Kai Li

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Education

Stony Brook University — Stony Brook, NY
Doctor of Philosophy in Applied Mathematics and Statistics (Statistics Track) — *August 2022 - May 2026*
Master of Science in Applied Mathematics and Statistics (Statistics Track) — *August 2020 - May 2022*
Advanced Graduate Certificate in Data and Computational Science (and Engineering) — Tentative GPA: 3.940/4.000

The Ohio State University — Columbus, OH
Bachelor of Science in Mathematics (Theoretical Track) — *August 2017 - May 2020*
Minor in Computer Information Science (Database Track) — GPA: 3.672/4.000
Minor in Economics (Theoretical Concentration)

Skills

Programming Languages: C, C++, Java, LaTeX, MATLAB, Markdown, Python, SQL, R, SAS, Stata
Software and Integrated Development Environments (IDEs): Eclipse, GitHub, Jupyter Notebook, Microsoft Visual Studio, Overleaf, RStudio, TeXworks
Languages: English - proficient, Mandarin Chinese - native, Cantonese - native

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 of interests from the Bureau of Transportation Statistics.
- Preprocessed datasets by subsetting datasets, imputing missing data, merging datasets, and variable encodings.
- Obtained meaningful insights from the datasets by exploring descriptive statistics, testing significant variables, and visualizing data patterns and trends for model building.
- Implemented machine learning models, Ridge regression, k-nearest neighbors, and neural networks, to model the likelihoods of flight delays and compare their effectiveness.
- Presented the entire research process in a reproducible, tweakable, and well-documented notebook computing environment with an academic report.

Mathematical Biosciences Institute, The Ohio State University — Columbus, OH
Survival Analysis - Epidemic Modelling — *September 2019 - April 2020*

- Developed statistical methods to generate large-population samples from modeling epidemiological processes.
- Analyzed samples segregated into susceptible (S), infected (I), and recovered (R) compartments.
- Generated solutions using ordinary/partial differential equations, survival functions, or cumulative hazard functions.
- Computed the proportion of people susceptible or infected using computer software.
- Interpreted the awareness effect of spreading epidemics under Susceptible-Infected-Recovered (SIR) curves.

Kaggle Competitions (`https://www.kaggle.com/`): Microsoft Malware Prediction and Rossmann Store Sales
PMLi `R` Package: Statistical procedures in `R` to analyze partially matched samples - an experimental design based on independent samples and matched pairs designs.
Online Bookstore Information Management System and Database: An online bookstore database system using SQL to support inventory and sales operations.

Experience

Department of Mathematics, The Ohio State University — Columbus, OH
Math Peer Mentor - Four Students in Total — *August 2018 - April 2020*

- Identified possible barriers that students may have on personal, academic, or other problems during the first year to avoid transition issues and adjusting to college life.
- Fostered a sense of community for students and motivated them to utilize campus and community resources.
- Encouraged interpersonal and group interactions among mathematics and actuarial science students to actively participate in volunteering math competitions.

Relevant Coursework

Statistics: Exploratory and Categorical Data Analysis, Regression Analysis, Time Series Analysis
Computer Science: Data Science, Database Systems, Algorithms, Computer Architecture, Operating Systems
Economics: Econometrics, Microeconomic Theory, Macroeconomic Theory