)]. Serve as a pilot as well [[details](#)].
- Win the **Top 3** places in the 2018 China Aeromodelling Design Challenge (Time-limited Airdrop Project), the **BEST** record in the history of the event. BMFA News Magazine report: [[link](#)].

HONORS & AWARDS

- Beihang Scholarship, Freshman Scholarship (2021)
- Beihang Outstanding Graduates (2020), Merit Student Scholarship (2016-2018)
- The Champion of “Simulated Search and Rescue Project” in China Aeromodelling Design Challenge (2017)

SKILLS

- **TOEFL:** 106 (R 30, L 28, S 24, W 24)
- **Skills:** Coding (Python, MATLAB, C/C++, Mathematica); Robotics software development (ROS1, ROS2); Microcontroller programming (STM32 series); Circuit design (Altium Designer and Multisim); UAV design and flight (Fixed-wing, Quadrotor, Glider)
- **Interests:** Tennis, Skiing, Photography [[link](#)], Travelling, Model Airplane