

PhD Candidate, Statistics
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EDUCATION

- Ph.D. in Statistics**, *North Carolina State University* 2022–Now
- Advisor: Dr. Shu Yang
- Master of Biostatistics**, *Duke University School of Medicine* 2020–2022
- Thesis: Overlap, inverse probability, and matching weights: what are we weighting for?
 - Advisory Committee:
 - Chair: Dr. Roland A. Matsouaka
 - Members: Drs. Fan Li, Hwanhee Hong
- B.S. in Mathematics and Applied Mathematics**, *Southeast University* (Nanjing, China) 2016–2020

APPOINTMENTS

- NIAID R25 Trainee** (HIV/AIDS Research), *Duke University School of Medicine* Summer 2024
- Research Assistant**, *Biodiversity Lab, North Carolina Museum of Natural Sciences* Spring 2024
- Teaching Assistant**, *Department of Statistics, North Carolina State University* 2022–2024

RESEARCH INTERESTS

Statistical Methodology & Theory

Causal inference; Data integration; Propensity score methods; Machine learning; Federated learning; Randomized clinical trials; Causal survival analysis; Conformal prediction.

Statistical Applications

HIV/AIDS; Congenital heart defects; COVID-19; Disparity in health care; Precision and personalized medicine; Ecology and biodiversity.

AWARDS & HONORS

- 2024
- **Mu Sigma Rho**, National Honor Society of Statistics
 - **Finalist of Early Career Poster Award**, Duke Industry Statistics Symposium
- 2023
- **Student Poster Recognition Award**, ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop
- 2022
- **Student Poster Prize**, Georgia Statistics Day
 - **Outstanding Master's Project Award** (first place of methodology thesis project), Department of Biostatistics & Bioinformatics, Duke University School of Medicine
 - **Overall Academic Excellence Award** (based on GPA), Department of Biostatistics & Bioinformatics, Duke University School of Medicine

RESEARCH PUBLICATIONS

* indicates authors contributed (nearly) equally; † indicates I am a (maybe one of) corresponding author.

Method Paper

1. Matsouaka RA*, Liu Y*, and Zhou Y (2024). Overlap, matching, or entropy weights: what are we weighting for? *Communications in Statistics - Simulation and Computation*.
*Student Poster Recognition Award from ASA BIOP RISW 2023, Student Poster Prize from Georgia Statistics Day 2022, and Outstanding Master's Project Award from Duke B&B
2. Matsouaka RA*, Liu Y*, and Zhou Y (2023). Variance estimation for the average treatment effects on the treated and on the controls. *Statistical Methods in Medical Research*.

Method Preprints & In-preparation

1. Liu Y, Li H, Zhou Y, and Matsouaka RA (2024+). Average treatment effect on the treated, under lack of positivity. Revision submitted to *Statistical Methods in Medical Research*.
2. Liu Y, Levis AW, Normand S-L, and Han L (2024+). Multi-source conformal inference under distribution shift. Under review.
3. Han L, Levis AW, Liu Y, and Gilbert P (2024+). Multi-source causal survival analysis under distribution shift. In-preparation.
4. Li H*, Liu Y*, Zhou Y, Liu J, Fu D, and Matsouaka RA (2024+). Variance estimation for weighted average treatment effect estimators. In-preparation.
5. Gao Y, Liu Y[†], and Matsouaka RA (2024+). When does adjusting covariate under randomization help? A comparative study on current practices. In-preparation.
6. Liu Y, Zhu K, and Yang S (2024+). Covariate adjustment in randomized experiments under high dimensions. In-preparation.
*Finalist of Early Career Poster Award from DISS 2024
7. Wang Y, Liu Y[†], and Yang S (2024+). Rate doubly robust estimation for weighted average treatment effects. Invited revision and in-preparation.

CONFERENCES, SEMINARS & WORKSHOPS

Abbreviations. ASA BIOP RISW: ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop; DISS: Duke Industry Statistics Symposium; ENAR: International Biometric Society Eastern North American Region; ICSA: International Chinese Statistical Association; JSM: Joint Statistical Meeting; NESS: New England Statistics Symposium.

2024

- DISS, Durham, NC. "Covariate adjustment in randomized experiments under high dimensions" *Finalist of Early Career Poster Award
- ENAR Spring Meeting, Baltimore, MD. "Average treatment effect on the treated, under lack of positivity"

2023

- Poster Session of Statistics Seminar, North Carolina State University, Raleigh, NC. "Overlap, matching, or entropy weights: what are we weighting for?"
- ASA BIOP RISW, Rockville, MD. "Overlap, matching, or entropy weights: what are we weighting for?" *Student Poster Recognition Award
- NESS, online. "Variance estimation for weighted average treatment effect estimators"
- DISS, online. "Average treatment effect on the treated, under lack of positivity"

2022

- Georgia Statistics Day, Athens, GA. "Overlap, matching, or entropy weights: what are we weighting for?" *Student Poster Prize
- NESS, online. "Overlap, matching, or entropy weights: what are we weighting for?"

TEACHING, MENTORING & SERVICES

Teaching Assistant ($n+$: the class size $\in [n, n + 10)$)

At North Carolina State University

- ST 370 Probability and Statistics for Engineers (Fall 2023: 90+)
- ST 512 Statistical Methods for Researchers II (Summer 2023: 20+)
- ST 311 Introduction to Statistics (Spring 2023: 150+; Summer 2023: 90+; Fall 2022: 110+)

Departmental Services

At *North Carolina State University*

- International Student Representative, Statistics Graduate Student Association 2024–

Mentoring

- Ying (Amber) Gao (MS, Duke B&B) Independent study, 2023–
Co-supervise with Roland A. Matsouaka
- Yuan Wang (MS, Duke B&B) Independent study, 2024
Co-supervise with Roland A. Matsouaka
- Huiyue (Hailey) Li (MS, Duke B&B) Independent study, 2023–2024
Co-supervise with Roland A. Matsouaka First position: PhD student, Duke B&B
- Dezhao Fu (MS, Duke B&B) Master's thesis, 2022–2023
Co-supervise with Roland A. Matsouaka First position: PhD student, GWU B&B
- Jiajun Liu (MS, Duke B&B) Independent study, 2022–2023
Co-supervise with Roland A. Matsouaka First position: PhD student, Duke B&B

ADDITIONAL INFORMATION

Current Memberships

- Student member, American Statistical Association
- Student member, International Biometric Society Eastern North American Region
- Student member, International Chinese Statistical Association
- Student member, New England Statistics Symposium

Skills

- Language: Chinese (Mandarin), English
- Computer: R, SAS, \LaTeX

Myers-Briggs type indicator: *Introversion, INtuition, Thinking, and Judging* (INTJ), December 2023