

YEO JIN JUNG

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Summary

PhD candidate in Statistics at the University of Chicago working on reliable and trustworthy AI, synthetic data generation, and applications to real-world data. My research includes developing efficient evaluation methods for large-scale ML, using reinforcement learning to generate synthetic data for pretraining generative models, and low-rank methods for graph- and spatially-structured datasets. I have a strong commitment to bridging technical advancements with practical impact.

Education

The University of Chicago

Chicago, IL

Ph.D. in Statistics (4th year, available Jun.-Sep. 2026, graduation Jun. 2027)

Sep. 2022 - Present

Yonsei University

Seoul, South Korea

M.A. in Statistics and Data Science, GPA: 4.20/4.30

Mar. 2020 - Feb. 2022

Yonsei University

Seoul, South Korea

B.A. in Applied Statistics, GPA: 4.02/4.30, Class Rank: 5/81

Mar. 2016 - Feb. 2020

- **Awards:** Highest Honors (Spring 2019); Honors (Spring 2016, 2018)

Research Experience

SIGNAL Lab (The University of Chicago)

Chicago, IL

Research Assistant (Advisor: Prof. Claire Donnat)

Sep. 2023 - Present

- Implementing a data-selection framework for efficient LLM pretraining, using reinforcement-learning-based scoring and gradient signals to prioritize high data quality and reduce training cost under fixed compute budgets.
- Developed a scalable conformal prediction framework with a piecewise-linear path solver for kernel quantile regression, achieving 20–50× faster inference and enabling rapid risk-aware evaluation at scale; released as a Python package.
- Contributed to a conformal data augmentation pipeline that filters synthetic data with confidence sets, improving downstream performance of LLMs, computer vision systems, and fraud detection models by 2-6% across benchmarks.
- Designed a graph-constrained iterative SVD algorithm for structured high-dimensional data, with theoretical guarantees and scalable implementation; released as an open-source Python package.

Yonsei University

Seoul, South Korea

Research Assistant (Advisor: Prof. Jaewoo Park)

Nov. 2020 - Aug. 2022

- Proposed a fast Bayesian spatio-temporal model with functional data, including inference for functional covariates through simultaneous credible intervals. Validated the method on malaria incidence and U.S. COVID-19 datasets.
- Extended autologistic models to identify underlying network structure to predict psychological path of depression symptoms.

Technical Skills

Languages: Python, R, SQL (basic)

Frameworks & Platforms: PyTorch, TensorFlow, Transformers, Scikit-learn, Linux, Slurm, HPC clusters, CUDA, Git

ML & Research Areas: Reinforcement learning, deep learning, data selection, synthetic data generation, active learning, conformal prediction, optimization, kernel methods, high-dimensional theory

Publications

- [1] SpeedCP: Fast Kernel-based Conditional Conformal Prediction [Link] [Github]
Jung, Y. J., Liu, Y., Wu, Z., Jeong, S., Donnat, C. (2025), *Under review, ICLR 2026*
 - Invited talk at Royal Statistical Society International Conference 2025 “Conditional Conformal Prediction On Large Network Models with High-dimensional Data”
- [2] Filtering with Confidence: When Data Augmentation Meets Conformal Prediction [Link]
Wu, Z., Jeong, S., Liu, Y., **Jung, Y. J.**, Donnat, C. (2025), *Under review, ICLR 2026*
- [3] Graph Topic Modeling for Documents with Spatial or Covariate Dependencies [Link] [Github]
Jung, Y. J., Donnat, C. (2025), *Under review, JRSS-B*
 - **2nd place Poster Award at SNAB 2024**; Poster presentation at APS Global Physics Summit 2025

- [4] Fast Bayesian Functional Regression for Non-Gaussian Spatial Data [Link]
 Kang, H., **Jung, Y. J.**, Park, J. (2024)
Bayesian Analysis. 19(2): 407-438
 • Poster presentation at Bernoulli-IMS 2021
- [5] Mortality Prediction of Patients in Intensive Care Units Using Machine Learning Algorithms Based on Electronic Health Records [Link]
 Choi, M. H., Kim, D., Choi, E. J., ..., **Jung, Y. J.**, Jeong, S. H. (2021)
Scientific Reports, 12(1), 7180.

Presentations

Invited talk at Royal Statistical Society International Conference	09/04/2025
Poster at APS Global Physics Summit	03/17/2025
Poster at Statistical Network Analysis and Beyond (SNAB)	06/16/2024
Poster at Bernoulli-IMS 10th World Congress in Probability and Statistics	07/21/2021

Awards and Honors

Senior Consultant Winner, University of Chicago	2025
Poster Award at SNAB 2024 - 2nd place	2024
Student Research Poster Day Award - 2nd place , University of Chicago	2024
Consulting Cup Winner, University of Chicago	2023
Excellent Paper Award at 2021 Brain Korea Academic Conference, Yonsei University	2021
Graduate (Bachelor's-Master's Combined Program) Scholarships, Yonsei University	2020, 2021
Chief of National Information Society Agency Award, 2020 NIA Big Data Contest	2020
Brain Korea 21 Scholarships, National Research Foundation of Korea	2020
Semester Highest Honors Scholarship, Yonsei University	2019
Honors Scholarships, Yonsei University	2016, 2018

Teaching Assistantship

STAT 24620/32950 : Multivariate Statistical Analysis: Applications and Techniques	Spring 2025
STAT 27400/37400 : Nonparametric Inference	Winter 2024, 2025
STAT 24400 : Statistical Theory and Methods I	Autumn, Winter 2023
STAT 24500 : Statistical Theory and Methods II	Spring 2023

Leadership and Extracurriculars

Statistical Consulting Center	Yonsei University, University of Chicago
<i>Consultant</i>	Sep. 2021 - May. 2025

- Provided statistical advice on the appropriate use of data and analysis to researchers in the biomedical, social sciences, and engineering fields.

Expanded Statistics Club	Yonsei University
<i>Vice President, Project team leader</i>	Sep. 2018 - Jun. 2019

- Covered advanced theories in *Bayesian Statistics*, *Dimension Reduction*, and *Statistical Machine Learning* and presented data-driven solutions with applications to real-world data.
- Led 30+ members to actively share statistical insights in an academic session each week.