Fangqing Yuan | yfqcrazy@gmail.com

EDUCATION

University of Michigan, Ann Arbor, MI, USA Aug 2021- Dec 2024

***Master** of Data Science*

- **Capstone:** Impact of Ranking-Boosting Strategies in Friend Recommender Systems on User Activeness in Social Networks
- Course Highlights: Regression and Data Analysis, Data Mining and Statistical Learning, Natural Language Processing, Survey and Sampling Theory, Time Series Analysis, Data Manipulation and Analysis

Libera Università Internazionale degli Studi Sociali "Guido Carli" (LUISS), Rome, Italy Sep 2018 - July 2021

***Bachelor** of Science in Management and Computer Science*

- **Full Merit Scholarship**, Graduated **110/110 Cum Laude**
- Course Highlights: Algorithms and Data Structures, Statistics and Probabilities, Social Network Analysis, Database and Big Data, Data Analysis, Machine Learning, Business Analytics, Finance, Micro/Macroeconomics
- Visiting Student | **Stanford University (International Honors Program)** | **GPA: 3.88/4.00** Summer 2020
- Erasmus Exchange | **Katholieke Universiteit Leuven (KU Leuven)** Fall 2020

SKILLS AND LANGUAGES

GITHUB: HTTPS://GITHUB.COM/FREDFREDDO

- **Programming:** Python, R, SQL, C++, MATLAB
- **Research & Methodology:** Causal Inference, Bayesian Statistics, Time Series Analysis (ARIMA, POMP), A/B Testing, Experimental Design, Survey Methodology, Social Network Analysis, Game Theory
- **Machine Learning & Deep Learning:** PyTorch, TensorFlow, Keras, XGBoost, Scikit-learn, SciPy
- **Generative AI & NLP:** Large Language Models, Transformers, Text Mining, Sentiment Analysis, Prompt Engineering
- **Data Engineering & Cloud:** Spark, Hadoop, Hive, Kafka, Docker, Git, AWS, Azure, NoSQL
- **Data Processing, Analysis, Visualization:** Pandas, NumPy, Matplotlib, Seaborn, Streamlit, Tableau, Web Scraping
- **Languages:** English, Italian, Chinese

RESEARCH EXPERIENCE

Impact of Ranking-Boosting Strategies in Friend Recommender Systems on User Activeness in Kuaishou Social Networks

University of Michigan | Master Degree Capstone Thesis Oct 2023 – Apr 2024

- **Experimental Design:** Conducted a large-scale Randomized Controlled Trial (A/B Test) to evaluate new ranking-boosting algorithms for friend recommendations
- **Causal Inference:** Applied an Instrumental Variable (IV) framework to estimate the Average Treatment Effect, correcting for non-compliance (low follow-back rate)
- **Results:** Demonstrated a statistically significant increase in 7-day user retention (Lifetime-7) of 0.29 days (SE: 0.06)
- **Heterogeneity:** Utilized Causal Forests to uncover Heterogeneous Treatment Effects, finding that low-activity users were significantly more sensitive to social recommendations than high-activity users.

Regression Analysis of Contract Bridge Hand Evaluation and its Application on Bidding

LUISS Guido Carli | Bachelor Degree Thesis Jul 2021 – Oct 2021

- **Simulation & Data Generation:** Generated a synthetic dataset of 100,000 customized random deals to analyze the statistical correlation between hand patterns and winning potential, addressing data scarcity and accuracy in real-world records
- **Model Optimization:** Applied Linear Regression to derive optimized weight coefficients for high cards (A, K, Q, J), challenging the traditional "Milton Work" heuristic (4-3-2-1) used for No-Trump contracts
- **Performance Benchmarking:** Benchmarked the new model-derived method against the industry-standard High-Card-Point (HCP) method; achieved a statistically significant performance gain of +20 points per board (+1 IMP)

SELECTED ACADEMIC PROJECTS

Stochastic Modeling of MERS-CoV Transmission Dynamics | Time Series Analysis | University of Michigan

- **Hidden Markov Modeling:** Developed a stochastic SEIRS compartmental model to simulate transmission dynamics within camel populations, explicitly modeling the zoonotic spill-over mechanism that drives ~25% of primary human cases
- **Statistical Inference:** Implemented Maximum Likelihood Estimation to estimate a Basic Reproduction Number ($R_0 \approx 0.26$)

and constructed Profile Likelihoods to rigorously constrain the camel-to-human Spill-over Rate

- **Model Validation:** Benchmarked the model against an ARMA time-series baseline; the SEIRS model demonstrated superior performance in capturing extreme outbreak peaks and irregular epidemic waves

Native Language Identification on the ICNALE Corpus | Natural Language Processing | University of Michigan

- **Feature Engineering:** Processed English learner essays to engineer high-dimensional linguistic features, including TF-IDF of N-grams, Part-of-Speech (POS) tags, and lexical diversity metrics
- **Model Development:** Developed multi-class classification models to predict a writer's native language
- **Linguistic Analysis:** Analyzed discriminative features to identify "L1 Transfer" effects and educational difference

WORK EXPERIENCE

JD Framework Solutions, Inc. | Data Science Intern **|** Jacksonville (remote) Apr 2025 – Feb 2026

- **Assisted** with data processing, analysis, and database engineering using Python, SQL
- **Supported** machine learning model development, training, and evaluation

Institute for Social Research, University of Michigan | Graduate Research Assistant | Ann Arbor May 2024 – Aug 2024

- **Collaborated** in developing IVEware software, a data imputation tool that may interact with R, SPSS, SAS, STATA
- **Implemented** a Gradient Descent optimization algorithm via C++ to solve Ordinal Regression problems
- **Applied** Multiple Imputation by Chained Equations (MICE) to handle missing values in social and biostatistical datasets

Kuaishou Technology | Machine Learning Engineer Intern | Beijing Aug 2023 - Dec 2023

- **Core Task:** Designed and implemented user relationship recommendation strategies for 400 million users by C++ and Java
- **Real-Time Engineering:** Deployed event streaming pipelines using Kafka and hive, enabling real-time detection, extraction, and petabyte-scale analysis, reducing inefficient user recommendations by 10%
- **Production ML:** Optimized the "Uplift" model with budget constraints, increasing treatment conversion by 5% and user retention by 10% in A/B production tests
- **Business Intelligence:** Automated the generation of insights reports, empowering data-driven decision-making

Shanghai Gold Exchange | Data Analyst Intern | Shanghai (remote) Jun 2020 - Sep 2020

- **Data Collection:** Developed a Python web crawler to aggregate 10 years of gold market data from disparate sources
- **Time Series Analysis:** Conducted comparative analysis of precious metals markets to identify pricing trends and volatility

Informatics Olympiad training camp, LUISS Guido Carli | Tutor and Teaching Assistant | Rome Apr 2020 - Oct 2020

- **Instruction:** Tutored 100+ high school and college students in Algorithms & Data Structures and C++ programming
- **Curriculum Design:** Prepared weekly exercises, created 30+ algorithmic problems, and managed the online contest platform
- **Outcome:** 46% (25/54) of Italian Olympiad Medalists that year were graduates of this training program

LEADERSHIP AND AWARDS

Competitive Programming

- **Fastest Problem Solver:** ICPC Southwestern Europe Regional Contest (Team Luiss), 2021
- **Top 30 Finish:** Ranked 28th/100 in ICPC Southwestern Europe Regional Contest, 2020

Bridge Life Master

- **Championships**
  - **Champion:** China Youth Bridge Team Championship (2017)
  - **Runner-up:** Asian Bridge Congress, youngster group (2016)
  - **3rd Place:** Junior United States Bridge Championship (2022 & 2024)
  - **World Finalist:** World Youth Bridge Team Championship (Representing China)
- **Captain** of high school and junior national team, Lecturer and Mentor to bridge clubs and online platform (10000+ views)
- **Algorithmic Research:** Applied data analytics to assess bidding strategies in Multi-agent Game with Asymmetric Information

WeResQ | **Co-founder** | Stanford & London Jun 2020 - May 2021

- **Led** a cross-functional international team to create a household food optimization app aiming to fight global food waste
- **Conducted** market analysis and user surveys to drive product features