Xingyu **Zhou**

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EDUCATIONAL BACKGROUND

Northwestern Polytechnical University 2021/09 - 2024/04

Degree: *Master of Engineering in Electronic Information,* **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)
- **Awards:** Outstanding Graduates (2024), Second-class Postgraduate Scholarship (2021-2023), Excellent Postgraduate Student (2021-2023), Excellent Member of the Communist Youth League (2022), One-star Volunteer (170+ hours, 2022-2023)

Xi'an University of Technology 2016/09 - 2020/06

Degree: *Bachelor of Engineering in Electronic Information,* **Average score: 89/100, Ranking: 5/79**

- **Graduation Thesis:** Simulation of the Brain Storm Optimization Algorithm in Path Optimization Problems (Excellent Dissertation)
- **Core Courses:** Digital Electronics (96), Signals and Systems (93), Higher Mathematics (92), Circuit Fundamentals (92), Communication Principle (92), Optimization Methods (90)
- **Awards:** Annual Scholarship (2017-2019), Outstanding Student Award (2018), Excellent Member of the Communist Youth League (2017)

PUBLICATIONS

[1] **Xingyu Zhou**, et al. Evaluation of Autonomous Capability of Ground Attack UAV Based on Hierarchical Analysis Method (EI, ICAUS)

[2] Yang Liu, Jiandong Zhang*, Kaibo Zhang, **Xingyu Zhou**. Research on Threat Assessment Method of Formation Cooperative Combat in a Complex Environment (EI, ICAUS)(Accepted)

[3] **Xingyu Zhou**, et al. Design of UAV flight state recognition and trajectory prediction system based on trajectory feature construction, IEEE Sensors Journal (SCI Q1) (Under Review)

[4] Jiandong Zhang, Qiming Yang, Zibing Du, **Xingyu Zhou**, et al. Evaluation Method for Autonomous Ground Attack Capability of UAV (Patent No. ZL202205096301)

RESEARCH PROJECTS

Formation Collaboration Intelligent Tactical Decision Model and Interoperability Design 2023/04 - 2023/09

Project led by Chengdu Aircraft Design Institute

- The project developed a drone formation collaborative air combat decision-making system, simulating air combat scenarios of drone formations. The system mainly includes: situation assessment system, tactical control system, and tactical decision-making system. The main algorithms used are neural network algorithms, reinforcement learning algorithms, Bayesian networks, etc.
- During my second year of master's studies, I led team members to complete this project. In the course of the project, I learned to proficiently use the Python programming language and gained an understanding of cutting-edge artificial intelligence algorithms such as neural networks and reinforcement learning.

Integrated Communication Identification Simulation System 2022/06-2023/04

Project led by Shenyang Aircraft Design Institute

- A human-computer interaction interface for the 1553B (Aviation Onboard Bus Comprehensive System) was designed based on the QT platform, featuring encoding and decoding functionalities as per the 1553B bus protocol. The project utilized C++ language on the QT platform for the design of the human-computer interaction interface, ensuring the accuracy and integrity of data during transmission, reception, storage, and playback.

- As the student leader of the project, I oversaw and participated in the entire process. Throughout the project, I mastered the C++ programming language and became proficient in using the QT platform.

Research on the Evaluation System of Autonomous Ground Attack by UAV Combat 2020/11-2021/12

Project led by China Flight Test Institute

- The project evaluates the autonomous ground attack capabilities of unmanned aerial vehicles (UAVs), establishing an assessment model that includes multi-level evaluation indicators for UAVs. Utilizing the Analytic Hierarchy Process (AHP), the project established the weightings for the UAV ground attack capability indicators. Based on MATLAB, a GUI panel for scoring the autonomous ground attack capabilities of UAVs was designed, forming a more scientific and comprehensive assessment system for these capabilities.
- This project was the first I encountered in the early stages of my postgraduate studies. In the course of this project, I learned to proficiently use the MATLAB programming environment and established a theoretical framework in the field of UAV combat.

OTHER EXPERIENCE

Professional Skills:

- Expertise in intelligent optimization algorithms; project-specific modeling; and evaluation system development.
- Proficient in **C++** (client-side development), **Matlab** (simulation experiments), and **Python** (machine learning model training).
- Skilled in using **LaTex** for research paper writing.

Academic Activities:

- Participated in the 8th International Conference on Computational Intelligence and Applications (ICCIA) in 2023, where I presented my research findings and delivered a report in English within the specialized sessions on System Model Design and Intelligent Computing.
- Attended the 2022 International Conference on Autonomous Unmanned Systems to share industry views on the technologies of intelligent unmanned systems and present academic results related to unmanned systems modeling, control and estimation
- Engaged in the project "Research on Dynamic Planning Techniques for Distributed Cooperative Attack Paths", proposing planning the paths of multiple UAVs for different combat missions, improving the existing path planning algorithm to better meet the multi-UAV combat requirements, and applying for the Aeronautical Science Fund
- Served as the director of the Academic Department of the Graduate Union of the School of Electronics and Information, Northwestern Polytechnical University, organizing many academic exchange activities, such as the academic reports and exchange activity for doctors returned from overseas

Competition Awards:

- Second prize in the 2022 “Aoxiang Cup” Graduate Electronics Design Competition of Northwestern Polytechnical University
- Third prize in the category of Technology Breakthroughs of the 2022 CASIC “Zhixin Cup” Innovation and Creativity Competition for College Students
- Third prize in the 2018 “Li’ao Cup” Science and Technology Competition of Xi’an University of Technology