

Gyumin Lee

minzzang68@yonsei.ac.kr | [google scholar](https://scholar.google.com/citations?user=gyumin-lee68) | [gyumin-lee68.github.io](https://github.com/gyumin-lee68)

ACADEMIC INTEREST

High-dimensional Inference : Robust Statistics, Distribution-free Inference, Kernel Methods

Computational Statistics : AI-driven Statistical Inference, Deep Learning Theory, Applications of Harmonic Analysis in Statistical Frameworks

EDUCATION

Yonsei University

Master of Arts in Statistics and Data Science

Mar. 2023 - Present

Seoul, South Korea

- Total GPA of 4.30 / 4.30 (**4.0** / **4.0**)

Yonsei University

Bachelor of Arts in Applied Statistics / Bachelor of Science in Mathematics (Double Major)

Mar. 2017 – Feb. 2023

Seoul, South Korea

- Total GPA of 4.14 / 4.30 (**3.93** / **4.0**)
- Leave of Absence: Republic of Korea Army

Aug. 2018 – May 2020

University of Wisconsin - Madison

Exchange Student

Jan. 2022 – May 2022

Madison, WI

- Total GPA of **4.0** / **4.0**

PUBLICATIONS

Lee, G., Shekhar, S., and Kim, I. (2024). A Semi-Supervised Kernel Two-Sample Test. *in preparation*

Lee, J., Kim, C., **Lee, G.**, Lim, H., Choi, J., Lee, K., Lee, D., Hong, S., and Park, N. HyperNetwork Approximating Future Parameters for Time Series Forecasting under Temporal Drifts. In *NeurIPS 2023 Workshop on Distribution Shifts: New Frontiers with Foundation Models(DistShift)*.

Lee, J., Kim, C., **Lee, G.**, Lim, H., Choi, J., Lee, K., Lee, D., Hong, S., and Park, N. (2022). Time series forecasting with hypernetworks generating parameters in advance. *arXiv preprint arXiv:2211.12034*.

PRESENTATIONS

Lee, G., Shekhar, S., and Kim, I. “A Semi-Supervised Kernel Two-Sample Test”. 2024 Korean Statistical Society Winter Conference. Nov. 23, 2024. Korea Advanced Institute of Science of Technology, Daejeon, Republic of Korea (Oral)

Lee, G., Shekhar, S., and Kim, I. “A Semi-Supervised Kernel Two-Sample Test”. 2024 Brain Korea Student Seminar. June 5, 2024. Yonsei University, Seoul, Republic of Korea (Oral)

Lee, G. “Semi-Supervised Learning : Inference”. Basic Research Laboratory Seminar. August 29, 2023. Yonsei University, Seoul, Republic of Korea (Oral)

RESEARCH EXPERIENCE

Graduate Researcher

Dept. of Statistics and Data Science, Yonsei University

Mar. 2023 – Present

Seoul, South Korea

- Advised by Dr. Ilmun Kim (Yonsei University).
- Proposed semi-supervised kernel two-sample test, analyzing its asymptotic properties and condition under which it exhibits efficiency gain with numerical analysis.
- Reviewed the proof and provided constructive suggestions, receiving acknowledgment from the authors in their publications [1, 2, 3].
- Devised statistic for conditional independence testing using sample-splitting.
- Organized seminars and collaborated with other graduate students to review related literature and gain intuition.

Graduate Researcher

Basic Research Laboratory, Dept. of Statistics and Data Science, Yonsei University

Mar. 2023 – Present

Seoul, South Korea

- Advised by Dr. Yongho Jeon (Yonsei University).

- Delivered a presentation on recent studies in semi-supervised inference, focusing on a general framework to ensure robustness and efficiency.
- Investigated the statistical foundations and insights underlying modern machine learning & deep learning.

Part-time Researcher

July 2023 – Present

Dept. of Rehabilitation Medicine, Yonsei University

Seoul, South Korea

- Advised by Dr. Sung-Rae Cho (Yonsei University).
- Conducted statistical analysis using generalized linear model and explainable AI on patient data addressing missing data problems and provided various graphics and figures describing the results.
- Provided advice on statistical analysis to predict a rehabilitative prognosis of spinal fusion surgery in patients and analyze correlation between related variables.

Undergraduate Research Intern

June 2021 – Jan. 2022

Big Data Analytics Lab., Dept. of Computer Science, Yonsei University

Seoul, South Korea

- Advised by Dr. Noseong Park (Yonsei University, now at Korea Advanced Institute of Science and Technology).
- Proposed a hypernetwork model, i.e., HyperGPA, that forecasts the model parameters of various time series forecasting models using Graph Convolutional Network and provided experiments with different forecasting benchmarks, developing this research into a paper.
- Explored various methods of deep learning for time series forecasting using Neural Ordinary Differential Equation.

SCHOLARSHIPS & GRANTS

Overseas PhD Fellowship , Korea Foundation for Advanced Studies (KFAS)	Fall 2025 – Spring 2030
<ul style="list-style-type: none"> • Selected in natural science division for \$13,000 annual research fellowship. 	
Basic Research Laboratory Grant, Yonsei University	Spring 2023 – Fall 2024
Graduate Research Assistant Grant, Yonsei University	Spring 2023 – Fall 2024
Graduate Teaching Assistant Scholarship, Yonsei University	Spring 2023 – Fall 2024
Graduate (Bachelor's-Master's Combined Program) Scholarship, Yonsei University	Spring 2023 – Fall 2024
<ul style="list-style-type: none"> • Received full financial support for tuition. 	
Merit-Based Scholarship, Altwell Mincho Scholarship Foundation	Spring 2018 – Fall 2022
<ul style="list-style-type: none"> • Received full financial support for tuition and an additional \$3,200 annual stipend. 	
Merit-Based Scholarship, Guwon Scholarship Foundation	Spring 2021, Fall 2022
Global Exchange Scholarship, Mirae Asset Park Hyeon Joo Foundation	Spring 2022
<ul style="list-style-type: none"> • Selected as one of 200 recipients from 1,000 applicants for \$5,300 stipend. 	
Undergraduate Research Grant, Yonsei University	Fall 2021
Merit-Based scholarship, Yonsei University	Fall 2021
Korea Student Aid Foundation Scholarship	Spring 2017 – Fall 2017
<ul style="list-style-type: none"> • Received full financial support for tuition 	

AWARDS & HONORS

Excellent Prize, 2023 Yonsei Big Data Analysis Competition	Summer 2023
Semester High Honors, Yonsei University	Fall 2017, Fall 2022
Semester Honors, Yonsei University	Spring 2017, Fall 2021

TEACHING EXPERIENCES

Yonsei University

Mar. 2023 – Present

Teaching Assistant

- Mathematical Statistics II (Spring 2023, Fall 2023, Spring 2024, Fall 2024)
: Reviewed and revised the exam problems for 100+ undergraduate students; Graded exams and offered targeted feedback.
- Introduction to Statistics (Fall 2023, Fall 2024)
: Prepared weekly TA sessions with review and problem-solving lectures for 30+ undergraduates **in English**; Assessed exams and provided detailed feedback to support academic improvement.

Seoul National University

Aug. 2023

Teaching Assistant

- Machine Learning/AI-Based Research Methodologies in Child and Family Studies (Summer 2023)
: Reviewed and revised the course material; Designed a part of course explaining classification algorithms and advised students to help them use R program properly.

Yonsei University

Sep. 2022 – Dec. 2022

Undergraduate Tutor

- Mathematical Statistics I (Fall 2022)
: Prepared weekly review sessions and explained challenging practice problems.
- Survival Data Analysis (Fall 2022)
: Prepared weekly review sessions and provided detailed explanations with R codes.

LEADERSHIP AND EXTRACURRICULARS

Expanded Statistics Club

July 2020 – Dec. 2021

Vice President, Head of Study Preparation Team

Yonsei University

- Advised by Dr. Jongho Im (Yonsei University).
- Prepared and taught a course on Statistical Learning Theory and Real Analysis.
- Took part in sessions, studying Convex optimization, Bayesian Statistics, and Deep Learning in Computer Vision & Natural Language Processing.
- Led 30+ participants in weekly sessions and final projects focused on applying methods to real-world data.
- Organized seminars on diverse topics in statistics, hosting guest lectures from professionals in related fields.

LANGUAGE PROFICIENCY

Fluent in English, Intermediate in German, and Native in Korean

IBT TOEFL **113/120**: 29/30/27/27 (R/L/S/W)

GRE General Test **V 161** (87%)/ **Q 170** (96%)/ **W 3.5** (37%)

PROGRAMMING SKILLS

Languages: Python, R, MATLAB, SAS, \LaTeX

REFERENCES

Ilmun Kim

Assistant Professor

Department of Applied Statistics

Yonsei University

Phone: +82-2-2123-2487

Email: ilmun@yonsei.ac.kr

Noseong Park

Associate Professor

School of Computing

Korea Advanced Institute of Science and Technology

Phone: +82-42-350-3514

Email: noseong@kaist.ac.kr

Richard Chappell

Professor

Department of Statistics, Biostatistics & Medical Informatics

University of Wisconsin Madison

Phone: +1-608-890-0940

Email: chappell@biostat.wisc.edu

-
- [1] Ilmun Kim, Larry Wasserman, Sivaraman Balakrishnan, and Matey Neykov. Semi-supervised u-statistics. *arXiv preprint arXiv:2402.18921*, 2024.
 - [2] Ikjun Choi and Ilmun Kim. Computational-statistical trade-off in kernel two-sample testing with random fourier features. *arXiv preprint arXiv:2407.08976*, 2024.
 - [3] Seongchan Lee, Suman Cha, and Ilmun Kim. General frameworks for conditional two-sample testing. *arXiv preprint arXiv:2410.16636*, 2024.