Guanghong Xu

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Summary

Economics Ph.D. candidate specializing in Causal Inference, Machine Learning, Econometrics, and Bayesian Statistics
4 years of industry experience using analytics to solve business problems, coding (Python, R, SQL), and statistical analysis

Technical Skills

Causal Inference & Experimentation: A/B Testing, Observational Study Designs, Instrumental Variable (IV), Diff-in-Diff, Regression Discontinuity Design (RDD), Double ML, Synthetic Control, Policy Impact Evaluation
Data Modeling & Machine Learning: Bayesian Statistics, Time-Series Analysis, Random Forests, Support Vector Machines, Lasso/ElasticNet Regression, Clustering (K-Means, GMM)
Certifications: Financial Risk Manager (**FRM**) – Both Levels, Chartered Financial Analyst (**CFA**) – Level I
Programming & Data Tools: Python, SQL, R, MATLAB, STATA, Stan, SurveyCTO, ODK, GIS, Power BI, Tableau, LaTeX

Data Science Projects

MilkChain | *Python, R, STATA, Machine Learning, Bayesian Models, A/B Testing* Aug. 2021 – Dec. 2024

- Led a cross-functional team of software engineers, data analysts, and field coordinators to develop a digital traceability system monitoring milk movement across 1,200+ farmers, intermediaries, and retailers in Kenya's dairy supply chain
- Designed and implemented machine learning models (Lasso, ElasticNet) in Python to predict milk quality, applying data preprocessing, feature selection, and hyperparameter tuning to optimize model performance
- Developed Bayesian hierarchical models using Markov Chain Monte Carlo (MCMC) algorithms in R, achieving 90%+ prediction accuracy on milk quality classification
- Designed and led a $148K (independently raised from NSF, MIT/J-PAL, Weiss Fund, etc.) A/B testing project that revealed hidden milk quality information via traceability systems and Bayesian models, reducing milk adulteration by 21.9%

RainDistancing | *Python, STATA, GIS, Instrumental Variable (IV)* Apr. 2020 – Jan. 2022

- Processed and integrated large-scale geospatial datasets using QGIS and Python, analyzing mobility patterns across 1,900+ U.S. counties to assess weather-driven behavioral shifts
- Built causal inference models (Instrumental Variable) to quantify the economic and epidemiological effects of mobility changes
- Published findings in the ***Journal of Health Economics*** *(2022)*, advancing evidence-based pandemic policy design

Industry Experience

Economist Aug. 2021 – Sep. 2024
CGIAR International Livestock Research Institute (ILRI) *Nairobi, Kenya*

- Led 4 large-scale causal inference studies impacting 6,000+ smallholder farmers across 120+ Kenyan dairy cooperatives
- Developed a digital credit scoring model using logistic regression, leveraging transaction histories and farm productivity data to predict loan repayment likelihood and improve financial access for smallholder farmers
- Managed an A/B test on a Google-funded digital learning platform, evaluating the impact of in-person engagement on 4,000+ Kenyan users, increasing retention by 27%

Research Associate Jan. 2021 – Aug. 2021
Innovations for Poverty Action (IPA) *Kigali, Rwanda*

- Led a $803K A/B testing project with 180 maize cooperatives, connecting farmers to processors through the UN WFP Farm to Market Alliance program, resulting in 150%-300% revenue increases
- Designed and implemented survey instruments using *SurveyCTO* for 3 large-scale randomized evaluations, collecting data from 2,500+ farmers and cooperative leaders across Rwanda
- Managed field teams of 50+ enumerators to ensure high-quality data collection and compliance with research protocols

Equity Data Analyst Jul. 2017 – Apr. 2018
Morningstar *Shenzhen, China*

- Analyzed annual and quarterly financial reports for 300+ publicly listed companies in North America
- Conducted financial performance assessments utilizing DCF, comparable company analysis (CCA), and regression models, resulting in 20+ data-driven investment recommendations
- Utilized SQL window functions, user-defined functions (UDFs), and self-joins to efficiently extract, clean, and analyze financial datasets from relational databases, ensuring data integrity and consistency in reporting

Education

University of California, Santa Cruz Santa Cruz, CA
Ph.D. in Economics, Department of Economics (GPA: 3.95/4.0) *Sep. 2018 – Jun. 2025*

- UCSC Chancellor's Dissertation-Year Fellowship ($54,320) – *Only recipient from Economics Department in decades*
- Annual Award for Excellence in Teaching

University of California, Santa Cruz Santa Cruz, CA
M.A. in Economics, Department of Economics (GPA: 3.93/4.0) *Sep. 2018 – Dec. 2019*

Jiangxi University of Finance and Economics Jiangxi, China
B.S. in Finance, International School (GPA: 93/100, Rank: 2/557) *Sep. 2013 – Jun. 2017*

- China National Scholarship by *Ministry of Education* (Awarded to top 3 among 2,300)
- CFA Program Student Scholarship by *CFA Institute*