

PhD Candidate, Statistics  
SAS Hall, Room 5114  
Box 8203 NCSU Campus  
Raleigh, NC 27695

Telephone: +1 (919)308-7746  
Email: [yliu297@ncsu.edu](mailto:yliu297@ncsu.edu)  
Homepage: [yliu1998.github.io](https://yliu1998.github.io)

## EDUCATION

**Ph.D.** in Statistics, **North Carolina State University**, U.S. (GPA: 4.0/4.0) Present  
• 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) May 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 (Duke DSS) & Hwanhee Hong  
**B.S.**, Mathematics and Applied Mathematics, **Southeast University**, China Jun 2020

## PROFESSIONAL APPOINTMENTS

01/2024–05/2024 **Research Assistant (Graduate Consulting Trainee)**  
Biodiversity Lab, NC Museum of Natural Sciences & NC State Data Science Academy  
08/2022–12/2023 **Teaching Assistant**  
Department of Statistics, North Carolina State University

## RESEARCH AREA

### **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

## AWARDS & HONORS

2023 **Student Poster Recognition Award / Travel Grant**  
ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop  
2022 **Student Poster Prize**, 3rd place of 47 posters  
Georgia Statistics Day  
2022 **Outstanding Master's Project Award**, first place of methodology thesis project  
Department of Biostatistics & Bioinformatics, Duke University School of Medicine  
2022 **Overall Academic Excellence Award**, based on GPA  
Department of Biostatistics & Bioinformatics, Duke University School of Medicine

## 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 (2023+). Average treatment effect on the treated, under lack of positivity. Revision at *Statistical Methods in Medical Research*.
2. Matsouaka RA, **Liu Y**, and Zhou Y (2023+). Overlap, matching, or entropy weights: what are we weighting for? Revision at *Communications in Statistics - Simulation and Computation*.  
\*\* Received 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, and Han L (2024+). Multi-source conformal inference under distribution shift.
4. Gao Y, **Liu Y**, and Matsouaka RA (2024+). Adjusting baseline covariate imbalance in randomized clinical trials: an empirical assessment for current practice.
5. Li H\*, **Liu Y**\*, Liu J, Zhou Y, and Matsouaka RA (2024+). Variance estimation for weighted average treatment effect estimators.
6. Liu J, **Liu Y**, Zhou Y, and Matsouaka RA (2024+). Valid and efficient estimation for racial disparity on health care expenditure.

### PRESENTATIONS & TALKS

#### Contributed

12/2023	Poster	<i>Poster Session of Statistics Seminar</i> , NCSU, Raleigh, NC Overlap, matching, or entropy weights: what are we weighting for?
10/2023	Talk	<i>CIMA Lab Group Meeting</i> , NCSU, Raleigh, NC Propensity score weighting under lack of positivity
09/2023	Poster	<i>ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop</i> , Rockville, MD Overlap, matching, or entropy weights: what are we weighting for? ** Received Student Poster Recognition Award
06/2023	Poster	<i>The 36th New England Statistics Symposium (NESS)</i> , online Variance estimation for weighted average treatment effect estimators
05/2023	Talk	<i>Duke Industry Statistics Symposium</i> , online Causal inference on the treated and on the control under lack of positivity
10/2022	Poster	<i>Georgia Statistics Day</i> , UGA, Athens, GA Targeting clinical equipoise via propensity score weighting ** Received Student Poster Prize
05/2022	Poster	<i>The 35th New England Statistics Symposium (NESS)</i> , online Overlap, inverse probability, and matching weights: what are we weighting for?

### TEACHING

#### Teaching Assistant

2023	Fall	ST 370	Probability and Statistics for Engineers	90+ enrolled	NCSU
	Summer II	ST 512	Statistical Methods for Researchers II	20+ enrolled	NCSU
	Summer I & II	ST 311	Introduction to Statistics	90+ enrolled	NCSU
	Spring	ST 311	Introduction to Statistics	150+ enrolled	NCSU
2022	Fall	ST 311	Introduction to Statistics	110+ enrolled	NCSU

**MENTORING****Independent Study Supervision** (during PhD period)

		<b>First position</b>
Jiajun Liu	(with Dr. Roland Matsouaka, 2022–2023)	PhD student, Duke Biostatistics
Dezhao Fu	(with Dr. Roland Matsouaka, 2022–2023)	PhD student, GWU Biostatistics

**ADDITIONAL INFORMATION****Professional Memberships**

- 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,  $\text{\LaTeX}$

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