Rakheon Kim, Ph.D, ASA

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Research Interest

Statistical learning; High-dimensional variable selection & covariance estimation; Interaction model; Graphical model; Time series analysis; Biostatistics; Finance; Actuarial science

Education

Texas A&M University — College Station, TX
Ph.D. in Statistics (Advisor: Tanya P. Garcia & Mohsen Pourahmadi) — 2017–2022

Bayes Business School - City, University of London — London, England
M.Sc in Actuarial Management (Advisor: Douglas Wright) — 2011–2012

Yonsei University — Seoul, South Korea
B.S. in Mathematics (Minor: Applied statistics; Economics) — 2001–2009

Professional Experience

Baylor University — Waco, TX
Assistant Professor, Department of Statistical Science — Jul. 2022 - Current

Samsung Fire & Marine Insurance Inc. — Seoul, Korea
Actuary, Risk Management Dept. — Feb. 2013 - Jun. 2017

Mercer Ltd. — Seoul, Korea
Actuary, Retirement Risk and Finance Dept. — Nov. 2008 - Jan. 2013

Hanwha Life Insurance Inc. — Seoul, Korea
Internship, Product Development Dept. — Jul. 2008 - Aug. 2008

Publications

Published/Accepted

- **R. Kim**, M. Pourahmadi, and T.P. Garcia, "Positive-definite thresholding estimators of covariance matrices with zeros", *Journal of Multivariate Analysis (accepted)*, 2023
- A. Dallakyan, **R. Kim**, and M. Pourahmadi, "Time series graphical lasso and sparse VAR estimation", *Computational Statistics and Data Analysis*, 2022; 176: 107557
- **R. Kim**, S. Müller, and T.P. Garcia, "svReg: Structural varying-coefficient regression to differentiate how regional brain atrophy affects motor impairment for Huntington disease severity groups", *Biometrical Journal*, 2021; 63: 1254-1271
- **R. Kim**, and D. Wright, "Stochastic asset model for actuarial use in South Korea", *Institute of Actuaries of Korea (Korean); 18th East Asian Actuarial Conference (English)*, 2014.

In Progress

- **R. Kim**, and E. J. Zhang, "A sparse multivariate regression approach for estimating covariance matrices with covariates"
- F. Boroumand, T.P. Garcia, **R. Kim**, and S. Müller, "Flexible structural varying-coefficient regression to better predict outcomes in complex neurogenerative diseases"
- **R. Kim** and G. Motta, "Shrinkage estimation of high-dimensional locally stationary VAR(1) processes"

Certifications

- Certified Actuary: Associate of the Society of Actuaies (ASA) — 2011 - Current

Scholarships and Awards

- NSF New Researcher Travel Award, Texas A&M Data Science Conference — 2022
- Student Presentation Awards *(Honorary mention)*, Actuarial Research Conference (ARC) — 2021
- Dr. Anant Kshirsager Graduate Fellowship, Texas A&M — 2020
- Travel Grant for ENAR 2020 Conference, Texas A&M *(moved to virtual)* — 2020
- President Awards *(1st place)*, Actuarial Paper Competition by Institute of Actuaries in Korea — 2014
- Full Scholarship, Lotte Foundation — 2006 - 2008
- High Honors, Yonsei University — 2007 - 2008
- Honors, Yonsei University — 2006

Presentations

Invited Talk

- "Sparse multivariate regression approach for estimating covariance matrices with covariates", Southern Methodist University, 2023, Dallas, TX
- "Personalized Statistical Learning and Network Analysis with Sparsity for Actuarial Use", University of Waterloo, 2022, Virtual
- "svReg: Structural varying-coefficient regression", ICSA 2020 Applied Statistics Symposium, Virtual

Contributed Talk

- "A sparse multivariate regression approach for estimating covariance matrices with covariates", ENAR 2023, Nashville, TN
- "svReg to differentiate individual policyholder's risk", Actuarial Research Conference (ARC) 2021, Virtual
- "C2plasso: the categorical-continuous pliable lasso", ENAR 2020, Virtual
- "Stochastic asset model for actuarial use in South Korea", East Asian Actuarial Conference, 2014, Taipei, Taiwan
- "Stochastic asset model for actuarial use in South Korea", Institute of Actuaries of Korea, 2014, Wonju, Korea

Teaching

Baylor University

- STA 2381: Introductory Statistical Methods — Fall 2022, Spring 2023

Texas A&M University

- STAT 201: Elementary Statistical Inference — Fall 2020
- STAT 335: Principles of Data Science (Recitation Instructor) — Summer 2021
- STAT 415: Mathematical Statistics (Recitation Instructor) — Spring 2021

Undergraduate Student Mentoring

- Chen Lin (Now a PhD Student at Yale Biostatistics) — Summer 2019

Professional Service

- Regional Advisory Board (RAB) member at ENAR
- Journal review service: Biostatistics, Australian & New Zealand Journal of Statistics

Software

- svReg: An R package for the structural varying-coefficient regression (https://github.com/rakheon/svreg)
- mgcov: An R package for sparse Gaussian covariance matrix estimation (https://github.com/rakheon/mgcov)
- d2wlasso: An R package for the data-driven weighted lasso (https://github.com/rakheon/d2wlasso)

Skills

- Programming: R, Python, SAS, SQL, Matlab, C++