Xingyu **Zhou**

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EDUCATIONAL BACKGROUND

Northwestern Polytechnical University Sep. 2021 – Mar. 2024

Degree: *Master of Electronic Information Engineering*, **Average score: 90.14/100, Ranking: 20/143**

- **Graduation Thesis:** Research on Formation Coordination and Intelligent Aerial Combat Tactical Decision-Making Model
- **Core Courses:** Military Operations Research (98), Avionics System Simulation Test and Analysis (95), Avionics Integrated Systems (93), Mathematical Statistics (92), Matrix Theory (87)
- **Research interests:** Machine Learning, Deep Reinforcement Learning, Intelligent Systems, UAV, Control Systems

Xi'an University of Technology Sep. 2016 – Jun. 2020

Degree: *Bachelor of Electronic Information Engineering*, **Average score: 89.79/100, Ranking: 05/79**

- **Graduation Thesis:** Simulation of the Brain Storm Optimization Algorithm in Path Optimization Problems
- **Core Courses:** Digital Electronics (96), Signals and Systems (93), Higher Mathematics (92), Circuit Fundamentals (92), Communication Principle (92), Optimization Methods (90)

PUBLICATIONS & PATENT

[1] **Xingyu Zhou**, et al. "Evaluation of Autonomous Capability of Ground Attack UAV Based on Hierarchical Analysis Method." *International Conference on Autonomous Unmanned Systems*. Singapore: Springer Nature Singapore, 2022. DOI:org/10.1007/978-981-99-0479-2_97

[2] **Xingyu Zhou**, et al. "Improved Grey Wolf Algorithm: A Method for UAV Path Planning." *Drones*, 2024. (**SCI Q1 IF=4.8**) DOI:10.3390/drones8110675

[3] Bosong Chai, Xuan Nie*, Qifan Zhou, **Xingyu Zhou**. "Enhanced Cascade R-CNN for Multi-scale Object Detection in Dense Scenes from SAR Images." *IEEE Sensors Journal*, 2024. (**SCI Q1 IF=4.3**) DOI:org/10.1109/JSEN.2024.3393750

[4] Yang Liu, Jiandong Zhang*, Kaibo Zhang, **Xingyu Zhou**. "Research on Threat Assessment Method of Formation Cooperative Combat in a Complex Environment." *2023 8th International Conference on Computational Intelligence and Applications (ICCIA)*. IEEE, 2023. DOI:org/10.1109/ICCIA59741.2023.00019

[5] Jiandong Zhang, Qiming Yang, Zibing Du, **Xingyu Zhou**, et al. Evaluation Method for Autonomous Ground Attack Capability of UAV. (Patent No: CN202210605405.2)

RESEARCH PROJECTS

Formation Collaboration Intelligent Tactical Decision Model and Interoperability Design Apr. 2023 - Sep. 2023

Project led by Chengdu Aircraft Design Institute

- The project developed a UAV formation collaborative air combat decision-making system, simulating air combat scenarios of UAV formations.
- As the project leader, I formulated the overarching framework of the project, integrating **ADC and AHP** algorithms to analyze UAV attack effectiveness, achieving performance scoring in intelligent air combat. I utilized **BP neural networks** to solve missile engagement zones and employed **deep reinforcement learning algorithms** to complete the UAV air combat **decision-making model**, enabling UAVs to track and strike targets.

Integrated Communication Identification Simulation System Jun. 2022 – Apr. 2023

Project led by Shenyang Aircraft Design Institute

- The project designed a human-machine interface that enables communication between a comprehensive communication identification simulator and the core task processor bus.

- As the project leader, I used the **QT** platform to complete the **human-machine interface design**, enabling simulation parameter configuration. I designed the data encoding and decoding process based on data processing logic, implemented data storage, and enabled automatic parameter configuration by reading files.

Research on the Evaluation System of Autonomous Ground Attack by UAV Combat May. 2021 – Dec. 2021

Project led by China Flight Test Institute

- This project established an evaluation model and indicator system for the autonomous ground attack capability of UAVs and conducted simulations.
- I designed the **scoring structure** for UAV autonomy indicators and realized the simulation of the UAV ground attack evaluation scoring system based on the **AHP** method.

HONOURS AND AWARDS

Outstanding Graduate of Northwestern Polytechnical University Mar. 2024

Outstanding Postgraduate of Northwestern Polytechnical University (Twice) AY 2022-2023

Second Prize Scholarship of Northwestern Polytechnical University (Thrice) AY 2021-2023

"Zhixin Cup" Innovation and Creativity Competition by the Third Academy of Aerospace Nov. 2022

National Third Prize in the Technical Challenge Category

"Aoxiang Cup" Postgraduate Electronic Design Competition Jun. 2022

School-level Second Prize in the Technical Category

Outstanding Lecturer of Northwestern Polytechnical University Aug. 2022

Excellent Member of the Communist Youth League (Twice) AY 2022-2023

Outstanding Graduation Thesis at Xi'an University of Technology Nov. 2020

Annual Scholarship of Xi'an University of Technology Jan . 2020

Outstanding Student at Xi'an University of Technology Dec. 2019

Advanced Individual of Diligent Study at Xi'an University of Technology Dec. 2019

"Li'ao Cup" University Science and Technology Competition of Xi'an University of Technology Nov. 2018

School-level Third Prize

Outstanding Youth League Member at Xi'an University of Technology May. 2017

TECHNICAL SKILLS

- **Programming Language:** C, C++, MATLAB, Python.
- **Optimization Algorithms:** PSO, GA, BO, ACO, SA, GWO
- **Decision-Making Algorithm:** AHP, RL (DQN, DDPG, SAC)

OTHER EXPERIENCE

Academic Activities:

- Presented research findings and delivered an **English report** at the 8th International Conference on Computational Intelligence and Applications (ICCIA), 2023.
- Showcased research findings at the International Conference on Autonomous Unmanned Systems (ICAUS) in 2022.

Community Involvement:

- Served as the Head of the Academic Department of the Graduate Student Union at the School of Electronics and Information, Northwestern Polytechnical University, responsible for organizing academic exchange activities and writing press releases for various school events.
- Participated in volunteer activities, accumulating **170+ hours** of service, and was awarded the title of One-Star Volunteer in the 2022-2023 Star Volunteer Certification Results.