Sewon Park

125, Olympic-ro 35-gil, Songpa-gu, Seoul, Republic of Korea
swpark0413@gmail.com

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 involves developing deep learning approaches for anomaly and insider threat detection, as well as exploring high-dimensional statistical methods and dimension reduction techniques, such as the envelope model.

WORK EXPERIENCE

Samsung SDS **September 2021 - Present**

EDUCATION

Ph.D., Statistics **March 2015 - August 2021**
Department of Statistics, Seoul National University, Seoul, Korea

- **Advisor**: Professor Jaeyong Lee.

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

TEACHING EXPERIENCE

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

- Mathmatical 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 - Present**
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 Development (ADD) **December 2016 - Nobember 2017**

PUBLICATIONS * Corresponding author, † Equal contribution.

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

Kwangmin Lee, ***Sewon Park****, Seongmin Kim and Jaeyong Lee. Bayesian inference for high-dimensional spiked covariance models: eigenstructure estimation with bias correction under inverse-Wishart prior. Submitted.*

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

TECHNICAL SKILLS

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