

RYAN MINGHAO ZHAO

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EDUCATION

Queen's College (Hong Kong)

September 2016 - July 2022

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

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 metrics, testing for stationarity, structural breaks and plotting graphs.
- Utilized R, and STATA to access online datasets from Slave PUMS and extracted data on the total number of slaves and soldiers in each Texas county during the Texas Reconstruction Period (1850 and 1860).
- Collaborated with 2 other lab members to review online historical literature on Texas Reconstruction labor policies, military stationing, and summarized them in a 5 page memo.
- Supervised 2 other research assistants in data collection, visualization, memo writing and instructed R-coding.

UCSD Department of Economics

La Jolla, CA

Undergraduate Instructional Assistant for Dr. Gordon Dahl & Dr. Meredith Crane

Sep 2024 - Present

- Instructed 200 undergrads 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

RESEARCH 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, ridge 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

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

- MS Office (Word, Excel, PowerPoint) R, Python, Java, Stata, Matlab (Time-series metrics, Economic forecasting, causal inference, data visualization, Numerical Analysis and Optimization), LaTeX
- Fluent in Mandarin (native), Cantonese (native) and English (oral & written)

FIELD OF INTEREST

- Computational Biology, Data Science in Healthcare (**Interest in pursuing further Ph.D. studies**)