

# Young Geun Kim

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🌐 <https://ygeunkim.github.io>

## Education

Mar. 2019 – . . . .	<b>Ph.D. candidate in Statistics</b> , Sungkyunkwan University, Seoul. Advisor: <i>Changryong Baek</i> .
Mar. 2013 – Feb. 2019	<b>B.Ec. in Statistics</b> , Sungkyunkwan University, Seoul.

## Research Interests

<b>Long-range dependence</b>	Vector heterogeneous autoregressive (VHAR) model.
<b>Bayesian econometrics</b>	Bayesian vector autoregressive (BVAR) models.
<b>Anomaly detection</b>	Time series anomaly detection.
<b>Time series representation learning</b>	Forecasting LRD time series using deep learning.

## Research Experience

Jun. 2019 – . . . .	<b>Research Assistant</b> LRD time series Lab, Sungkyunkwan University, Seoul. Researched Bayesian Vector Heterogeneous Autoregressive models.
Apr. 2019 – Feb. 2020	<b>Part-time RA</b> Data-driven AI Security HCI Lab, Sungkyunkwan University, Suwon. Participated in the <b>anomaly detection in Cyber-physical systems</b> project. Developed anomaly detection algorithm.

## Teaching Assistanship



Aug. 2023	<b>Time Series Analysis and its Applications</b> The University of Samsung Electronics. TA to time series analysis course - included in data science track - for Samsung Electronics employees. Held PyTorch Lab for time series forecasting.
Nov. 2020 – Dec. 2020	<b>Data Analysis and Modeling 2</b> Statistics, SKK GSB AI MBA, Seoul. TA to Time series analysis course for KB bank employees.
Mar. 2020 – Jun. 2020	<b>Recent Advances in Applied Statistics (STA5037)</b> Statistics, Sungkyunkwan University, Seoul. <b>Introduction to Time Series Analysis (STA3001)</b> Statistics, Sungkyunkwan University, Seoul. <b>Insurance Statistics (STA3018)</b> Statistics, Sungkyunkwan University, Seoul.
Sep. 2019 – Dec. 2019	<b>Mathematics for Statistics (STA2008)</b> Statistics, Sungkyunkwan University, Seoul.
May 2019 – Jun. 2019	<b>Matrix algebra for Statistics (STA2017)</b> Statistics, Sungkyunkwan University, Seoul.

## Research Publications

### Journal Articles

- 1 **Y. G. Kim** and C. Baek, “Bayesian vector heterogeneous autoregressive modeling,” *Journal of Statistical Computation and Simulation*, 2023+.

## Conference Proceedings

- 1 J.-H. Yun, J. Kim, W.-S. Hwang, **Y. G. Kim**, S. S. Woo, and B.-G. Min, “Residual size is not enough for anomaly detection: Improving detection performance using residual similarity in multivariate time series,” in *Proceedings of the 37th ACM/SIGAPP Symposium on Applied Computing*, ser. SAC ’22, Virtual Event: Association for Computing Machinery, 2022, pp. 87–96, ISBN: 9781450387132.  DOI: 10.1145/3477314.3506990.
- 2 **Y. G. Kim**, J.-H. Yun, S. Han, H. C. Kim, and S. S. Woo, “Revitalizing self-organizing map: Anomaly detection using forecasting error patterns,” in *ICT Systems Security and Privacy Protection*, A. Jøsang, L. Fitcher, and J. Hagen, Eds., Cham: Springer International Publishing, Jun. 2021, pp. 382–397, ISBN: 978-3-030-78120-0.  DOI: 10.1007/978-3-030-78120-0\_25.
- 3 J. Cho, S. Tariq, S. Lee, *et al.*, “Contextual anomaly detection by correlated probability distributions using kullback-leibler divergence,” in *5th Workshop on Mining and Learning from Time Series, held in conjunction with KDD’19*, Anchorage, Alaska, USA, Aug. 2019.

## Presentations

- Revitalizing self-organizing map: Anomaly detection using forecasting error patterns
  - IFIP SEC 2021 (Virtual), June 2021
  - Session 11: Machine Learning for Security

## Skills

Coding      R, Python,  $\LaTeX$ , ...

## Grants and Awards

2019 – 2021	<b>Graduate Merit Scholarship</b> , Sungkyunkwan University.
2018	<b>Masters and Doctors Connected Track Scholarship</b> , Sungkyunkwan University.
2014 – Spring 2015	<b>Dean’s List</b> , Sungkyunkwan University.
Spring 2015	<b>Jinggeomdari Scholarship Track C</b> , Sungkyunkwan University.
Fall 2013, 2017	<b>Academic Excellence Scholarship</b> , Sungkyunkwan University.