

Hoyoung Park

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EDUCATION

Seoul National University

Ph.D in Statistics, Advisor: [Junyong Park, Ph.D](#)

- Thesis: On the Nonparametric Maximum Likelihood Estimation Method for Simultaneous Mean Vector Estimation and its Applications.

Seoul, Republic of Korea

Mar. 2014 – Aug. 2021

Sogang University

B.S in Mathematics (Summa Cum Laude)

Seoul, Republic of Korea

Mar. 2011 – Feb. 2014

EMPLOYMENT

Department of Statistics, Sookmyung Women's University

Assistant Professor

Seoul, Republic of Korea

Sep. 2022 – Present

EXPERIENCE

Editorial Service

Early Career Advisory Board of [Journal of Multivariate Analysis](#)

April. 2024 – Present

National Institutes of Health(NIH)

Post-Doctoral Fellow, Principal Investigator: [Véronique L Roger, MD, MPH](#)

Bethesda, MD, USA

Sep. 2021 – Aug. 2022

- Heart Disease Phenomics Laboratory Epidemiology and Community Health Branch, National Heart, Lung, and Blood Institute (NHLBI)

The Institute of Statistical Mathematics

Visiting Researcher, Advisors: [Junji, Nakano, Ph.D](#) and [Mano, Shuhei, Ph.D](#)

Tokyo, Japan

Winter, 2016

RESEARCH INTEREST

- Asymptotic Theory
- Causal Inference
- Clustering Analysis
- Data Integration
- Epidemiologic Design and Analysis for Proteomic Studies
- High-Dimensional Classification
- Multiple Testing in Bioinformatics
- Nonparametric Method

GRANTS

National Research Foundation of Korea (No: RS-2026-25493643)

Mar. 2026 – Present

Role: Principal Investigator

- Unified Nonparametric Empirical Bayes Framework for High-Dimensional Inference with Unknown Heteroscedasticity.

National Research Foundation of Korea (No: RS-2024-00338876)

April. 2024 – Present

Role: Investigator

- Incorporating Structural Characteristics of Data to Enhance Multivariate Methodologies.

National Research Foundation of Korea (No: RS-2023-00212502)

Mar. 2023 – Feb.2026

Role: Principal Investigator

- High-dimensional parameter estimation method and its application to the classification and clustering analysis of high-dimensional data.

Referred Publications |

- * Choo, I.,^{†,§} **Park, H.**, Gordon, B. A., Bateman, R. J., Bateman, R., Daniels, A. J., ... & Lopera, F. (2026) Longitudinal subcortical volume changes and their correlations with multiple PET and fluid biomarkers in dominantly inherited Alzheimer's disease. *The Journal of Prevention of Alzheimer's Disease*. [\[link\]](#)
- * Oh, S.,[†] Park, S., and **Park, H.**[§]. (2026) Nonparametric Linear Discriminant Analysis for High Dimensional Matrix Valued Data. *Statistical Data Analysis and Data Mining*. [\[link\]](#)
- * Kim, J.[†], Park, J., and **Park, H.**[§]. (2025) High dimensional discriminant rules with shrinkage estimators of the covariance matrix and mean vector, *Journal of Statistical Planning and Inference*. [\[link\]](#)
- * Park, J.[†], Woo, S.[†], Choi, Y. G., **Park, H.**, Im, J. P., Lee, H. J., ... & Park, H. S.[§], Koh, S. J.[§] (2025). Antibiotic usage within the first year of life has a protective effect against ulcerative colitis in South Korea: A nationwide cohort study, *Digestive and Liver Disease*. [\[link\]](#)
- * Oh, S.[†] and **Park, H.**[§]. (2024) Nonparametric Mean and Variance Adaptive Classification Rule for High-Dimensional Data with Heteroscedastic Variances, *Statistical Data Analysis and Data Mining*. [\[link\]](#)
- * Baek, S.[†], **Park, H.**, and Park, J.[§]. (2024) Variable Selection Using Data Splitting and Projection for Principal Fitted Component Models in High Dimension, *Computational Statistics and Data Analysis*. [\[link\]](#)
- * KuKu, K.[†], Shearer, J.[†], Hashemian, M., Oyetoro, R., **Park, H.**, Dulek, B., Bielinski, S., Larson, N., Ganz, P., Levy, D., Psaty, B., Joo, J.[§], Roger, VL.[§]. (2024) Development and Validation of a Protein Risk Score for Mortality in Heart Failure: A Community Cohort Study, *Annals of Internal Medicine*. [\[link\]](#)
- * **Park, H.**[†] and Park, J.[§]. (2024) A robust false discovery rate procedure using the empirical likelihood with a fast algorithm, *Journal of Statistical Computation and Simulation*. [\[link\]](#)
- * Conners, K.[†], Shearer, J., Joo, J., **Park, H.**, Manemann, S., Remaley, A., Otvos, J., Connelly, M., Sampson, M., Bielinski, S., Wolska, A., Turecamo, S., Roger, VL.[§] (2023). The Metabolic Vulnerability Index: A Novel Marker for Mortality Prediction in Heart Failure. *The Journal of the American College of Cardiology: Heart Failure*. [\[link\]](#)
- * **Park, H.**[†], Loh, J.-M. and Jang, W.[§] (2023). Nonparametric inference for interval data using kernel methods. *Journal of Nonparametric Statistics*. [\[link\]](#)
- * Shearer, J.[†], **Park, H.**, Joo, J., Kuku, K., Bielinski, S., Manemann, S., Roger, VL.[§]. (2022). Proteomic Assessment of Novel Kidney Function Biomarkers in Heart Failure: A Community Study. *Circulation*, 146(Suppl.1):A10494-A10494. [\[link\]](#)
- * KuKu, K.[†], **Park, H.**[†], Dulek, B., Bielinski, S., Joo, J., Roger, VL.[§] (2022). Protein signatures of heart failure mortality in the community. *European Heart Journal*, 43(Supplement.2):ehac544-919. [\[link\]](#)
- * **Park, H.**[†] and Park, J.[§] (2022). Poisson mean vector estimation with Nonparametric Maximum Likelihood Estimation and Application to Protein Domain Data. *Electronic Journal of Statistics*, 16(2), 3789-3835. [\[link\]](#)
- * Turecamo, S.[†], Wolska, A., Otvos, J., Remaley, A., Conners, K., Joo, J., **Park, H.**, Sampson, M., Bielinski, S., Sauver, J., Roger, VL.[§] (2022). 1092-P: Lipoprotein Insulin Resistance Index and Mortality in Heart Failure: A Population Study. *Diabetes*, 71(Supplement.1). [\[link\]](#)
- * **Park, H.**[†], Baek, S., and Park, J.[§] (2022). High-dimensional classification based on nonparametric maximum likelihood estimation under unknown and inhomogeneous variances. *Statistical Data Analysis and Data Mining*, 15(2), 193-205. [\[link\]](#)
- * **Park, H.**[†], Baek, S., and Park, J.[§] (2022). High-dimensional linear discriminant analysis using nonparametric methods. *Journal of Multivariate Analysis*, 188, 104836. [\[link\]](#)
- * Baek, S.[†], **Park, H.**, and Park, J.[§] (2021). A High-Dimensional Classification Rule Using Sample Covariance Matrix Equipped With Adjusted Estimated Eigenvalues. *Stat*, 10(1), e358. [\[link\]](#)

Submitted to Publications |

- * **Park, H.**[†] and Park, J.[§]. Semiparametric empirical Bayes method for Normal mean estimation of the hierarchical Normal model with unknown heteroscedastic variances,
- * Song, C.[†] and **Park, H.**[§]. An Adaptive Empirical Bayes Confidence Interval for Mean Estimation under Mean-Variance Dependence,

Papers in preparation |

- * **Park, H.**[†], Leifer, E., Roger, VL., Joo, J.[§]. Semi-supervised clustering method and its application to the proteomics data of heart failure patients.
- * **Park, H.**[†] and Park, J.[§]. GTHART: Multiple Testing Procedures under heteroscedastic and unknown variances.

PRESENTATIONS

- **Sungshin Women's University, School of Mathematics, Statistics and Data Science, Nov, 2025:** Oral presentation (Title: Vector–Matrix–Tensor Discriminant Analysis via Nonparametric Empirical Bayes)
- **Korean Data & Information Science Society, Nov, 2025:** Oral presentation (Title: Vector–Matrix–Tensor Discriminant Analysis via Nonparametric Empirical Bayes)
- **International Day of Women in Statistics and Data Science, Oct, 2024:** Oral presentation (Title: Leveraging Empirical Bayes for High-Dimensional Data: Techniques and Applications Across Diverse Fields)
- **Hanyang University, Department of Mathematics, Dec, 2023:** Oral presentation (Title: Semi-supervised clustering method and its application to the proteomics data of heart failure patients.)
- **Joint Statistical Meetings, Toronto, Canada, Aug, 2023:** Oral presentation (Title: Semi-supervised clustering method and its application to the proteomics data of heart failure patients.)
- **Inha University, Department of Statistics, May, 2023:** Oral presentation (Title: Nonparametric Maximum Likelihood Estimation Method for High-Dimensional Data Analysis.)
- **Chonnam National University, Department of Statistics, Mar, 2023:** Oral presentation (Title: Nonparametric Maximum Likelihood Estimation Method for High-Dimensional Data Analysis.)
- **University of Maryland, Baltimore County, Department of Mathematics and Statistics, May, 2022:** Oral presentation (Title: High-dimensional linear discriminant analysis using nonparametric methods.)
- **Korean Statistical Society, Seoul, Republic of Korea, Jul, 2020 :** Oral presentation (Title: Estimation of normal mean vector under unknown and unequal variances and its application to high dimensional classification.)
- **The 11th International Conference of the ERCIM WG on Computational and Methodological Statistics, Pisa, Italia, Dec, 2018:** Poster presentation (Title: Double shrinkage linear Empirical Bayes for normal mean problem.)
- **International Chinese Statistical Association, Shanghai, China, Dec, 2016:** Oral presentation (Title: Nonparametric symbolic data analysis.)
- **Korean Statistical Society, Daejeon, Republic of Korea, Nov, 2016:** Oral presentation (Title: Nonparametric symbolic data analysis.)

TEACHING

- Undergraduate Course
 - Experimental Design and Analysis of Variance 2022-Fall
 - Understanding Statistics (Team teaching) 2024-Spring
 - Mathematical Statistics I [[Lecture Notes \(2026 ver\)](#)] 2023 - 2025-Spring
 - Data Mining [[Lecture Notes \(2025 ver\)](#)] 2023 - 2025-Fall
 - Nonparametric Statistics [[Lecture Notes \(2025 ver\)](#)] 2025-Fall
- Graduate Course
 - Linear model theory [[Lecture Notes \(2026 ver\)](#)] 2023 - 2025-Spring

REFeree SERVICES

- Journal of Multivariate Analysis
- Statistica Sinica
- Computational Statistics and Data Analysis
- Journal of the Korean Statistical Society
- Statistical Analysis and Data Mining
- Communications in Statistics – Theory and Methods

TECHNICAL SKILLS

- **Languages:** R, Rcpp, Python, C/C++, L^AT_EX

HONORS & AWARDS

- **First Prize in the paper presentation** (Title: Nonparametric symbolic data analysis.): Korean Statistical Society, November 2016
- **Dean's Prize:** Sogang University, September, 2012

LINKS

- [Google Scholar](#)
- [ResearchGate](#)
- [ORCID](#)

THE NAMES OF THREE REFERENCES

- Junyong Park, PhD, Professor, Department of Statistics, Seoul National University, 1, Gwanak-ro, Gwanak-gu, Seoul, 08826, Republic of Korea. junyongpark@snu.ac.kr
- Véronique L Roger, MD, MPH, Chief, Epidemiology and Community Health Branch, National Heart, Lung and Blood Institute, National Institutes of Health, 9000 Rockville Pike, Bethesda, MD 20892, USA. veronique.roger@nih.gov
- Jungnam Joo, PhD, Mathematical Statistician, Office of Biostatistics Research, National Heart, Lung and Blood Institute, National Institutes of Health, Rockledge, Bethesda, MD 20892, USA. jungnam.joo@nih.gov

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