Yi Liu

Curriculum Vitae

PhD Candidate, Statistics
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Education

Ph.D. in Statistics, *North Carolina State University*   2022–
- Dissertation:
  - Advisors: Profs. 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?
  - Advisor: Prof. Roland A. Matsouaka
  - Committee members: Profs. Fan Li (Statistical Science) and Hwanhee Hong

B.S. in Mathematics and Applied Mathematics, *Southeast University* (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 Areas

Statistical Methodology

Causal inference; Conformal prediction; Missing data analysis; Data integration; Observational studies; Propensity score weighting; Positivity issue; Randomized trials; Covariate adjustment; High dimension issue; Semiparametric efficient estimation; Asymptotic statistics

Statistical Applications

Ecological modelling; Biodiversity; Animal abundance estimation

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.

Peer-reviewed Journal Articles

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.

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. **Liu Y**, Levis A, Normand S-L, and Han L (2024+). Multi-source conformal inference under distribution shift. Submitted.

3. Liu J, **Liu Y**, Zhou Y, and Matsouaka RA (2024+). Valid and efficient estimation for racial disparity on health care expenditure.

4. Li H*, **Liu Y***, Liu J, Zhou Y, and Matsouaka RA (2024+). Variance estimation for weighted average treatment effect estimators.

Conferences, Seminars & Workshops

2024
- *International Biometric Society, Eastern North American Region (ENAR) Spring Meeting, Baltimore, MD.* "Average treatment effect on the treated, under lack of positivity."

2023
- *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 positvity."
- *ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop, Rockville, MD.* "Overlap, matching, or entropy weights: what are we weighting for?" *Student Poster Recognition Award
- *New England Statistics Symposium (NESS), online.* "Variance estimation for weighted average treatment effect."
- *Duke Industry Statistics Symposium (DISS), online.* "Causal inference 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
- *New England Statistics Symposium (NESS), online.* "Overlap, matching, or entropy weights: what are we weighting for?"

Teaching, Mentoring & Services

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   (co-supervise with Dr.Roland Matsouaka; first position: PhD student at Duke B&B)
- Dezhao Fu   (co-supervise with Dr.Roland Matsouaka; first position: PhD student at 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), updated in 2023