

# Zhuoyuan(Joe) YU

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**Research interests:** Robotics, Deep Reinforcement Learning, Multi-Agent Systems, UAVs

## EDUCATION

### National University of Singapore, NUS

Singapore

- Major: M.Eng. in Mechanical Engineering (By Research)
- GPA: 5.0 / 5.0

08/2023-Present

### Northwestern Polytechnical University, NPU

Xi'an China

- Major: B.Eng. in Aircraft Design and Engineering
- GPA: 84%    **Scholarship:** Second Prize Scholarship

09/2019-07/2023

## RESEARCH EXPERIENCE

### Institute for INFOCOMM Research (Affiliated to Agency for Science, Technology and Research)

05/2024-Present

[Multi-Agent Path Finding Based on Deep Reinforcement Learning] | Supervisor: Guo Hongliang

- Improved the existing Node2Vec algorithm to handle the dynamic topological networks better.
- Utilized Graph Attention Networks to enhance the decision-making weights of dynamic edges.
- Integrated reinforcement learning for online training of the network.

**Related:** Python, Pytorch, ROS1, Multi-Agent Systems, Graph Attention Networks, Natural Language Processing

### NUS ME Control and Mechatronics Labs (Affiliated to NUS)

08/2023-Present

[Design and Control of Manta Ray Robot] / Supervisor: Chew Chee Meng

- Designed a new type of buoyancy system and mass adjustment system for the Manta Ray robot.
- Improved original single-degree-of-freedom pectoral fin to dual-degree-of-freedom, enhancing controllability.
- Upgraded Arduino-based control system to include control of the buoyancy system and the pectoral fins.

**Related:** Python, Arduino, SolidWorks, Biorobotics

### Shaanxi Aircraft Design and Testing Technique Engineering Laboratory (Affiliated to NPU)

07/2020-09/2021

[Quadcopter Overall Design and Trajectory Re-planning] | Supervisor: Wang Ban

- Designed and made a quadcopter unmanned aerial vehicle (UAV).
- Studied the trajectory re-planning and obstacle avoidance of UAVs.

**Related:** MATLAB, XFLR5, Catia, Aerodynamics

## PATENTS

**A Kind of Vertical Take-off and Landing UAV Undercarriage** | Utility Model Patent

**UAV (used for scouting, intelligence gathering, monitoring, aerial surveying, etc.)** | Design Patent

## CONTEST & PRIZE(Selected)

- The "Huamo Cup" National College Students Flight Simulation Championship**

10/2022

[National Third Prize] | Buoyancy-lifting Multi-purpose Airship

- China International Internet+ College Students Innovation and Entrepreneurship Competition**

08/2021

[Provincial Gold Award] | UAV Routing Electric Power Inspection

## EXTRACURRICULAR ACTIVITIES

- NPU School of Aeronautics Student Union | **President**
- Photography Club | Member
- Three-Dimension Design Association | Member

04/2021-06/2022

10/2019-06/2023

10/2019-06/2020

## SKILLS

**Programming Language:** Python (Proficient), MATLAB (Proficient), C++ (Intermediate), Arduino (Beginner)

**Robotics Related:** ROS1 (Intermediate), Gazebo (Beginner), SolidWorks (Proficient), Catia (Intermediate)

**Others:** Latex, Tableau, Visio, Origin, Premiere Pro, SPSS, Photography