RYAN MINGHAO ZHAO

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EDUCATION

University of California San Diego — La Jolla CA
B.S. in Mathematics (Applied) and B.A. in Economics — September 2022 - Present
GPA : 3.92/4.00, Awarded with Phi Beta Kappa and Provost Honors
Queen's College (Hong Kong) — September 2016 - July 2022

EXPERIENCE

UCSD Undergraduate-Graduate Economics Research Lab — La Jolla CA
Research Assistant, Supervisor: Philip Hoxie — Jan. 2024 - Present

- Constructed a time-series dataset that showed the production levels of more than 50 crops in the US during 1970 to 2022. As well as the average price and revenue generated for each crop.
- Used R to perform time-series methods, testing for stationarity, structural breaks and plotting graphs.
- Utilized R, and STATA to perform data cleaning, statistical inference and fixing corrupted files.
- Collaborated with 2 research assistants to review historical literature on labor policies, military stationing.
- Supervised 2 other research assistants in data collection, visualization and instructed R-coding.
- Gained proficiency in machine learning methods including Ridge, LASSO, Cross-Validation and KNN.

UCSD Department of Economics — La Jolla, CA
Undergraduate Instructional Assistant for Dr. Gordon Dahl & Dr. Meredith Crane — Sep 2024 - Present

- Facilitated the instruction of Intermediate Microeconomics (100B), Econometrics (120B) and Stata coding.
- Performed regular academic duties such as exam proctoring, grading and responding to student inquiries.
- Led 3 office hours per week and a 2-hour review session before midterms to support student's learning.
- Received excellent reviews from 90% of the Student Evaluation of Teaching respondents (SETs).

UCSD Department of Mathematics — La Jolla, CA
Undergraduate Grader/Reader and Tutor for Dr. Jason Schweinsberg & Dr. Andrew Suk — Jan 2024 - Present

- Graded more than 300 weekly Probability homework and Exam papers
- Taught courses ranging from Pre-Calculus, Calculus, Linear Algebra, and Probability.
- Facilitated the instructional team with exam grading, proctoring and organizing weekly office hours.

Agricultural Bank of China (Hong Kong Branch) Credit Department — Hong Kong, China
Intern, Credit Department — Jul 2024 – Aug 2024

- Supervised by the credit department staff and gained proficiency towards the fundamental process of issuing loans, such as drafting credit proposals and researching company performance statistics
- Analysed more than 60 credit proposals to monitor the client's credit score and overall performance
- Conducted research on government policy changes on various clients and evaluate their repayment abilities.

Project in a Box (PiB) — La Jolla CA
Minister of Finance, Event Coordinator — Jul 2024 – Jun 2025

- Collaborated with other campus clubs and organized at least 2 joint club events per semester.
- Hosted more than 30 events per year, and each event had around 30-40 attendees.
- Managed event logistics including but not limited to filling event approval forms and managing the budget

PROJECTS

UCSD MATH 111A (Advisor Dr. Pearson Miller) — Apr 2025 - Jun 2025
A Dynamical Analysis of College Admissions

- This project builds upon the research done on studying the College Admissions Problem, using game theory and replicator dynamics we predicted the outcome of college admissions in a time-continuous framework.
- Simulated the possible outcomes of admissions using systems of ordinary differential equations in R.
- Classified the possible outcomes in terms of stability using fixed point analysis of ODEs.

UCSD ECON 110BH (Advisor: Dr. James Hamilton) Jan 2025- Mar 2025
Monetary Policy Framework Analysis of the European Central Bank (ECB)

- Researched a general monetary policy framework of the ECB in the last 20 years.
- Provided recommendations for the ECB in formulating future monetary policies.
- Presented a 16 page report evaluating the effectiveness of the ECB's monetary policies

UCSD ECON 120BH (Advisor: Dr. Gordon Dahl) Jan 2024–Mar 2024
Estimating Causality Between Race and Earnings

- Conducted a research project that explored the causal relationship between race and earnings by analyzing the wage gap between black and white workers over the Great Recession.
- Utilized Stata to construct and clean a dataset with more than 7000 observations, and performed standard econometric analysis such as OLS regressions, hypothesis testing, and a Difference Indifference test.

UCSD ECON 178 (Advisor: Dr. Ying Zhu) Jul 2024 – Aug 2024
US Total Wealth Prediction Project

- Formulated 5 prediction models to forecast the total wealth of US individuals using programming in R.
- Methods used include feature selection, polynomial regression, LASSO regression, rigid regression.
- Adopted machine learning techniques to improve and compare the prediction accuracy of various models.

UCSD ECON 112 (Advisor: Dr. Giacomo Rondina)
The Impact of Monetary Policy on Wyoming's Economic Activity Aug 2024 – Sep 2024

- Analyzed causality between monetary policy and GDP growth, unemployment rate in Wyoming State.
- Implemented time-series models (Moving averages and vector auto-regression), and plotted impulse response functions, time series graphs/ data visualization to measure causality between variables using R.

RELEVANT COURSEWORK

Mathematics

- Numerical Linear Algebra, Optimization Methods for Data Science, Linear and Non-linear Programming, Probability and Stochastic Processes, Real Analysis, Computational Statistics, Mathematical Modeling, ODEs for Dynamic Systems

Economics

- Machine Learning for Economics and Business, Macroeconomic Data Analysis, Intro to Research in Economics, Applied Econometrics and Data Analysis, Intermediate Microeconomics, Honors Microeconomics, Honors Macroeconomics, Honors Econometrics

Computer Science and Data Science

- Principles of Data Science (Python), Data Science in Practice, Accel. Intro to Programming (Java)

ADDITIONAL SKILLS

- R, Stata, Python, Java, Matlab, GitHub, LaTex, MS Office (Word, Excel, PowerPoint)
- Fluent in Mandarin (native), Cantonese (native) and English (oral & written)

RESEARCH INTEREST

- Operations Research, Statistical Learning, Econometrics, Health Economics
  (Interest in pursuing further Ph.D. studies)