Zhangyi Hu

(86)17167189653 | Hzyi01xt@163.com
No.18, Tanxi Road, Xiangcheng District, Xiangyang City, Hubei Province, 441025, China

EDUCATION

Wuhan University **Wuhan, China**
School of Computer Science
Bachelor of Engineering in Computer Science and Technology **Sept. 2021-Jun. 2025**
Current Average Score: 91.049% **Current GPA:** 3.87/4.0
Scholarship: Wuhan University Hongyi Honor College First Class Scholarship (5%), 03/2023; **National Scholarship (3/162), 09/2022**; Wuhan University Excellent Student and First Class Scholarship (5%), 09/2022; Wuhan University Merit Student Award (10%), 09/2022; Freshman Admission Scholarship(top 5%), 09/2021

PATENTS

Zhiyong Gao, Yuhao Lin, Guozheng Zhang, **Zhangyi Hu**, Hao Luo, Haoping Tan, "Exhibition Remote Construction and Integrated Service System v1.0 Based on Corrugated Paper Model", Mar. 2023-May 2023, Register No.: 2023SR0581361

RESEARCH EXPERIENCE

Cross-modal Pedestrian Re-identification Based on Deep Learning and Multi-modal Data Integration and Interaction (RGB Images, Infrared Images, Text) **Jul. 2022-Present**
Sensing Intelligence and Machine Learning Lab
Independent Research Project | Supervisor: Prof. Mang Ye

COMPETITION EXPERIENCE

Third Award, China Mathematical Modeling Contest for College Students **Nov. 2023**
Writing code | Member: 3
- Aimed at studying the seabed paths surveyed by survey vessels
- Encountered two difficulties, one is the seabed is uneven and involves the intersection of flat and curved surfaces, the other is to ensure that the coverage overlap between the surveyed lines on both sides of two parallel line segments and the seabed intersection area is controlled within the range of 20% to 0%
- Chose a forth-order three-dimensional parametric surface equation to build the seabed surface model, utilized the Monte Carlo sampling method to Approximate integration and Calculate the overlapping area of the coverage area multiple times

First Award, China University Computer Design Competition (Central South Division) **Jun. 2023**
Writing code | Member: 5
- Completed most of the technical code-related tasks(80%), including the core aspects of the game such as game mission dialogues, asset management, mission movement, animation background, comic music scrolling playback control, mechanism triggering, monster movement logic, scene switching, and parkour mini-games within scenes
- Gained proficiency in Unity 2D game development and effectively demonstrated my leadership and teamwork skills

Second Award, Huazhong Cup Mathematical Modeling Challenge for College Students **May 1, 2023-May 3, 2023**
Group leader | Member: 3
- Analyzed the correlations between various pollutants and overall air quality data sets; Collaboratively conducted controlled experiments, identified the optimal experimental conditions to obtain the best parameters; Finally, based on historical pollutant data and overall air quality data, predicted the overall air quality for the next several days to even a dozen days

Second Award, CCFSinan Cup Quantum Computing Programming Challenge **Apr. 2023-May 2023**
Organized by the China Computer Federation
Writing code | Member: 5
- Used quantum gates to construct a multi-layer perceptron and conducted experiments to make predictions
- Responsible for adjusting the number of layers in the multi-layer perceptron, then plotting the results to observe the effects, and finally finding the optimal number of layers
- Learned to find answers through mature solutions; By applying mature solutions in classical programming, I designed an optimization loss based on the ultimate objective, then used it to optimize the multi-layer perceptron of quantum gates. Through straightforward ablation experiments, I found the optimal structure

Honorable Mention, The American Mathematical Contest in Modeling **Apr. 1st, 2023-Apr. 4th, 2023**
Organized by the National Science Foundation
Writing code and completing experiments | Member: 3
- Predicted the final price of a ship based on various attributes such as region and ship characteristics, accompanied by explanatory interpretations
- Retrieved relevant information from the World Bank and sailing sales websites, then cleaned and performed feature engineering on the data to obtain a directly usable dataset
- Used the Shap method based on game theory, analyzed the contribution of each attribute to the final price, then identified several key elements leading to a discontinuity in influencing factors, set a threshold to filter out other unimportant factors, and reduced computational complexity using PCA dimensionality reduction, restructured features by extracting the dimensions with the highest linear correlation, finally utilized ensemble learning method to simultaneously regress the original and augmented features through multiple regression models to obtain the final result

Third Award,China Internet + Innovation and Entrepreneurship Competition for College Students,University-level Nov.2023
Second Award, 2023 National English Writing Competition for College Students **Jun. 30th, 2022**

PROJECT EXPERIENCES

Tripo Travelling Journals APP Development **Sept. 2023-Dec. 2023**
Programming and Writing Project Release Presentation Slides | Member: 7
- Mastered the backend development process of web apps, the Django framework and the HTTP request protocol for web applications; Gained experience in AI application development and can now proficiently integrate statistical learning and even state-of-the-art large-scale model technologies into applications
- Gained a comprehensive understanding of the overall process of software engineering, and self-studied databases, computer networks, software engineering, artificial intelligence, and the industrial application methods of probability theory in the current software development process

Academic Studies about Logic and Artificial Intelligence **Aug. 3rd, 2023-Aug. 7th, 2023**
Summer Research Schooling in Jilin University
- Learned a general semi-structured formalism for computational argumentation
- Understood artificial intelligence based on symbolic and traditional logical methods

Fine Control System for a Multi-modal (visual, tactile, mechanical information) Robotic Arm Based on Deep Reinforcement Learning PPO Algorithm
- Learned the theory of reinforcement learning and related code frameworks from scratch, practiced and successfully referred to other people's baseline to explore the benefits of multimodal information on the dexterity control effect of a robotic arm

Heterogeneous Biological Information Modality Unified Clustering System
- Learned the basic processes and techniques of using machine learning methods for bioinformatics, and learnt about the relevant code base and more cutting-edge methods

Loongarch pipline CPU; Unity2D game; C++2D game; REID system

TECHNICAL SKILLS

Language: English (6.5), Chinese (native)
Computer: Python (proficient), C++/C/verilog (intermediate), html/markdown/C#/latex (beginner)
AI Research Tool: ChatGPT4 Claude Newbing Bard gpt-acdemic
ML/DL Framework: Pytorch, stable-baseline3&gym&pybullet
Backend Framework: django