

YAOYAO QIAN

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<https://h-freax.github.io/>

EDUCATION

Northeastern University

Sep 2023 - present

Master in Information System

- GPA: 4.00/4.00

Wenzhou University of Technology

Sep 2016 - June 2020

B.Eng. in Computer Science

- GPA: 3.69/4.00 (Top 5%)
- Advisor: Dr. Xu Xu
- Thesis: Dynamic Simulation Model of Airport Taxi Optimal Allocation
- Relevant Courses: Python Programming (96), Java Language Programming (96), Linear Algebra (94), JavaScript Language (99), Web Applied System Development (97), Mathematical Modelling and Experiments (95)

RESEARCH EXPERIENCE

The Helping Hands Lab

Boston, MA

Research Assistant, Supervisor: Dr. Robert Platt

Nov 2023 - Present

- Keyword: Open World Manipulation With Planning, Grasping Learning, Equivariant Model

Wenzhou University of Technology

Wenzhou, China

Research Assistant to Dr. Xianming Wang

April 2020 - May 2020

- Analyzed impact factors of soccer teams strategies based on soccer game records.
- Conducted analytical modeling of contest records using social networks and degree centrality.
- The analysis of the Huskies and related soccer games revealed that teams were more focused on coordination and communication than individuals.

Institute of Modeling and Data Mining

Wenzhou, China

Research Assistant to Dr. Xu Xu

July 2019 - Dec 2019

- Collected shopping site reviews from Amazon using BeautifulSoup.
- Conducted sentiment analysis on the corpus using Textblob.
- Created a user profile of the commenters using Wordcloud.

Wenzhou Bopu Institute of Big Data

Wenzhou, China

Technical Leader, Supervisor: Dr. Xianming Wang

Sep 2018 - Jan 2019

- Conducted public opinion analysis based on news content crawled from Wenzhou News Network.
- Conducted Dictionary-based sentiment analysis.
- Implemented knowledge graph presentation by structuring a single news article.
- Used TextRank4ZH for news topic word extraction and topic “hotness” visualization.

MIE DEMO Studio

Wenzhou, China

Research Assistant to Dr. Huaqing Mao

April 2020 - May 2020

- Led the studio to recognition as a national innovation and entrepreneurship training program for college students.

- Initiated an online volunteer management platform for the existing party member volunteer system, optimized for mobile devices.
- Managed maintenance and optimization of studio projects, including server-side responsibilities, and contributed to project analysis and testing.

PROFESSIONAL EXPERIENCE

Zhejiang Chongxiao Zhong Han Medical Technology Co Hangzhou, China
Technical Manager May 2020 - Sep 2021

- Engineered a **Springboot+Vue electronic invoice system**, achieving **80%** operational efficiency improvement by integrating seamlessly with hospital processes.
- Developed a **VC++ Database Integration tool**, enhancing data migration efficiency between Access and Oracle by **30%**.
- Spearheaded the **Collaborative Management System** project, implementing **Vue, Springboot, Redis, and MySQL**. Conducted comprehensive demand analysis and prototyping, leading the team through development phases. Achieved a **40% improvement in operational workflows**, significantly **reducing decision-making times** across departments.

PROJECTS

Robotics & AI Innovations Boston, MA
Leadership in efficiency & accuracy advancements Nov 2023 - Present

- Contributed to integrating **LLMs** in **"Open World Manipulation with Planning,"** enhancing robots' ability to adapt and make decisions in dynamic environments.
- Implemented an **Equivariant DQN** in CartPole, achieving a **50% reduction in training time**, leveraging **state and image inputs**. Documented the approach in a **peer-recognized blog** on enhancing DQN with equivariant models.
- Engineered an advanced robotic grasping model with **SE(2) and safe-z prediction**, **doubling development efficiency** by reducing required training epochs from 600 to 300.

Ming Law Hangzhou, China
Independent Project May 2023 - Sep 2023

- Developed a **legal analytics platform**, employing **asynchronous crawling** and **BERT** for news classification with **95% accuracy**, and **D3.js** for **interactive visualization** of trends.
- Enhanced legal document integrity by integrating **Mengzi-T5-CSC** and **MacBert-CSC** for comprehensive **text corrections**, and fine-tuned AI models for **accurate legal advisories** using extensive legal databases.

Entity Recognition for Product Names Hangzhou, China
Independent Project Mar 2022 - Apr 2022

- Conducted Named Entity Recognition (NER) on JD.com product titles in specific categories
- Utilized **'Chinese BERT with Whole Word Masking'** as the pre-trained model, implemented **FGM (Fast Gradient Method)** attack model, and employed **GlobalPointer** for decoding
- Achieved an **accuracy of 80.9%** on the test dataset

Molecular Translation Hangzhou, China
Independent Project (Kaggle 88/874, top11%) April 2021 - May 2021

- Converted images back to the underlying chemical structure annotated as InChI text.
- Implemented a neural network with **ResNet101d** encoder and **Transformer** decoder

- Confirmed model accuracy with average edit distances of **6** on the validation set and **1.88** on the test set

PUBLICATIONS & PATENTS

- **Yaoyao Qian** and Xianming Wang, “Analysis of Football Game Performance Based on Social Network,” Proceedings of the 2022 International Conference on Artificial Intelligence, Internet and Digital Economy (ICAID), 2022.
- **Yaoyao Qian**. 2019. Arrival management device of new energy vehicle. CN Patent 201811144318.1. Issued March 08, 2019.
- **Yaoyao Qian**. 2018. Auxiliary construction terminal for construction worker. CN Patent 201810682890.7. Issued November 27, 2018.
- **Yaoyao Qian**. 2018. Convenient and fast type automobile solar protection device. CN Patent 201810489253.8. Issued October 19, 2018.
- **Yaoyao Qian**. 2018. Dual-purpose grabbing device with good supporting property for automobile tire. CN Patent 201810490339.2. Issued October 19, 2018.
- **Yaoyao Qian**. 2018. Tire leakage speed detecting device. CN Patent 201810489850.0. Issued September 28, 2018.
- **Yaoyao Qian**. 2018. Fireproof wireless base station. CN Patent 201810108827.2. Issued September 04, 2018.
- **Yaoyao Qian**. 2018. Clothes conveying device based on big data of fitting room. CN Patent 201810056907.8. Issued June 01, 2018.

AWARDS AND HONORS

- the travel award to the William & Mary Computer Science Symposium in Williamsburg, Virginia, 2023
- Distinguished Employee, Zhejiang Chongxiao Zhong Han Medical Technology Co, 2020
- Outstanding Graduates of Zhejiang Province (5%) ,2020
- Gu Chaohao Scholarship (1 out of 8773, 0.01%), Wenzhou University, 2020
- University Student Science and Technology Innovation Star (1 out of 8773, 0.01%) , Wenzhou University, 2020
- Honorable Mention Award, Mathematical Contest In Modeling (MCM), 2020
- Meritorious Winner, Mathematical Contest In Modeling (MCM), 2019
- Third prize (two times), Zhejiang Province E-commerce Competition, 2018-2019
- First Prize, 12th National Student Electrical and Mathematical Modeling Competition, 2019
- Zhejiang Provincial Government Scholarship (3%), 2017-2019
- Outstanding student leaders, Wenzhou University, 2017-2019
- First Class Scholarship (5%), Wenzhou University of Technology, 2016-2019