HYEONG JIN HYUN

Department of Statistics, 150 N University St, West Lafayette, IN 47907, USA
Email: hyun18@purdue.edu ⋄ Linkedin: https://www.linkedin.com/in/hyeong-jin-hyun-abb970229/

EMPLOYMENT

Postdoctoral Scholar Purdue University, Aug. 2025 – Present

- Principal Investigators: Dr. Xiao Wang, Dr. Haibo Liu

EDUCATION

Purdue University U.S.A, 2025

- *Ph.D. Statistics*
- Advisor: Dr. Xiao Wang

Seoul National University South Korea, 2020

- *M.S. Statistics*
- Advisor: Dr. Johan Lim

Seoul National University South Korea, 2018

- *B.S. Mathematics, Statistics (double major)*
- Cum Laude
- Leave of absence for military service (Sep 2014 - Jun 2016)

RESEARCH INTERESTS

Simulation-based inference, approximate Bayesian computation, Amortized inference, conformal prediction, generative model, flow model, uncertainty characterization, inferential model

WORKING PAPERS

- (with Wang, X.) **Neural Amortized Bayesian Conformal Inference** (under review)

PUBLICATIONS

- **Hyun, H.***, and Wang, X. (2025+). Neural Conformal Inference for Jump Diffusion Processes, *Journal of Econometrics*, accepted
- **Hyun, H.***, and Wang, X. (2025). Fast Cost-Constrained High Dimensional Regression, *Statistica Sinica*, accepted
- **Hyun, H.***, Kim, Y*., Kim, S., Kim, J., Lim, J., Lim, D. and Kwon, S. (2021). Constrained Principal Component Analysis with Stochastically Ordered Scores for High-Dimensional Mass Spectrometry Data, *Chemometrics and Intelligent Laboratory Systems*

AWARDS

2025 William J. Studden Publication Award April 2025
2024 ICSA Best Poster Award June 2024
2023 ASA Best Student Paper Award B&E Section Aug 2023
2023 ICSA Best Student Paper Award Honorable Mention June 2023

RESEARCH EXPERIENCE

Research Assistant Purdue, 2022, 2023-Present

- Developed probabilistic machine learning algorithms for simulation-based inference; proved theoretical results and conducted large-scale simulations using `PyTorch` and `SLURM`.
- Proposed a fast, cost-constrained regression framework with theoretical guarantees; demonstrated superior performance over state-of-the-art methods using NHANES data.
- Designed a novel inference method for diffusion processes; established Bayesian consistency and validated it through extensive jump diffusion simulations.

Research Assistant: Multivariate Statistics lab SNU, South Korea, 2018-2020

- Analyzed spectrometry data of rice with varying chemical compositions from Korea and China.
- Extended traditional PCA to ordered-scores PCA (os-PCA), incorporating prior knowledge of chemical order.
- Proved theoretical properties of os-PCA using singular value decomposition and conducted simulations for validation.

Summer Research Program in Industrial and Applied Mathematics (SPIA 2017)
HKUST, Hong Kong, 2017

- Processed high-dimensional time-series voice data and transformed voice profiles using learned features.
- Applied LSTM models to extract latent features and generate modified voice characteristics; presented findings at HKUST.

TEACHING EXPERIENCE

- At Purdue
  - STAT 598 (**Instructor**): Qualifying exam preparation course 2025, 2024
    1. Designed and taught a preparatory course in mathematical statistics for first-year Ph.D. students.
    2. Provided detailed solutions to past 15 years of qualifying exams to enhance student readiness.
    3. Held daily office hours to offer personalized guidance and address challenging concepts.
  - STAT 519: Introduction to Probability Theory 2022
    1. Solved and graded all homework assignments, publishing detailed solutions for students.
  - STAT 301: Elementary Statistical Methodology 2020-2023
    1. Led weekly lab sessions to teach statistical methods and demonstrated `SPSS` functionality.
    2. Provided personalized guidance during weekly office hours and proctored exams.
    3. Designed, distributed, and graded lab assignments to enhance student learning.
  - STAT 512: Applied Regression Analysis 2020
    1. Taught students how to implement regression techniques using `R` during lab sessions.
    2. Graded assignments and exams to evaluate student progress and understanding.
- At SNU (South Korea)
  - TA Coordinators 2018-2019
    1. Organized and hosted meetings to allocate teaching assistants to classes within the statistics department.
    2. Facilitated networking and discussions between TAs and instructors to improve coordination.
  - Statistical Consulting and Practices 2019
    1. Advised clients on statistical issues related to their research projects.
    2. Scheduled consulting services and provided cost estimates for each service.

– Introduction to Statistics 2018
  1. Led weekly lab sessions, teaching students to use `R` and demonstrating statistical workflows.
  2. Held weekly office hours to support student learning and proctored exams.
– Mathematical Statistics 2018 summer
  1. Conducted six hours of weekly office hours, teaching problem-solving strategies for exercises from assigned texts.
  2. Managed exam logistics, including proctoring and grading weekly assessments.

TALKS

2024 Purdue GSO West Lafayette, Nov 2024
2024 JSM Topic-Contributed Session Portland, Aug 2024
2024 ICSA Poster Session Nashville, Aug 2024
Purdue GSO Seminar West Lafayette, Nov 2023
2023 ICSA Symposium Best Student Paper Award Presentation Ann Arbor, June 2023
2023 JSM Best Student Paper Award Presentation Toronto, Aug 2023

JOURNAL SERVICES

JASA (2), Techonometrics(1), ICLR (3), NeurIPS (5), ICML (3)

SKILLS & LANGUAGES

Languages	Korean (native), Jejueo (native), English (fluent)
Computation Skills	Python, R, MATLAB, SPSS
Document Software	LaTeX, Microsoft Office

SOFTWARE

- `NCoin-JDP`: `https://github.com/anonymous1116/NCoin-JDP`
- `FCR`: `https://github.com/anonymous1116/FCR`
- `os-PCA`: `https://github.com/hjhyu0081/osPCA`