

Sewon Park

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RESEARCH INTEREST

My research interests lie at the intersection of Bayesian statistics and deep learning, with a particular focus on modeling tabular and time-series data. I have expertise in nonparametric Bayesian methods, synthetic data generation, time-series anomaly detection, and missing data analysis. My current work focuses on high-dimensional statistical methods and dimension reduction techniques, particularly the envelope model.

PROFESSIONAL EXPERIENCE

Assistant Professor **September 2025 - Present**
Department of Statistics, Sookmyung Women's University, South Korea

Senior Engineer **September 2021 - August 2025**
Security Algorithm Lab, Samsung SDS, South Korea

EDUCATION

Ph.D., Statistics **March 2015 - August 2021**
Department of Statistics, Seoul National University, Seoul, Korea
• **Advisor:** Professor Jaeyong Lee.
• **Thesis:** *Bayesian Nonparametric Regression via Overcomplete Systems with B-spline Bases*

Bachelor of Arts, Economics, Applied Statistics (Double Major) **February 2015**
Department of Economics, Yonsei University, Gangwon, Korea

TEACHING EXPERIENCE

Teaching Assistant **Spring 2015 - Spring 2019**
Seoul National University, Korea

- Mathematical Statistics 1 **Spring 2016, Spring 2019**
- Bayesian Statistics and Lab **Fall 2018**
- Regression Analysis and Lab **Spring 2018**
- Statistical computing and Lab **Fall 2016, Fall 2017**
- Statistical Consulting and Practices **Spring 2017**
- Statistics Concept and Lab **Fall 2015**
- Introduction to Statistics **Spring 2015**

HONORS & AWARDS

Winner of the 2023 T-SM Best Paper Award **January 2024**
First prize winner in Graduate Student Paper Award (Korean Statistical Society)
Winter 2020
Brain Korea 21 Plus Scholarship (National Research Foundation) **Spring 2016 - Spring 2019**
Merit-based Scholarship (Seoul National University) **Fall 2015**
Merit-based Scholarship (Yonsei University) **Fall 2012, Spring 2007**

PROJECTS

Insider threat detection, Samsung SDS **January 2024 - August 2025**
Malware detection, Samsung SDS **January 2023 - December 2023**
Time-series anomaly detection, Samsung SDS **July 2022- June 2023**
Synthetic data generation, Samsung SDS **September 2021 - June 2022**
Statistical research for semiconductor manufacturing data, Samsung Electronics, DS division **Fall 2018 - August 2021**
Development of the cost estimation methods for radar systems, Agency for Defence

PUBLICATIONS * Corresponding author, † Co-first author.

Suji Lee, Sukjin Han, **Sewon Park**^{*}, Kyeongwon Lee, and Jaeyong Lee. (2019) Korean speech recognition using deep learning (in Korean). *The Korean Journal of Applied Statistics*, 32 (2), pp. 213-227.

Jayoung Kim, Chaejeong Lee, Yehjin Shin, **Sewon Park**, Minjung Kim, Noseong Park, and Jihoon Cho. (2022, August). SOS: Score-based oversampling for tabular data. In *Proceedings of the 28th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD '22)*, pp. 762-772.

Sewon Park^{*}, Kyeongwon Lee, Da-Eun Jeong, Heung-Kook Ko and Jaeyong Lee. (2023, May) Bayesian Nonparametric Classification for Incomplete Data With a High Missing Rate: an Application to Semiconductor Manufacturing Data. *IEEE Transactions on Semiconductor Manufacturing*, 36 (2), pp. 170-179.

Sewon Park^{*}, Hee-Seok Oh, and Jaeyong Lee. (2023, October) Lévy Adaptive B-Spline Regression via Overcomplete Systems. *Statistica Sinica*, 33 (4).

Haksoo Lim, **Sewon Park**[†], Minjung Kim, Jaehoon Lee, Seonkyu Lim, and Noseong Park. (2023, October). MadSGM: Multivariate Anomaly Detection with Score-based Generative Models. In *Proceedings of the 32nd ACM International Conference on Information and Knowledge Management* (pp. 1411-1420).

Jinsung Jeon, Jaehyeon Park, **Sewon Park**, Minjung Kim, Jeongwhan Choi and Noseong Park. (2025, April). Possibility for Proactive Anomaly Detection. In *Proceedings of the ICLR Workshop on ICBINB*.

PAPERS IN PREPARATION

Haksoo Lim, Jaehoon Lee, **Sewon Park**, Minjung Kim, and Noseong Park. TSGM: Regular and Irregular Time-series Generation using Score-based Generative Models. *Submitted*.

Seongmin Kim, Kwangmin Lee, **Sewon Park** and Jaeyong Lee. Eigenstructure inference for high-dimensional covariance with generalized shrinkage inverse-Wishart prior. *Submitted*.

Kwangmin Lee, **Sewon Park**^{*}, Seongmin Kim and Jaeyong Lee. Bayesian Analysis of Spiked Covariance Models: Correcting Eigenvalue Bias and Determining the Number of Spikes. *Submitted*.

TECHNICAL SKILLS

R (Excellent), Python (Excellent), PyTorch (Excellent), C/C++ (Advanced)