

Yiqiao Wang

Chicago, IL | (651) 363-5740 | yiqiao1@uchicago.edu | [linkedIn](#)

EDUCATION

University of Chicago, M.S. in Computational and Applied Mathematics, Expected Dec 2024 **Chicago, IL**
Courses: Machine Learning, Modern Applied Optimization, Stochastic Processes, Monte Carlo Simulation
Macalester College, Bachelor of Arts (GPA: 3.94/4.0), May 2023 **St. Paul, MN**
• Courses: Topology, Mathematical Statistics, Data Structures, Mathematical Modeling, Computational Linear Algebra
• Awards: Dean's List (Fall 2021, Spring 2022)

SKILLS

Programming Languages: Matlab, R, Python, Java, C++, SQL, Ripser, HTML, CSS
Analysis Skills: Time Series Analysis, Multiple Regression Models, Support Vector Machines, Optimization, SVD and PCA, Agent-based modeling, Topological Data Analysis
Other Skills: Figma, SquareSpace, A-Frame, Prototype and Product Design; Familiarity with Machine Learning libraries/frameworks (e.g., TensorFlow, PyTorch)

INTERNSHIP EXPERIENCE

Natural Science, LLC **Big Rock, IL**
Business Analyst Intern **Jun 2024 - Sep 2024**
• Gathered industry data to uncover trends, demand shifts, and competitor strategies for MAT™ technology.
• Applied ML algorithms (regression, time series forecasting, classification) to predict market behavior with validated models.
• Performed **equity valuation** through Discounted Cash Flow (DCF) and comparable company analysis, crafting funding strategies aligned with the company's financial objectives.

Xiyu Private Equity Fund Management Co., Ltd. **Nanjing, China**
Quantitative Data Analyst **Jun 2023 - Aug 2023**
• Analyzed macroeconomic data using Python and MATLAB to identify correlations with market behavior, guiding strategic portfolio decisions for major asset classes and resulting in a 15% increase in annual returns.
• Conducted analysis of target funds, back-tested and implemented trading models and signals, achieving a 10% increase in portfolio returns by fine-tuning parameters within an existing trading model and optimizing asset allocation strategies.

MacProject Corps Program (Virtual), Career Exploration **MN**
Web Developer Intern **Jan 2022**
• Collaborated to promote the Career Development site and the training framework for the City of St. Paul, grounded on the idea of diversity, inclusion, and equality.
• Engineered a dynamic Career Development intranet site on Squarespace, enhancing user experience and engagement; crafted a comprehensive communication strategy with draft emails and social media posts to bolster team connectivity.

RESEARCH & PROJECTS

Topological Data Analysis for Emotion Recognition
• Extract facial landmarks and perform *Delaunay Triangulation* for 2K inputting images.
• Utilized **R** and **Python** to calculate persistent entropy based on knowledge from *persistent homology*.
• Trained machine learning models to classify emotions from the AffectNet dataset, tuned the hyperparameters of the **XGBoost** model to get an accuracy of 75%.

Integer Linear Programming Optimization of Crew Scheduling Problem
• Addressed the legalistic issue by optimizing routes, disassembled flight schedules from four major U.S. airports, and formulated an **ILP** problem using a **Set-Covering Model**, reducing potential crew scheduling conflicts by 30%.
• Utilized **MATLAB** to solve the integer programming problem, achieving a 20% reduction in crew costs while adhering to the specified constraints.
• Authored a research paper accepted for publication at the International Conference on Business and Policy Studies (CONF-BPS 2023).

PCA in Breast Cancer Classification
• Employed the **Min-Max scaling** method to preprocess the data.
• Applied **PCA** to the Breast Cancer Gene Expression dataset obtained from CuMiDa to discern principal variables.
• Conducted classification using pre-trained models from the **AutoGluon package**, resulting in an impressive accuracy of 91.67% on the validation set and 87.09% on the testing set.

Performance Data Analysis For Wordle Dataset
• Conducted exploratory data analysis for over 400 solution words, performed data preprocessing, and employed **Dynamic Programming** and **GloVe** for semantic analysis.
• Utilized **XGBoost** and **LSTM** for result prediction, achieving a 43% reduction in MSE with LSTM over XGBoost.
• Designed a novel XGBoost model with a 4th-order polynomial curve, improving prediction accuracy and reducing error margin to 5%.
• Applied **k-means clustering** for word difficulty, using **Elbow Method** and **Silhouette plot** for optimal clusters, enhancing insights into gameplay dynamics.