Hongxiang (David) Qiu

Postdoctoral Researcher
Department of Statistics
The Wharton School, University of Pennsylvania
Philadelphia, PA 19104-1686

qiuhx@upenn.edu
https://QIU-Hongxiang-David.github.io/

Current position

Wharton School, University of Pennsylvania
Postdoctoral researcher, Statistics — 2021–now
Supervisor: Eric Tchetgen Tchetgen, PhD and Edgar Dobriban, PhD
Research areas: machine learning, causal inference, semiparametric inference

Education

University of Washington
PhD, Biostatistics — 2016–2021
Dissertation advisor: Marco Carone, PhD and Alex Luedtke, PhD

The Chinese University of Hong Kong
B.Sc., Mathematics; Minor in Statistics — 2012–2016

Work Experience

Kaiser Permanente Washington Health Research Institute — 2016–2021
Graduate Research Assistant
PRimary care Opioid Use Disorders Treatment (PROUD) Trial
Advisor: Jennifer F. Bobb, PhD

Teaching Experience

University of Washington
Tutor — Spring 2019
STAT 583: Advanced Theory of Statistical Inference
Topics including: empirical processes, semiparametric efficiency
Instructors: Alex Luedtke, PhD and Marco Carone, PhD

University of Washington
Teaching Assistant — Winter 2019

BIOST 557: Applied Statistics and Experimental Design
Topics including: one/two-sample t-test, linear models, GLMs, causation versus correlation
Instructor: Brian Lerous, PhD

University of Washington
Grader Winter 2018
STAT 582: Advanced Theory of Statistical Inference
Topics including: Bayes methods, decision theory, UMPU test
Instructor: Jon A. Wellner, PhD

Publications

(† stands for equal contribution.)

Methodology

1. **Qiu H**, Dobriban E, Tchetgen Tchetgen E (2022). Prediction Sets Adaptive to Unknown Covariate Shift. *arXiv preprint: arXiv:2203.06126.* Accepted by *Journal of the Royal Statistical Society, Series B (Statistical Methodology).*

2. **Qiu H**, Carone M, Luedtke A (2022). Individualized treatment rules under stochastic treatment cost constraints. *Journal of Causal Inference*, 10(1), 480–493.

3. **Qiu H**, Luedtke A, Carone M (2021). Universal sieve-based strategies for efficient estimation using machine learning tools. *Bernoulli*, 27(4), 2300–2336.

4. **Qiu H**, Carone M, Sadikova E, Petukhova M, Kessler R, Luedtke A (2020). Optimal individualized decision rules using instrumental variable methods. *Journal of the American Statistical Association* (with discussion), 116(533), 174–191.

5. Bobb J, **Qiu H**, Matthews, A, McCormack J, Bradley K (2020). Addressing identification bias in the design and analysis of cluster-randomized pragmatic trials: a case study. *Trials*, 21(1), 289.

6. **Qiu H**, Luedtke A, van der Laan M (2019). Contribution to discussion of "Entropy Learning for Dynamic Treatment Regimes" by Jiang B, Song R, Li J, Zeng D. *Statistica Sinica*, 29(4): 1666–1678.

Application

7. Wartko PD, **Qiu H**, Idu A, Yu O, McCormack J, Matthews AG, Bobb JF, Saxon AJ, Campbell CI, Liu D, Braciszewski JM, Murphy SM, Burganowski RP, Murphy MT, Horigian VE, Hamilton LK, Lee AK, Boudreau DM, Bradley KA (2022). Baseline representativeness of patients in clinics enrolled in the PRimary care Opioid Use Disorders treatment (PROUD) trial: comparison of trial and non-trial clinics in the same health systems. *BMC Health Services Research*, 22(1), 1–11.

8. Fitts W, Tassiou NR, Cisse FA, Vogel A, Atakla HG, Sakadi F, **Qiu H**, Conde ML, Balde AT, Bah AK, Hamani ABD, Anand P, Patenaude B, Mateen F (2019). School Status and its Associations among Children with Epilepsy in the Republic of Guinea. *Epilepsy & Behavior*, 97, 275–281.

9. Jang M, Sakadi F, Tassiou NR, Abass CF, Grundy SJ, Woga A, Kenda BA, Lamine CM, Talibé BA, **Qiu H**, Cohen JM, Carone M, Mateen FJ (2018). Impact of Poorly Controlled Epilepsy in the Republic of Guinea. *Seizure*, 61, 71–77.

10. Zhou Y†, **Qiu H**†, Xu S (2017). Modeling continuous admixture using admixture-induced linkage disequilibrium. *Scientific Reports*, 7, 1–10.

Preprint/under review

11. **Qiu H**, Tchetgen Tchetgen E, Dobriban E (2023). Efficient and Multiply Robust Risk Estimation under General Forms of Dataset Shift. *arXiv preprint: arXiv:2306.16406*

12. **Qiu H**, Luedtke A (2022). Adversarial Meta-Learning of Gamma-Minimax Estimators That Leverage Prior Knowledge. *arXiv preprint: arXiv:2003.05465*

13. **Qiu H**, Shi X, Miao W, Dobriban E, Tchetgen Tchetgen E (2022). Doubly robust proximal synthetic controls. *arXiv preprint arXiv:2210.02014*

14. **Qiu H**, Cook A, Bobb J (2022). Evaluating tests for cluster-randomized trials with few clusters under generalized linear mixed models with covariate adjustment: a simulation study. *arXiv preprint arXiv:2209.04364*

Presentations

1. "Doubly Robust Proximal Synthetic Controls." **Qiu H**, Xu S, Miao W, Dobriban E, Tchetgen Tchetgen E.
    - 2023 American Causal Inference Conference
2. "Distribution-Free Prediction Sets Adaptive to Unknown Covariate Shift." **Qiu H**, Dobriban E, Tchetgen Tchetgen E.
    - 2022 Joint Statistical Meeting
    - 2022 American Causal Inference Conference (poster)
3. "Optimal individualized decision rules using instrumental variable methods." **Qiu H**, Carone M, Sadikova E, Petukhova M, Kessler R, Luedtke A.
    - 2021 Joint Statistical Meetings
    - 2020 ENAR Spring Meeting
4. "Constructing asymptotically normal plug-in estimators with highly adaptive Lasso and data adaptive series." **Qiu H**, Luedtke A & Carone M.
    - 2019 WNAR/IMS/JR (Japanese Region) meeting

Reviewer for International Journals and Conferences

- *Journal of the Royal Statistical Society: Series B (Statistical Methodology)*
- *Journal of the American Statistical Association*
- *Biometrics*

- *Journal of Causal Inference*
- *Biostatistics*
- *Journal of Computational and Graphical Statistics*
- *International Journal of Biostatistics*
- *Statistical Methods in Medical Research*
- *Stat*
- 37th Conference on Uncertainty in Artificial Intelligence (UAI 2021)

Awards and Fellowships

University of Washington
Scholarship for 6th Seattle Symposium in Biostatistics — October 2020
2018 Donovan J. Thompson Award — October 2018

Software

RiskEstDShift	Efficient risk estimation under dataset shift.
APACpredset	Asymptotically Probably Approximately Correct prediction sets under unknown covariate shift.
CAMer	Continuous Admixture Modeling based on the result of iMAAPs.

Languages and Skills

Programming:

- proficient: R
- familiar: Python, MATLAB
- basic: SAS, Stan, JAGS, C++, C

Operating systems: Windows, Unix
Other computer skills: Git, LaTeX, Markdown, Microsoft Office
Languages: English (fluent), Chinese Mandarin (native), Chinese Cantonese (basic)