

JINGYANG LYU

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EDUCATION

University of Wisconsin-Madison , WI, USA	<i>09/2022 - 05/2027</i>
• <i>Ph.D. in Statistics</i> (advisor: Yiqiao Zhong). GPA: 4.00/4.00	
• Honors & Awards: Frontiers in Statistical Learning Travel Award (2025, the Institute of Mathematical Statistics (IMS)). Student Best Poster Award (2025, New England Statistical Society).	
University of Chicago , IL, USA	<i>09/2020 - 06/2022</i>
• <i>M.S. in Statistics</i> . GPA: 3.97/4.00	
• Honors & Awards: Tuition Scholarship Increase (2021).	
Tsinghua University , Beijing, China	<i>08/2016 - 06/2020</i>
• <i>B.Eng. in Industrial Engineering</i> . GPA: 3.71/4.00 (Rank: 7/63)	
• <i>Minor in Statistics</i> . GPA: 3.94/4.00	
• Honors & Awards: Outstanding Academic Performance Scholarship (2019). Outstanding Academic Progress Scholarship (2019). Excellent Student Leadership Award (2018).	

RESEARCH INTERESTS

◊ High-dimensional Statistics ◊ Foundations of Statistical Learning ◊ Applied Statistics

SELECTED PUBLICATIONS

1. Wei, Z.*, Zhu, W.*, **Lyu, J.***, Wu, W. B. (2025). Refining covariance matrix estimation in stochastic gradient descent through bias reduction. *Preprint*, (* indicates equal contribution).
2. **Lyu, J.**, Zhou, K., Zhong, Y. (2025). A statistical theory of overfitting for imbalanced classification. *Annals of Statistics*, (under review).
3. **Lyu, J.***, Chen, F.*., Wang, T., Sze, N. N. (2023). Exploring the association between quantified road safety target attributes and their success: An empirical analysis from OECD countries using panel data. *Journal of safety research*, 85, 296-307.
4. Chen, F., Zhu, Y., Zu, J., **Lyu, J.**, Yang, J. (2022). Appraising road safety attainment by CRITIC-ELECTRE-FCM: a policymaking support for Southeast Asia. *Transport policy*, 122, 104-118.
5. **Lyu, J.***, Chen, F.*., Wang, T. (2020). Benchmarking road safety development across OECD countries: An empirical analysis for a decade. *Accident Analysis & Prevention*, 147, 105752.

INDUSTRY EXPERIENCE

United Airlines , Chicago, IL	<i>05/2025 - 08/2025</i>
Statistics, <i>Internship</i>	
• Built statistical models for customer lifetime value forecasting using transaction data and engineered behavioral and loyalty features; delivered actionable insights to support segmentation and personalized retention strategies for the MileagePlus® program, informing marketing and loyalty operations.	

THESIS

Online Bootstrap Confidence Intervals for Stochastic Gradient Descent.	<i>06/2022</i>
Supervised by <i>Prof. Wei-Biao Wu</i> , Department of Statistics, University of Chicago	
• Conducted statistical inference for stochastic gradient descent using bootstrap-perturbed estimators, with a refined mathematical derivation and strengthened theoretical proofs building on prior work.	
• Designed and carried out simulation studies for regression models, along with real-data analyses implemented in R.	

Fault Diagnosis of Trains Based on Imbalanced Learning.

06/2020

Supervised by Prof. Yan-Fu Li, Department of Industrial Engineering, Tsinghua University

- Proposed an algorithm, namely the Recursive Different-Error-Cost Support Vector Machine, for handling highly imbalanced classification tasks, and implemented it in R.
- Demonstrated superior performance over existing methods on real-world train operation datasets.

TALKS AND PRESENTATIONS

- *The Inaugural Workshop on Frontiers in Statistical Learning*, Vanderbilt 2025.08
- *The 38th New England Statistics Symposium (NESS 2025)*, Yale 2025.06
- *Midwest Optimization & Statistical Learning Conference 2025*, Northwestern 2025.05
- *6th Annual Data Science Research Bazaar*, UW-Madison 2025.03
- *Math Statistical Learning seminar MPI MIS + UCLA*, UCLA 2025.03
- *Institute for Foundations of Data Science Ideas Forum*, UW-Madison 2024.11
- *100th Transportation Research Board (TRB) Annual Meeting*, Virtual 2021.01

TEACHING

Teaching Assistant at University of Wisconsin-Madison

- STAT 324 Introductory Applied Statistics for Engineers Fall 2022
- STAT 240 Data Science Modeling I Spring 2023
- STAT 340 Data Science Modeling II Fall 2023
- STAT 601 Statistical Methods I Spring 2024
- STAT 709 Mathematical Statistics Fall 2024
- STAT 340 Data Science Modeling II Spring 2025
- STAT 709 Mathematical Statistics Fall 2025
- STAT 601 Statistical Methods I Spring 2026

TECHNICAL STRENGTHS & OTHERS

Programming Languages R, Python, Matlab, SQL, SAS

Software Stan, Gurobi, CPLEX

Tools L^AT_EX