Yingqi Gao

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PhD Researcher | AI-Driven Market Design & Economic-Inspired AI Decision-Making

PhD candidate in statistics researching the intersection of machine learning and economics. I develop market-driven AI mechanisms for digital economies, including data, privacy, and AI derivatives; and design AI systems that adapt to economic incentives, such as LLM-powered ad auctions and retrieval-based uncertainty quantification. Experienced in data analysis since my senior year of college, I excel at presenting research, communicating complex ideas, and collaborating across disciplines.

EDUCATION

PhD in Statistics & Data Science | Econ ML • University of California, Los Angeles 09/2021 - 12/2026

MA in Statistics in Statistics • Columbia University in the City of New York 09/2019 - 12/2020

Double BS's in Probability & Statistics, Management Science • UC, San Diego 09/2015 - 06/2019

RESEARCH EXPERIENCE

PhD Researcher **02/2023 - Present**
UC Los Angeles

- Designed a two-phase pricing mechanism that combines digital-good auctions with posted pricing, enabling scalable and revenue-optimal dataset sales in dynamic markets with highly variable buyer participation.
- Developed an online learning algorithm for multi-dataset sales, ensuring adaptive pricing strategies and rapid regret convergence, optimizing long-term revenue in evolving marketplaces.
- Building a decentralized privacy market where an LLM matches buyer proposals with seller-defined granular privacy controls, enabling effortless, truthful, and incentive-aligned trading.
- Integrating uncertainty quantification into AI chatbots, especially healthcare AI, by statistically interpreting retrieved information to assess confidence in recommendations.

Graduate Researcher **12/2019 - 03/2020**
Columbia University

- Refined a Bayesian hierarchical sparse VAR model for multi-subject, multi-session fMRI analysis and designed Gibbs sampling simulations on a high-performance computing cluster to test model stability.

TEACHING & LEADERSHIP

Teaching Associate, UC Los Angeles & Columbia University 06/2021 - 12/2026

- Developed and led discussion and lab sessions for probability, statistical inference, computational methods, R programming, and optimization.

Group Leader, Data Analysis and Inference Capstone, UC San Diego 03/2018 - 06/2018

- Led a team of six in a fast-paced, real-world data-driven project course, designing problems, guiding statistical analysis, facilitating collaboration, and overseeing timely execution.

SKILLS

Programming: Python (SciPy, TensorFlow, PyTorch, rpy2), R, SQL, SAS, HPC & Distributed Processing

AI & Optimization: LLMs, uncertainty quantification, reinforcement learning, online learning & regret analysis

Economics: causal inference, A/B testing, game theory, mechanism design, auction theory, econometrics