Hao LIU

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EDUCATION

Imperial College London ***Sept 2025 - Sept 2026 (expected)***

MSc Environmental Data Science and Machine Learning

- Core Courses: Computational Mathematics, Advanced Programming, Big Data Analytics, Cloud Computing, Environmental Data, Inversion and Optimization

Guizhou University ***Sept 2021 - Jun 2025***

BEng Information Management and Information Systems

- Score: 91.82/100 (Year 3-4); 85.03/100 (Cumulative)
- Core Courses: Algorithm Analysis and Design, Object Oriented Programming, Linear Algebra, Statistics, Principles of Data Visualization, Machine Learning, Data Mining and Big Data Analysis

PUBLICATIONS

1. **Liu, Hao** & Qin, Xue. (2024). Target Detection of Safety Protective Gear Using the Improved YOLOv5. 6-13. 10.1109/CAIT64506.2024.10962947.

2. **Liu, Hao**. (2024). Comparative Analysis of Machine Learning Algorithms for Sales Forecasting in the Russian Toy Retail Sector. Advances in Economics, Management and Political Sciences. 128. 180-187. 10.54254/2754-1169/2024.18672.

RESEARCH EXPERIENCES

Target Detection of Safety Protective Gear Using the Improved YOLOv5 ***Aug 2023 – Jun 2024***

Researcher – Dr. Qin's Lab

- Conducted object detection research focused on safety protective gear recognition, utilizing and improving the YOLOv5 framework.
- Optimized model architecture and training strategies to enhance detection accuracy and robustness across diverse working environments.
- Prepared and cleaned large-scale annotated datasets, contributing to reproducibility and benchmarking of the improved YOLOv5 model.

Machine Learning for Retail Sales Forecasting ***Jun 2024 – Dec 2024***

Independent Researcher

- Collected and preprocessed historical sales data from the Russian toy retail industry for experimental analysis.
- Designed and implemented forecasting models using multiple machine learning algorithms, including Random Forest, XGBoost, and Support Vector Regression.
- Conducted a comparative study on prediction performance, identifying key factors influencing algorithm suitability in time-series forecasting.

Insect Pest and Disease Modeling Research ***Oct 2022 – Jun 2023***

Research Assistant – Dr. Qin's Lab

- Assisted in building experimental datasets through manual image annotation and data cleaning for agricultural pest detection.
- Reproduced and validated baseline deep learning models to support ongoing research in pest and disease identification.
- Contributed to the lab's methodological pipeline for agricultural image analysis and model benchmarking.

INTERNSHIPS

Shenzhen Lianrongyi Techology Co., Ltd **Shenzhen, China**

Intern of ERP Department *Dec 2022 - Feb 2023*

- Built dynamic dashboards for aluminum transport path analysis, enabling real-time decision-making for logistics optimization.
- Conducted data cleaning and preprocessing of transportation records to ensure consistency and reliability of ERP analytics.
- Assisted in developing decision-support tools to optimize logistics scheduling, reducing transport delays and enhancing supply chain efficiency.

HONORS & AWARDS

Third Prize of the 10th "Datang Cup" National College Student New Generation Information and Communication Technology Competition

SKILLS

- **Computer Skills:** Proficient in Python, C, C++, Java, maven, Vue, SQL, SPSS, PyTorch, Tensorflow, Office.
- **Languages Skills:** Native in Mandarin and Cantonese, Fluent in English.