Personal Resume

Jianqiao Xu

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Jianqiao Xu | *My Website*

Education Background

Sep 2020 – Jun 2024 **Nanjing University of Chinese Medicine / School of Pharmacy**
Bachelor of Science in Pharmacy

Self-taught in programming. Served as President of the university's Mathematical Modeling Association for two years, organizing competitions, skill training sessions, and related activities.

Sep 2025 – Present **University College Dublin / School of Computer Science**
Master of Science in Computer Science

Independently conduct research on algorithm design, operations research, combinatorial optimization and path planning algorithms.

Technical Experience

Languages: C++, Python, Java, JavaScript, HTML, CSS, XML, SQL
Frameworks: Spring Boot, Vue, Flask, React, SQLAlchemy
Databases: MySQL, Redis, SQLite
DevOps/Cloud: Docker, AWS, Nginx, Alibaba Cloud
Middleware & Tools: Microservices, Git
Platforms: Linux(Ubuntu/Mint), Windows

Work Experience

Jul 2023 – Aug 2023 **Algorithm Engineer (Intern)** Nanjing Xuesi Information Technology Co., Ltd.
The company's products focus on the field of intelligent manufacturing. During my internship, I was responsible for the design and development of steel part nesting algorithms, primarily modeling for shearing machines. I designed and implemented the nesting algorithm in **C++**, improving both raw material utilization and nesting speed. Developed a nesting algorithm for regular-shaped parts that achieved material utilization comparable to **SigmaNest** industrial software while operating faster. Also programmed a **CAD interface** to generate **.dxf cutting layout drawings**.

Sep 2024 – Aug 2025 **Software Engineer** Jiangyin Yong'an Property Management Co., Ltd.
Designed and developed the **Jiangyin River Cleaning Management System**, featuring a **Vue frontend** and **Spring Boot backend**. The software is currently in service at Jiangyin Yong'an Property Management Co., Ltd., providing intelligent management of river cleaning workers and boats, as well as automated generation and export of daily work reports.

Research Experience

Published 3 SCI papers as First Author, including **2 on algorithm design** and **1 on data analysis**.

Dec 2022 *Scientific Reports* **(IF: 3.8, JCR: Q2)** **First Author**
Published the paper *"Multi-objective steel plate cutting optimization problem based on real number coding genetic algorithm."*

This work focuses on **rectangular nesting algorithms**, achieving efficient nesting optimization for large combinations of small parts using a **genetic algorithm**. Conducted all experiments and paper writing independently. The project originated from post-competition research following the **2021 MathorCup College Mathematical Modeling Challenge**, in which I ranked **first place** and received a **research grant**.
DOI: 10.1038/s41598-022-27100-2

May 2023 *Science Progress* (**IF: 2.6, JCR: Q3**) **First & Corresponding Author**
Sole author of the paper *"Optimization of scheduling scheme for self-driving vehicles by simulation algorithm."*
The study proposed a **simulation-based optimization algorithm** for planning optimal freight schemes for autonomous transport vehicles. I independently completed all experiments and writing. The project originated from the **2022 Shenzhen Cup Mathematical Modeling Challenge**, where I achieved **second place** and received an **award**.
DOI: 10.1177/00368504231188617

May 2024 *Journal of Ethnopharmacology* (**IF: 4.48, JCR: Q1**) **Co-First Author**
Published the paper *"Determination and mechanism of Xiao-Ai Jie-Du decoction against diffuse large B-cell lymphoma: In silico and In vitro studies."*
Responsible for **correlation analysis** between formula ingredients and clinical syndromes in the research team. The project was part of my undergraduate advisor's research program.
DOI: 10.1016/j.jep.2023.117271

University Projects

During my undergraduate studies, I participated in several university-level innovation and entrepreneurship incubation projects. As a core team member, I was mainly responsible for **algorithm design** and **data modeling**, as well as promoting project implementation and presentation.

Oct 2021 – Jun 2022 ***Chinese Collegiate Computing Competition*** **Project Leader**
Project: "An Improved Reservation-Based A* Algorithm for Multi-AGV Spatio-Temporal Path Planning"
This project achieved the National **First Prize** in the *Chinese Collegiate Computing Competition*. Inspired by **Huawei's 2024 Code-Craft Software Elite Challenge**, the competition task involved conflict-free path planning for multiple auto-guided vehicles(AGVs) in a port environment, allocating pick-up tasks, transporting goods to designated locations, and maximizing scores based on cargo value within a limited time frame. In this project, I was responsible for algorithm design and visualization. I developed a **Multi-AGV Spatio-Temporal Path Planning algorithm** and utilized a **genetic algorithm** for task allocation in AGV-based picking operations.

Jun 2022 – May 2023 ***Chinese National Undergraduate Innovation and Entrepreneurship Training Program (National-Level Project)*** **Project Leader**
Project: *"Application of Intelligent Optimization Algorithms in the Biotransformation and High-Value Utilization of TCM Residues"*
This project applied **intelligent optimization algorithms** to optimize formulations combining TCM residues with animal feed. As the project leader, I was responsible for **project management**, **experimental design**, and **business model development**, with a primary focus on algorithmic experiments and guiding team members in wet-lab testing.
Published a core journal paper titled *"Innovative Application of Genetic Algorithm in Feed*

Formulation Optimization with TCM Residues" in *Feed Industry* (Dec 2022). The project was successfully completed in May 2023.

Dec 2023 – Jun 2024 ***Undergraduate Thesis (Outstanding Graduation Project, School-Level)*** **Project Leader**

Thesis: *"Prediction of Small-Molecule Drug Activity Based on Graph Neural Networks"*

The study designed a **Graph Neural Network (GNN)** model to predict the selective inhibitory activity of small-molecule drugs on JAK-1 and JAK-2 proteins. I independently established a **molecular structure–activity transformation framework**, converting SMILES strings into molecular graphs with atoms as nodes and chemical bonds as edges, assigning features based on atomic and bond properties, and employing multiple convolutional layers to expand the receptive field.

Collected data from public bio-databases and literature, trained the model, and compared its performance with the widely used **Chemprop** model. The proposed model achieved **significantly faster training and prediction** while maintaining **slightly higher accuracy**. Finally, I performed **virtual screening** on a large compound library.

Independently completed all **algorithm design**, **experiments**, and **thesis writing**.

Competition Experience

Participated in numerous computer science and algorithm-related competitions during undergraduate studies. Representative achievements include:

2025 Huawei Code-Craft Software Elite Challenge (Jiangshan Division) - *Second Prize* (Team ranked 8th nationwide)

2024 Huawei Code-Craft Software Elite Challenge (Jiangshan Division) – *Third Prize* (Team ranked 48th nationwide)

2023 Mathematical Contest in Modeling (MCM, U.S.) – *Finalist Award (F Award)*

2022 China Optics Valley · Huawei Cup · National Postgraduate Mathematical Contest in Modeling – *First Prize* (Ranked 1st for the assigned problem)

2022 Shenzhen Cup Mathematical Modeling Competition – *Second Prize* (Ranked 2nd for the assigned problem)