Jiangbo WANG

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Education

2024 – 2023 **Master. CY Cergy Paris Université** in Intelligent and Communicating Systems
Relevant Courses: *Parallel Computing, 5G MIMO, Wireless communication, uCOS Real-Time Systems, Autonomous Driving Sensors and Algorithms, Reliability of Digital Electronic Structures, IoT Energy-Saving Algorithms, FPGA*

2024 – 2022 **Engineering. ENSEA** in Electrical and Computer Engineering
Relevant Courses: *RF, Wireless Communication and Antennas, EMC, Component Noise Modeling, Communication Principles, Advanced Signal Processing, FPGA, Microelectronics, FreeRTOS, Linux Kernel Programming*

2022 – 2018 **Bachelor. Beijing Institute of Technology** in Automation

Research Publications

1 **J. Wang**, S. Zuckerman, and J. A. L. del Castillo, "Evaluation of multi-armed bandit algorithms for efficient resource allocation in edge platforms," in *Euro-Par: 30th International European Conference on Parallel and Distributed Computing*, 2024.

Awards and Honors

2021 **RoboCup Robot Soccer World Cup**. National Second Prize.

2020 **RoboMaster Robotics Competition**. National Second Prize.

2019 **World Cup for College Students' Computer Game Competition**. National Third Prize.

2018 **ACM international collegiate programming contest**. University Level Third Prize.

Internships

2024.3 – 2024.10 **5G Low Carbon Footprint Wireless Network Modeling** in ETIS lab
• Extracted the actual locations of 5G base stations from Cartoradio. Modeled the wireless network using stochastic geometry.
• Optimized network performance to maximize coverage while minimizing total energy consumption.
• **Preparing to publish a paper.**

2023.4 - 2023.9 **Development of satellite Flight Software** in Centre Spatial de Polytechnique
• Developed CAN, UART, and I2C bus IPs in FPGA, achieving and verifying communication between the onboard computer and different payloads.
• Use virtualization technology to virtualize the hardware to ensure the independent operation of different payload software.
• Developed key modules of flight software for the IonSat satellite on the onboard computer (I/O Management (IOT), Mode Management and Data Loading (MMDL), Command Control SoftWare (CCSW)). Hardware/Software Event Manager (HSEM).

Research Work

2023.10 - 2024.4

Integrated Multi-Armed Bandit Algorithm for Efficient Resource Allocation in IoT Clusters

• Implemented task allocation scheduling system using two widely used MAB algorithms: EXP3 (Exponential Weighted Exploration and Exploitation Algorithm) and UCB (Upper Confidence Bound), and built a simulation platform for testing.

• Constructed an actual distributed IoT cluster and developed OpenMPI parallel computing test programs based on NAS Parallel Benchmarks for practical testing.

2023.9 - 2024.1

Robot Combat Competition Based on FreeRTOS Real-Time System

• Selected chips and sensors, designed circuit diagrams, and created PCB schematics, completing the soldering of components.

• Based on FreeRTOS, acquired data from LiDAR sensors and controlled the robot to complete obstacle avoidance and tracking tasks, successfully competing in a robot contest.

2022.9 - 2023.4

Interpretability of Deep Learning Anomaly Detection Algorithms

• Implemented three anomaly detection algorithms: Autoencoder, BiGAN, and LSTM, and compared their anomaly detection performance.

• Developed three deep learning model interpretability algorithms: Macrobase, Exstream, and LIME, and compared their explanations of anomaly detection results.

2021.12 - 2022.7

Robot Formation Control Based on Reinforcement Learning

• Using the ROS system and traditional sensors, implemented dynamic obstacle avoidance and biaxial synchronous movement simulation for robot formations.

• Trained a lead robot to navigate through "S" shaped curves while leading a formation using deep reinforcement learning, specifically the Double Deep Q-Network (DDQN) algorithm.

2020.9 - 2021.7

Land Aircraft Carrier - Multi-Scenario Drone Landing Platform Design

•Simulated the creation of a multi-scenario drone landing platform using a legged robot as a carrier, based on technologies such as wireless charging, image recognition, and six degrees of freedom platforms.

• Second Prize in Beijing Science and Technology Competition.

Skills

Languages	Mandarin Chinese(Native), English (TOEIC 855/990), French(B2)
Electronic	RF, FPGA, Analog Analysis and Digital Analysis, Digital Communications
Coding	Linux, Python, C, C++, Java, MATLAB, Mathematica
A.I.	Deep Learning, Reinforcement Learning
Misc.	5G wireless communication, Automatic Control Theory, Digital IC design, Image processing, signal processing