

# Kai Li

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## EDUCATION

### **Stony Brook University**

*Ph.D. in Applied Mathematics and Statistics*

*M.S. in Applied Mathematics and Statistics*

*Advanced Graduate Certificates in Data Science and Operations Research*

Stony Brook, NY

*Aug 2022 - May 2026*

*Aug 2020 - May 2022*

GPA: 3.950/4.000

### **The Ohio State University**

*B.S. in Mathematics (Theoretical Track)*

*Minors in Computer Information Science and Economics*

Columbus, OH

*Aug 2017 - May 2020*

GPA: 3.672/4.000

## RESEARCH EXPERIENCE

### **Department of Applied Mathematics and Statistics, Stony Brook University**

Stony Brook, NY

*Reinforcement Learning for Enhanced Tic-Tac-Toe and Behavioral Science Applications*

*August 2022 - Present*

- Enhancing traditional strategies for 5 by 5 tic-tac-toe by developing and implementing reinforcement learning algorithms.
- Enhancing gameplay through approximate solutions to train reinforcement learning agents.
- Investigating human decision-making in game scenarios, merging behavioral science and tic-tac-toe strategy.
- Collaborating closely with advisors to produce a research paper, with the aim of academic publication.

## TEACHING EXPERIENCE

### **Department of Applied Mathematics and Statistics, Stony Brook University**

Stony Brook, NY

*Instructor - Statistical Laboratory (Fall 2022, 2023) and Mathematical Statistics (Spring 2023)*

*August 2022 - Present*

- Designed and delivered engaging lectures on statistics, intermediate data analysis, and statistical inference.
- Developed course materials, assignments, and assessments for an average class size of 52 students.
- Guided students in hands-on R programming for improved learning outcomes.
- Offered personalized support through office hours, resulting in enhanced student understanding and performance.
- Received consistent positive feedback from students for effective teaching methods and ability to explain complex statistical concepts in an understandable manner.

## SKILLS

**Programming Languages:** R, Python, SAS, SQL, Stata

**Statistical Software:** RStudio (R Markdown, R Sweave), Visual Studio, Jupyter Notebook, SAS

**Data Analysis:** Data preprocessing and cleaning, Exploratory data analysis, Feature engineering, Machine Learning, Data Visualization

## ACADEMIC PROJECTS

### **Department of Computer Science, Stony Brook University**

Stony Brook, NY

*Data Science - Understanding Flight Delays*

*August 2021 - December 2021*

- Retrieved relevant flight arrival performance datasets from the Bureau of Transportation Statistics.
- Preprocessed datasets by subsetting, imputing missing data, merging, and encoding variables.
- Gained insights through descriptive statistics, significance testing, and data visualization for model building.
- Implemented machine learning models for flight delay prediction and compared their effectiveness.
- Presented research in a reproducible and well-documented notebook with an academic report.

### **Department of Applied Mathematics and Statistics, Stony Brook University**

Stony Brook, NY

*R Package - Statistical Methods for Partially Matched Samples*

*Mar 2021 - May 2021*

- Developed an R package for statistical analysis of partially matched samples, combining independent samples and matched pairs designs.
- Implemented specialized procedures for hypothesis testing, parameter estimation, and more.
- Designed user-friendly interfaces, ensuring accessibility for researchers.
- Collaborated to validate statistical procedures, resulting in a reliable tool.