

PhD Candidate, Statistics
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EDUCATION

- Ph.D.** in Statistics, **North Carolina State University**, U.S. (GPA: 4.0/4.0) 2022–
• Thesis advisor: Prof. Shu Yang
• Independent research advisors: Profs. Roland A. Matsouaka & Larry Han
- Master** of Biostatistics, **Duke University** School of Medicine, U.S. (GPA: 4.0/4.0) 2020–2022
• Thesis title: Overlap, inverse probability, and matching weights: what are we weighting for?
• Thesis advisor: Prof. Roland A. Matsouaka
• Thesis committee members: Profs. Fan Li (Statistical Science) & Hwanhee Hong
- B.S.**, Mathematics and Applied Mathematics, **Southeast University**, China 2016–2020

PROFESSIONAL APPOINTMENTS

- Spring 2024 **Research Assistant (Graduate Consulting Trainee)**
Biodiversity Lab, NC Museum of Natural Sciences & NC State Data Science Academy
- 2022–2023 **Teaching Assistant**
Department of Statistics, North Carolina State University

RESEARCH AREAS

Statistical Theory & Methodology

- Causal inference; Conformal prediction; Data integration
- Observational studies; Propensity score weighting; Positivity issue
- Randomized controlled trials; Covariate adjustment with variable selections
- Semiparametric efficient estimation; Asymptotic statistics

Statistical Applications

- Ecology; Biodiversity; Abundance estimation

AWARDS & HONORS

- 2023
- **Student Poster Recognition Award** (travel grant), ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop
- 2022
- **Student Poster Prize**, 3rd place of 47, 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**, Department of Biostatistics & Bioinformatics, Duke University School of Medicine

RESEARCH PUBLICATIONS

*: equal contribution.

Peer-reviewed Journal Articles

1. 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*, **32**(2):389-403.

Technical Reports / 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. Matsouaka RA, **Liu Y**, and Zhou Y (2024+). Overlap, matching, or entropy weights: what are we weighting for? Revision submitted to *Communications in Statistics - Simulation and Computation*.
*Student Poster Recognition Award from ASA BIOP RISW 2023, Student Poster Prize from GSD 2022, and Outstanding Master's Project Award from Duke B&B
3. **Liu Y**, Levis A, Lise-Normand S, and Han L (2024+). Multi-source conformal inference under distribution shift.
4. **Liu Y**, Zhu K, and Yang S (2024+). Covariate adjustment in randomized experiments under high dimensions.
5. Gao Y, **Liu Y**, and Matsouaka RA (2024+). Adjusting baseline covariate imbalance in randomized clinical trials: an empirical assessment for current practice.
6. Li H*, **Liu Y***, Liu J, Zhou Y, and Matsouaka RA (2024+). Variance estimation for weighted average treatment effect estimators.
7. Liu J, **Liu Y**, Zhou Y, and Matsouaka RA (2024+). Valid and efficient estimation for racial disparity on health care expenditure.

SEMINARS & CONFERENCES

2023

- Student Poster: *NCSU Poster Session of Statistics Seminar, Raleigh, NC*. "Overlap, matching, or entropy weights: what are we weighting for?"
- *NCSU CIMA Lab Group Meeting, Raleigh, NC*. "Propensity score weighting under lack of positivity."
- Student Poster: *ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop, Rockville, MD*. "Overlap, matching, or entropy weights: what are we weighting for?" *Student Poster Recognition Award
- Student Poster: *The 36th New England Statistics Symposium (NESS), online*. "Variance estimation for weighted average treatment effect."
- *Duke Industry Statistics Symposium, online*. "Causal inference on the treated under lack of positivity."

2022

- Student Poster: *Georgia Statistics Day, Athens, GA*. "Overlap, matching, or entropy weights: what are we weighting for?" *Student Poster Prize
- Student Poster: *The 35th New England Statistics Symposium (NESS), online*. "Overlap, matching, or entropy weights: what are we weighting for?"

TEACHING & MENTORING

Graduate Teaching Assistant

2023

- ST 370 Probability and Statistics for Engineers, NCSU (90+ enrolled)
- ST 512 Statistical Methods for Researchers II, NCSU (20+ enrolled)
- ST 311 Introduction to Statistics, NCSU (Fall: 150+ enrolled; Summer: 90+ enrolled)

2022

- ST 311 Introduction to Statistics, NCSU (110+ enrolled)

Independent Study Supervision

2022–2023

- Jiajun Liu (supervise with Dr.Roland Matsouaka). First position: PhD student at Duke B&B
- Dezhao Fu (supervise with Dr.Roland Matsouaka). First position: PhD student at GWU Biostatistics

ADDITIONAL INFORMATION

Professional Memberships

- Student member, American Statistical Association (ASA)
- Student member, International Biometrics Society (ENAR)
- Student member, International Chinese Statistical Association (ICSA)
- Student member, New England Statistics Symposium (NESS)

Skills

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

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