Qijia He

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RESEARCH INTERESTS

Causal inference, Data-driven decision making, Machine learning, Reinforcement learning, A/B testing, Deep learning

EDUCATION

University of Washington — **Seattle, WA**
Ph.D. in Statistics — *Jun. 2026 (expected)*

University of Washington — **Seattle, WA**
M.S. in Statistics — *Mar. 2023*

Sun Yat-sen University — **Guangzhou, China**
B.S. in Statistics — *Jun. 2021*

PUBLICATIONS

◇ **Journals:**

- **Qijia He**, Fei Gao, Oliver Dukes, Sinead Delany-Moretlwe, and Bo Zhang. *Generalizing the Intention-to-Treat Effect of an Active Control from Historical Placebo-Controlled Trials: A Case Study of the Efficacy of Daily Oral TDF/FTC in the HPTN 084 Study.* **Journal of the American Statistical Association**, 2024. [Link]
- **Qijia He**, Shixiao Zhang, Michael L LeBlanc, and Yingqi Zhao. *Estimating individualized treatment rules by optimizing the adjusted probability of a longer survival.* **Statistical Methods in Medical Research**, 2024. [Link]
- Ting Ye, **Qijia He**, Shuxiao Chen, and Bo Zhang. *The role of placebo samples in observational studies.* Under review by **Journal of Causal Inference**.

◇ **Book Chapters:**

- **Qijia He**, and Yingqi Zhao. *Statistical Learning Methods for Estimating Optimal Individualized Treatment Rules from Observational Data.* **Handbook of Statistical Methods for Precision Medicine**. Chapman and Hall/CRC, 2025. 335-342. [Link]
- Yan Zeng, **Qijia He**, *et al.* **Research on the Development Trend and Social Effect of Digital Economy** (In Chinese). China Social Sciences Press, 2021. [Link]

RESEARCH EXPERIENCE

University of Washington — **Seattle, WA**
Advised by Prof. Alex Luedtke — *Jun. 2024-Present*

◇ Variable importance for heterogeneous treatment effects under two-stage sampling design
- Created an inferential framework to assess variable importance in heterogeneous treatment effects under two-stage sampling design
- Leveraged semiparametric theory to ensure validity when applying machine learning algorithms

Fred Hutchinson Cancer Research Center — **Seattle, WA**
Advised by Prof. Bo Zhang and Prof. Yingqi Zhao — *Aug. 2021-Present*

◇ Generalizability and transportability in causal inference
- Developed a novel causal inference framework to estimate treatment effects of the active control using historical placebo-controlled trial data
- Derived historical-data-driven estimates under point/partial identification, with strategies for sensitivity analysis

◇ Causal mediation analysis for surrogate endpoint evaluation
- Developed two weighted controlled risk parameters to address violations of the positivity assumption
- Derived efficient influence function estimators for the proposed weighted estimators, ensuring multiple robustness

◇ Validating individualized treatment rules (ITRs) using post-randomization events for HIV prevention
- Developed an individualized treatment recommendation system to optimize HIV acquisition outcome in resource-limited settings
- Developed a real-time drug recommendation score to support physicians' decisions based on patient risk factors

◇ Optimal adjusted probability learning for individualized treatment rules (ITRs) with censored data

- Proposed a new criterion to construct ITRs, enhancing clinical benefit interpretation for clinicians and patients
- Developed "optimal adjusted probability learning" method to construct optimal ITRs by maximizing a nonparametric estimator of the criterion

Sun Yat-sen University   **Guangzhou, China**
Advised by Prof. Jia Li   *Mar. 2020-Aug. 2020*

◇ Semi-supervised learning with label noise
- Reformed KNN to build the regularization model with weighted quadratic loss function and gradient descent
- Designed a four-stage semi-supervised algorithm based on KNN and SVM that includes denoising, initialization, updating, and cross prediction

PRESENTATIONS

Generalizing the Intention-to-Treat Effect of an Active Control from Historical Placebo-Controlled Trials
- The Translational Data Science Integrated Research Center Retreat. Kirkland, WA, 2023.
- 20th Annual STI & HIV Research Symposium. Seattle, WA, 2023.
- American Causal Inference Conference. Seattle, WA, 2024
- Joint Statistical Meetings. Portland, OR, 2024.

Approximate Bayesian Computation (ABC)-Calibrated Microsimulation Model for Predicting HIV-1 Prevention Efficacy of Broadly Neutralizing Antibodies
- HVTN Africa Regional Meeting. Cape Town, South Africa, 2024.

TEACHING AND TUTORING EXPERIENCE

Department of Statistics, University of Washington
- Teaching Assistant in STAT 311 Elements of Statistical Methods (Winter 2024)

Academic tutoring center, School of Mathematics, Sun Yat-sen University
- Tutor in Mathematical analysis (Fall 2018)

TAL Education Group
- Teaching Assistant in primary-school Olympiad Mathematics (2017-2018)

SKILLS

Python, R, SQL, MATLAB, C++, Latex