

Ruolin (Catherine) Hao

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Education

University of Michigan, Ann Arbor, MI, USA May 2023 (expected)

- **Major:** Master of Science in Information, focus in Data Science and Analytics | **GPA:** 3.98/4.0

Sun Yat-sen University, Guangzhou, China

Jun 2021

- **Major:** Bachelor of Science in Geographic Information Science | **GPA:** 3.8/4.0
- **Minor:** Bachelor of Arts in English | **GPA:** 3.9/4.0

- **Scholarship:** Third-class Scholarship for Outstanding Student

Oct 2018

Coursework

Data Mining, Applied Machine Learning, Data Manipulation and Analysis, Applied Data Science, SQL & Databases, Database Application Design, Information Visualization, Information Retrieval, Web Design, Data Structure

Skills

- **Programming Languages:** Python, SQL, VBA, C, C++, JavaScript, HTML, CSS, R, Java
- **Software:** SQL Server, MySQL, Excel, Tableau, MATLAB, Mathematica, SPSS, PostgreSQL

Experience

Graduate Student Instructor | SI 206 Data Oriented Programming, Ann Arbor, MI, USA Winter 2023

- Design and revise coursework and teaching materials focused on Python and Databases
- Lead 2 hands-on discussion sections weekly and guide students through programming exercises
- Hold 4+ office hours each week and moderate Piazza to answer questions on course content

Data Analyst | Greenwich Commodities LLC, Troy, MI, USA

Summer 2022

- Realized task automation of data crawling, processing, updating, and maintaining databases
- Developed an interactive XLSM application to visualize National Weather Service data
- Predicted solar and wind plants generation for day-ahead scenarios using machine learning techniques

Data Analyst | Founder International Software Co., Ltd., Beijing, China

Summer 2020

- Conducted requirement analysis in database design of Intelligent Railway Project
- Organized brainstorming workshops among interns, tracked project status and provided feedback

GIS Data Analyst | SuperMap Software Co., Ltd., Harbin, China

Spring 2020

State Key Laboratory of Resources and Environmental Information System

- Acquired the use of Supermap iServer to process geographical data and conducted visualization

Projects

Mining Trading Signals among High Market Capacity Stocks in Nasdaq

Fall 2022

(https://catherine-hao.github.io/personal-website/images/stock_proj_poster.png)

- Accessed stock price time series data with more than 5 billion market capacity via MarketStack API
- Conducted feature engineering based on trading signals, such as K-line patterns, Moving Average, etc.
- Ranked and demonstrated the predictive power of signals using Decision Tree and T-Test

Solar and Wind Plant Day-ahead Power Generation Forecast

Summer 2022

- Applied multiple Machine Learning models, and selected the optimal linear regression model
- Built and maintained databases for National Weather Service data and PJM power plant generation data
- Visualized the daily trend of generations using folium and provided insights for future market price

U.S. Electric Vehicle (EV) Market Dashboard

Winter 2022

(<https://public.tableau.com/app/profile/ruolin.hao/viz/SI649FinalProject/Dashboard1?publish=yes>)

- Developed a website presenting EV's geographic distribution and holding rate with Tableau Public
- Examined the patterns of EV market share and contributed to the decision-making to consumers

Used Cars Search Engine for Wolverines

Fall 2021

(medium.com/@haorlin/for-all-wolverines-heres-a-used-car-recommendation-system-just-for-you-2ded8d699f3d)

- Applied BeautifulSoup library to scrape used cars and their complaints data from Carfax and NHTSA
- Retrieved most relevant results using improved BM25 score and Learning to Rank approaches
- Utilized TextRank algorithm to extract keywords of car model reviews; displayed with word clouds

Extracurricular Activities

- Minister of Research Dept., Students' Union, Sun Yat-sen University

Sep 2017 - Jun 2019