Sang Kyu Lee

Postdoctoral Fellow
Biostatistics Branch, Division of Cancer Epidemiology and Genetics
National Cancer Institute, NIH
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GitHub: https://github.com/SangkyuStat

Research Interests

Quantile Regression, Health Disparity Analysis, Non/Semiparametric Statistics, High-dimensional Data Analysis, Survival Analysis, Machine Learning, Statistical Software, Optimization

Education

Michigan State University East Lansing, MI, USA
Ph.D. in Statistics

Konkuk University Seoul, South Korea
B.A. & M.S. in Statistics

Experiences

Postdoctoral Fellow Rockville, MD, USA
Biostatistics Branch, Division of Cancer Epidemiology and Genetics 2024–Present
National Cancer Institute, NIH

Predoctoral Fellow Rockville, MD, USA
Biostatistics Branch, Division of Cancer Epidemiology and Genetics 2022–2024
National Cancer Institute, NIH

Graduate Research Assistant East Lansing, MI, USA
Institute for Health Policy 2020–2022
Michigan State University

Graduate Teaching Assistant East Lansing, MI, USA
Department of Statistics and Probability 2019–2020
Michigan State University

Honors and Awards

Early Career Award 2024
ASA Section in Epidemiology Student/Junior Researcher Paper Competition Winner for JSM 2024

Preprints/Submitted Papers

* denotes equal contribution

[1] **Lee**, **S. K.**, Weng, H., Hong, H. G., & Loftfield, E. (2024+). High-dimensional partial linear model via trend filtering. *submitted to Biometrics*.

[2] **Lee**, **S. K.***, Xia, F.*, Kim, S., Blum, K., Hong, H. G., & Kim, M.-O. (2024+). Causal decomposition random forest of survival disparity. *submitted to the Journal of the American Statistical Association*.

[3] **Lee**, **S. K.***, Kim, S.*, Kim, M.-O., Grantz, K. L., & Hong, H. G. (2024). Decomposition of longitudinal disparities: An application to the fetal growth-singletons study. *arXiv:2404.11675, submitted to Biostatistics*.
- ASA Section in Epidemiology Student/Junior Researcher Paper Competition Winner.

Publications (Statistical methods, theories, and software)

* denotes equal contribution

[1] Zhao, J., Kim, Y.-K., Jang, Y.-H., Chang, J. H., **Lee**, **S. K.**, & Kim, H.-M. (2024). Mlece: Statistical inference for asymptotically efficient closed-form estimators in r. *SoftwareX*, *26*, 101–655.

[2] Chang, J. H., **Lee**, **S. K.**, & Kim, H.-M. (2023). An asymptotically efficient closed-form estimator for the dirichlet distribution. *Stat*, *12*(1), e640.

[3] Lee, E. R., Park, S., **Lee**, **S. K.**, & Hong, H. G. (2023). Quantile forward regression for high-dimensional survival data. *Lifetime Data Analysis*, *29*(4), 769–806.

[4] **Lee**, **S. K.**, & Kim, H.-M. (2023). Two tests using more assumptions but lower power. *Communications for Statistical Applications and Methods*, *30*(1), 109–117.

[5] **Lee**, **S. K.**, Chang, J. H., & Kim, H.-M. (2021). Further sharpening of jensen's inequality. *Statistics*, *55*(5), 1154–1168.

[6] Yang, K., **Lee**, **S. K.**, Zhao, J., & Kim, H.-M. (2021). Emss: New em-type algorithms for the heckman selection model in r. *R Journal*, *13*(2), 239.

[7] Zhao, J., **Lee**, **S. K.**, & Kim, H.-M. (2019). Some counterexamples of a skew-normal distribution. *Communications for Statistical Applications and Methods*, *26*(6), 583–589.

Publications (Collaborative applications)

* denotes equal contribution

[1] Abar, L., Steele, E. M., **Lee**, **S. K.**, Kahle, L., Moore, S. C., Watts, E., Matthews, C., Herrick, K., Hall, K. D., O'Connor, L. E., Freedman, N. D., Sinha, R., Hong, H. G., & Loftfield, E. (2024+). Serum and urine metabolomic profiles of long-term ultra-processed food intake in the longitudinal interactive diet and activity tracking in aarp (idata) study. *submitted to PLOS medicine*.

[2] Mendez, K. J. W.*, **Lee**, **S. K.***, Dagnall, C., Lai, T.-P., Katki, H., Spellman, S. R., Stewart, V., Aviv, A., Gadalla, S. M., & Hong, H. G. (2024+). Comparative analysis of southern blot and qpcr telomere length measurements through comprehensive statistical approaches. *submitted*.

[3] Mattia, A., Thompson, A., **Lee**, **S. K.**, Hong, H. G., Green, W. H., & Cognetta Jr, A. B. (2024). Superficial x-ray in the treatment of nonaggressive basal and squamous cell carcinoma in the elderly: A 22-year retrospective analysis. *Journal of the American Academy of Dermatology*, *90*(5), 1052–1054.

Works in progress

* denotes equal contribution

[1] **Lee**, **S. K.**, Weng, H., & Hong, H. G. (2024+). False discovery rate control for regional quantile regression for ultra-high dimensional data.

[2] **Lee**, **S. K.**, Weng, H., Hong, H. G., & Zhang, T. (2024+). High-dimensional partial linear quantile regression via trend filtering.

Statistical Software

DiSSMod, *Maintainer/Creator*
An R package for fitting sample selection models for discrete response variables
CRAN

EMSS, *Maintainer/Creator*
An R package for fitting some new EM-Type estimation methods for the Heckman selection model
CRAN GitHub Shiny

MLEce, *Author*
An R package for estimating asymptotic efficient closed-form estimators and providing the goodness of fit, estimates, plots and etc
CRAN

vcPB, *Maintainer/Creator*
An R package for estimating the disparity between a majority group and minority group based on the extended model of the Peters-Belson method
CRAN GitHub

plmR, *Maintainer/Creator*
An R package for estimating and fitting various high-dimensional partial linear models including quantile regression models
GitHub

Presentations

Decomposition of longitudinal disparities: An application to the fetal growth-singletons study 2024
Joint Statistical Meeting 2024

False discovery rate control via regional quantile regression on ultra-high dimension 2023
Joint Statistical Meeting 2023

False discovery rate control via regional quantile regression on ultra-high dimension 2023
University of Florida Graduate Student Colloquium

False discovery rate control via regional quantile regression on ultra-high dimension 2023
Michigan State University Graduate Student Colloquium

Services

Departmental Services

Graduate Student Representative 2021–2022
Elected Ph.D. student Representative
Department of Statistics and Probability, Michigan State University

Major Curriculum Committee 2021–2022
Participated in changing the curriculums for graduate students
Department of Statistics and Probability, Michigan State University

Inviting Talk Committee 2022–2023
Participated as a member of committee to invite scholars to colloquiums
Department of Statistics and Probability, Michigan State University

Mentoring Services

Roni Madilo (Summer Intern Student, National Cancer Institute)

Journal Referee

Biostatistics, Scientific Reports