YI LIU

PhD Candidate, Statistics
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Curriculum Vitae

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EDUCATION

Ph.D. in Statistics, *North Carolina State University*   2022–Now
- Advisors: Shu Yang, and Larry Han

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: Roland A. Matsouaka
  - Members: Fan Li, and Hwanhee Hong

B.S. in Mathematics and Applied Mathematics, *Southeast University* (Nanjing, China)   2016–2020

APPOINTMENTS

Research Assistant, *Biodiversity Lab, North Carolina Museum of Natural Sciences*   Spring 2024
Teaching Assistant, *Department of Statistics, North Carolina State University*   2022–2023

RSEARCH INTERESTS

Statistical Methodology & Theory

Causal inference; Causal survival; Conformal prediction; Data integration; Randomized controlled study; Observational study; Propensity score methods; Machine learning; Double/Multiply robust estimation; Semiparametric efficiency and influence function based theory; Asymptotic statistics.

Statistical Applications

HIV/AIDS trials; COVID-19; Racial disparity in health care; Ecology and biodiversity.

AWARDS & HONORS

2023
- **Student Poster Recognition Award**, 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** (based on GPA), Department of Biostatistics & Bioinformatics, Duke University School of Medicine

RSEARCH PUBLICATIONS

*: Approximately equal contribution; †: 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*. Forthcoming.
   *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
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*, **32**(2):389-403.

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 A, Normand S-L, and Han L (2024+). Multi-source conformal inference under distribution shift. Submitted.
3. **Liu Y**, Zhu K, and Yang S (2024+). Covariate adjustment in randomized experiments under high dimensions.
4. Li H*, **Liu Y***, Liu J, Zhou Y, and Matsouaka RA (2024+). Variance estimation for weighted average treatment effect estimators.
5. Gao Y, **Liu Y**, and Matsouaka RA (2024+). A comparative study for covariate adjustment methods in randomized clinical trials.
6. Wang Y, **Liu Y**, and Yang S (2024+). Rate doubly robust estimation for weighted average treatment effects. *Invited revision.*

CONFERENCES, SEMINARS & WORKSHOPS

Abbreviations. Causal Inference and Missing Data Analysis (CIMA) Lab, led by Dr. Shu Yang; Duke Industry Statistics Symposium (DISS); International Biometric Society, Eastern North American Region (ENAR); International Chinese Statistical Association (ICSA); Joint Statistical Meeting (JSM); New England Statistics Symposium (NESS).

2024
- DISS, Durham, NC. *"Covariate adjustment in randomized experiments under high dimensions".*
- 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?".*
- CIMA Lab Group Meeting, North Carolina State University, Raleigh, NC. *"Average treatment effect on the treated, under lack of positivity".*
- ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop, 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+)

Mentoring

- Jiajun Liu (MS, Duke B&B)   Independent study, 2022–2023
  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

ADDITIONAL INFORMATION

Current Memberships

- Student member, American Statistical Association (ASA)
- Student member, International Biometric Society Eastern North American Region (ENAR)
- Student member, International Chinese Statistical Association (ICSA, 泛华统计协会)
- Student member, New England Statistics Symposium (NESS)

Skills

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

Myers-Briggs type indicator: *I*ntroversion, I*N*tuition, *T*hinking, and *J*udging (INTJ), December 2023