Junjie(Jimmy) Ma

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Education

University of Toronto Toronto, CA
Master of Science, Department of Statistical Sciences 2024.09 - 2025.11(Expected)
Planned Coursework: Graduate Probability Theory; Mathematical Statistics; Applied Statistics; Neural Networks and Deep Learning; Statistical Methods for Machine Learning; Real Analysis; etc.

University of Toronto Toronto, CA
Honours Bachelor of Science with High Distinction in Statistics, Quantitative Finance Stream 2020.09 - 2024.06
Relevant Coursework: Multivariate Analysis(100); Probability and Stochastic Processes I&II(100&97); Categorical Data Analysis(100); Partial Differential Equations(99); Mathematical Option Pricing Theory(99); Regression Analysis(98); Survival Analysis(95); Time Series Analysis(91); Statistical Inference(90); etc.

Professional Experiences

University of Toronto Toronto, CA
Statistics Teaching Assistant 2023.01 - Present

- Course Taught/Scheduled:
  - STA457/2202 Time Series Analysis(cross-listed graduate course): Fall 2024
  - STAD37 Multivariate Analysis: Fall 2024
  - STA302 Methods of Data Analysis I: Winter 2025
  - Center of Teaching and Learning Statistics TA: Fall 2024; Winter 2025
  - STAC53 Applied Data Collection: Fall 2023
  - STAC51 Categorical Data Analysis: Fall 2023; Winter 2024
  - STAB57 Introduction to Statistics: Fall 2023; Winter 2024; Fall 2024
  - STAB22 Statistics I: Winter 2023; Winter 2024
- Assisted in teaching forth- and third-year statistics courses covering logistic regression, Poisson regression, likelihood and Bayesian inference, applied data collection, and statistical coding.
- Held office hours and monitored online Q&A platforms to provide academic assistance to approximately 280 students; Graded assignments & exams and provided detailed feedback.
- Organized weekly tutorial sessions to discuss lecture materials with approximately 35 students; demonstrated statistical coding and data analysis techniques using `R`.

Caitong Securities Co.,Ltd. Hangzhou, CN
Quantitative Research Assistant 2024.07 – 2024.08

- Developed and implemented ARIMA-GARCH models to forecast Shanghai stock market trends; Computed Cross-Correlation Functions between various factors and Shanghai & US500 index.
- Extracted, cleaned, and analyzed the data from the Chinese stock market over the past twenty years in Python to investigate the performance of the investing strategy proposed by the Pring Turner Approach.
- Utilized statistical models, including regression, to construct Leading Economic Indicators for the Chinese trade surplus, achieving an accuracy rate exceeding 60%.
- Reviewed and applied financial models that integrated information entropy and interest rate curves to identify bear markets.

KUKA GROUP Hangzhou, CN
Strategy Intern 2021.01 - 2021.07

- Conducted market research and customer analysis for shared massage chairs; utilized Excel to assess passenger flow data from over 100 locations.
- Evaluated market saturation using Excel-based models and simulated industry competitions.
- Accomplished feasibility analysis and offered strategically valuable recommendations and ideas.

Project & Research Experiences

University of Toronto Toronto, CA
Independent Readings in Statistics (Advisor: Dr. Ting-Kam Leonard Wong) 2023.09-2023.12
Topic: Brownian Motion and Potential Theory

- Explored and summarized crucial topics in Brownian motion, including Lévy's construction, regularity and cone condition, harmonic functions and local martingales, etc.
- Reviewed probabilistic approaches in classical potential theory; applied Brownian motion to represent harmonic functions, to solve the Dirichlet and Poisson problem, and to construct the equilibrium measure.
- Link to the Final Report.

Research Assistant (Advisor: Dr. So-hee Kang) 2023.05-2023.08
Project: Estimating unknown diagnostic sensitivity and specificity under the Bayesian hierarchical model

- Cleaned and visualized over 90,000 raw data points; investigated relationships between 15 rats' performance in detecting Tuberculosis and other factors using logistic regression models.
- Utilized k-means clustering to group rats with similar features; proposed Bayesian hierarchical models and Bayesian latent models on building the optimal rats' team.
- Performed sensitivity analysis on potential priors and hyperpriors; Coded the model in Stan and simulated the posterior distribution; Conducted posterior inference to exclude unqualified teams.
- Presented results and findings at the UTSC CMS research seminar.

Student Researcher (Advisor: Dr.Shahriar Shams) 2023.05-2023.08
Project: Risk Factors in Survival of Patients with Malignant Melanoma

- Estimated the Kaplan-Meier(K-M) survival curve for Malignant Melanoma patients and conducted stratified Log-rank tests to compare the survival curves in different groups.
- Fitted Cox proportional hazards models and performed the model selection; assessed model assumptions using Schoenfeld-residual tests and visualized log-log survival functions.
- Analyzed the survivor probability under parametric models, including log-logistic, Weibull, log-normal, Gompertz, etc.; interpreted the model under the accelerated failure time(AFT) assumption.
- Presented the project at the UTSC CMS research symposium. Link to the Poster.

Skills & Interests

Coding: Python(proficient), R(proficient), LaTeX(proficient), Excel(proficient), C(familiar), Java(familiar), MATLAB(familiar)
Language: Chinese(native), English(fluent)
Interests: Basketball, Badminton, Hiking, Reading