

JINGYANG LYU

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EDUCATION

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- University of Wisconsin-Madison, WI, USA** 09/2022 - 05/2027
- *Ph.D. in Statistics* (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** 09/2020 - 06/2022
- *M.S. in Statistics*. GPA: 3.97/4.00
 - **Honors & Awards:** Tuition Scholarship Increase (2021).
- Tsinghua University, Beijing, China** 08/2016 - 06/2020
- *B.Eng. in Industrial Engineering*. GPA: 3.71/4.00 (Rank: 7/63)
 - *Minor in Statistics*. 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

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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

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- United Airlines, Chicago, IL** 05/2025 - 08/2025
- Statistics, *Internship*
- 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

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- Online Bootstrap Confidence Intervals for Stochastic Gradient Descent.** 06/2022
- Supervised by *Prof. Wei-Biao Wu*, 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

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

TEACHING

Teaching Assistant at University of Wisconsin-Madison

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| • 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 ^A T _E X