Xinhao Qu

CONTACT INFORMATION

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RESEARCH INTERESTS

Efficient and Reliable LLM Systems, Knowledge Transfer

EDUCATION

University of California, Riverside, Riverside, CA

Ph.D., Applied Statistics, Advisor: Xiaoqian Liu — 2024/09 – present

Xiamen University, Xiamen, China

M.S., Statistics, Advisor: Wei Zhong — 2021/09 – 2024/06

Zhengzhou University, Zhengzhou, China

B.A., Statistics — 2017/09 – 2021/06

EXPERIENCE

Tecent IEG, Shenzhen, China

Agent Engineering Intern — 2026/06 – 2026/09

- MCP proxy development for query-level authorization on knowledge base;
- Trajectory logging and evaluation via AgentLens by Explyt; Self-evolution via SkillOpt-Lite workflow by LMMs-Lab; Deploy runtimes and automate issues on Multica

Southern University of Science and Technology, Shenzhen, China

Visiting Graduate Student, Collaborator: Hao Zeng, Hongxin Wei — 2025/11 – 2026/02

Tecent CSIG, Shenzhen, China

LLM Post-training Intern — 2025/06 – 2025/08

- Agent node post-training for planning and rendering;
- AGENTGEN data augmentation; Difficulty-aware knowledge distillation; LoRA SFT; DPO alignment; StructEval renderable evaluation

PUBLICATIONS

Note: the sign † indicates the first authorship; the sign ✉ denotes the corresponding author.

Peer-reviewed Publications

[1] **X. Qu**† ✉. Automatic Transfer Learning for High-Dimensional Linear Regression. *Statistics & Probability Letters*, 224, 2025. https://doi.org/10.1016/j.spl.2025.110445.

[2] Y. Hu, **X. Qu**, and M. Tian. Smoothed GMM for Spatial Quantile Regression Model. *Acta Mathematicae Applicatae Sinica*, 1-26, 2025. https://doi.org/10.20142/j.cnki.amas.202501018.

Preprints / Manuscripts

[3] **X. Qu**†, Q. Heng, H. Zeng, and X. Liu. An Interpretable and Scalable Framework for Evaluating Large Language Models. *Submitted*. arXiv:2605.07046v1.

- An interpretable and scalable framework for LLM evaluation via representational learning, with theoretical guarantees for parameter identifiability and algorithmic convergence.
- Evaluate on MATH-500 and six benchmarks from the Hugging Face Open LLM Leaderboard v2. Results on model abilities are consistent with established parametric scaling laws, and the recovered item features align with human annotations, capturing fine-grained heterogeneity that average accuracy fails to reflect.

[4] H. Zeng, H. Huang, **X. Qu**, J. Huang, B. Jing, and H. Wei. HyPAC: Cost-Efficient LLMs-Human Hybrid Annotation with PAC Error Guarantees. *Submitted*. arXiv:2602.02550v1.

- Formulate LLMs-human hybrid labeling as constrained cost optimizations with multiple labeling sources, and provide a provable framework for controlling the labeling error rate.
- Provide distribution-free guarantees on both error control and cost optimality: the error rate stays below a user-specified tolerance with high probability, and HyPAC achieves the minimum cost among all threshold-based methods with the same constraint.

[5] **X. Qu**† ✉. Partial Transfer Learning for Causal Estimation Under High-Dimensional Confounding. *Major Revision*.

SOFTWARE

`PartialTL`: R package for the partial transfer learning method.
`cBMM`: Python implementation of the interpretable and scalable LLM evaluation framework.

HONORS AND AWARDS

Florence Nightingale David Award for Insightful Statistical Application	2026
Morris J. Garber Award in Applied Statistics Endowed Fund	2026
Outstanding Graduate Dissertation of Fujian Province	2026
Dean's Distinguished Award, University of California, Riverside	2024
First Class Academic Scholarship, Xiamen University	2021, 2022, 2023
Graduation Highlight, Zhengzhou University	2021
First Class Academic Scholarship, Zhengzhou University	2017, 2019, 2020

TEACHING

University of California, Riverside, Riverside, CA

Teaching Assistant

- STAT 167 (Introduction to Data Science) — Winter 2026
- STAT 010 (Introduction to Statistics) — Fall 2024, Spring 2026

Xiamen University, Xiamen, China

Teaching Assistant

- Introduction to Data Science — Fall 2022

SERVICES

Area Chair in Applications of Machine Learning Session at IAAE Annual Conference (2024)
Leader of Machine Learning Group, WISERCLUB, Xiamen University