Erzhizhi **HU**

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ACADEMIC BACKGROUND

A Sino-foreign Cooperative Education Program

Heriot-Watt University, UK (HWU) *09/2024-06/2025*

- **Major:** Robotics**; Degree:** Bachelor of Engineering (First Class Honours)
- **Teaching Language:** English

Ocean University of China, China (OUC) *09/2021-06/2024*

- **Major:** Computer Science and Technology**; Degree:** Bachelor of Engineering
- **AVG:** 86.07/100; **GPA:** 3.518/4.000
- **Teaching Language:** Chinese & English

The University of Manchester, UK (UoM) *09/2025-06/2026*

- **Major:** Robotics**; Degree:** Master of Science in Robotics (Pending)
- **Teaching Language:** English

- **Computer Skills:**
  Python (2 years), Java (2 years), C# (1 year), and C (1 year)
  VSCode (3 years), Eclipse(2 years), and VS (1 year)

PAPER & PUBLICATION

YOLOv10-based Model for Player and Football Detection *26/04/2024-30/07/2024*

First Author; Advisor: Hang LU (an associate researcher at Chinese Academy of Sciences)

- Focused on the advanced YOLOv10 model for my research, reviewed a great deal of literature, and identified my interest in addressing limitations in detecting tiny targets like players and soccer balls
- Optimized the model by upgrading its three-detector-head structure to a four-detector-head structure, and adjusted and optimized the head and backbone layers, enabling better performance in fine-grained target recognition
- Summarized my findings in a thesis which was accepted by Warwick Evans Publishing on 5 August 2024, and will be published in the ***International Journal of Computer Science and Information Technology***(ISSN: 3005-9682)

REAL-LIFE PRACTICE

Hangzhou Aodian Technology Co., LTD *01/07/2024-01/08/2024*

Operations Maintenance Intern; Department of Operations Maintenance

- Responsible for regularly inspecting the service and system security logs, maintaining the operations of monitoring systems, including hardware, system, and application, and adjusting server architecture to enhance security, stability, and efficiency
- Addressed performance issues on the live broadcasting platform, including resolving the slow loading of promotional photos, and handling the frequent lag that customers experienced in using

China Telecom, Changning Division *02/07/2023-09/08/2023*

Network Maintenance Technician; Department of Network

- Wrote batch scripts to automate network diagnostics and log collection
- Arranged training sessions on the basics of network and network troubleshooting for colleagues
- Comprehended the fundamentals and potential uses of SDN, evaluated its feasibility and benefits for the company's network, investigated its current application in the enterprise network, and partook in the preparation of relevant reports to provide reference for the department's upcoming technology planning

Sichuan Changning Economic Development Zone Management Committee *10/07/2022-25/08/2022*

Network Maintenance Technician; Department of General Affairs

- Examined, reconfigured, and maintained routers and switches regularly to boost network signal strength and ensure that every piece of equipment was functioning properly
- Routinely updated the existing firewall and security software and patched known vulnerabilities in accordance with departmental requirement
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SELECTED PROJECT

Coursework: **Coffee Shop Simulation** *02/2025-04/2025*

- Developed a multi-threaded coffee shop simulation system modeling customers, servers, and baristas with real-time GUI updates
- Implemented thread synchronization and online order prioritization using producer–consumer logic and atomic coordination
- Optimized queue management and runtime efficiency to ensure stable, deadlock-free concurrent performance

Dissertation: **The Effect of Levelling System on Video Games** *10/2024-05/2025*

- Designed and implemented a unified framework integrating three distinct level progression systems with varying complexity
- Conducted playtests with volunteer participants to observe player interaction and behavior under different systems
- Collected and analyzed feedback and performance data to evaluate each system's influence on engagement and overall gameplay experience
- Drew conclusions on how level design and progression structure affect player motivation and enjoyment.

Coursework**: An Autonomous Table Tennis Ball Collecting Robot** *03/2024-05/2024*

- Took a large number of images of table tennis balls and manually labeled their locations, based on which a YOLOv5 training dataset was assembled
- Developed the control logic for the robot so that it could autonomously navigate and collect table tennis balls, which was followed by rounds of test and optimization to solve the problems of path planning and obstacle avoidance and ensure stability and efficiency in actual operation
- Integrated the YOLOv5 recognition model with the robot control system and conducted several performance tests
- Adjusted the parameter identification and motion control based on the test results with the overall system performance and response speed significantly improved

Coursework: **Implementation of a Smart Cart Based on Raspberry Pi** *09/2023-01/2024*

- Created a menu-driven interface using Python
- Realized the real-time control of the cart using the infrared remote control module, and wrote and debugged the relevant code to ensure its stability and response speed
- Grouped all function modules into the main program, and tested and debugged it to enable the cart to perform tasks like patrol, remote control, obstacle avoidance

The 8th OUC 3D Printing Design Competition: **An Autonomous Combat Vehicle** *03/2023*

- Reviewed a large number of autonomous combat robot models and selected one as a blueprint for this contest
- Incorporated and enhanced many modules and optimized the selected model's dimensions and component interfaces to improve docking efficiency and ensure a more compact and robust structure
- Received an **Honorable Mention** at the intramural level in this contest

OUC Student Research Developing Program**: A Programme Specially Designed to Collect Target Information** *01/2023-10/2023*

- Built a web crawler in Python to crawl competition websites and used Regex and XPath to parse the notification information on varied competitions
- Optimized and debugged the code to improve the efficiency and stability of the crawler, added the support of multi-threading, and set the multiple-access frequency to ensure that the crawler could efficiently complete the task of crawling data in a short period of time
- Set proxy IPs and simulated manual operations to bypass anti-crawler techniques, such as IP blocking and CAPTCHA
- Rated **Good** at the intramural level