

Changwoo Lee

c.lee@stat.tamu.edu

Address: 464A Blocker Building Personal website: changwoo-lee.github.io
3143 TAMU GitHub profile: [/changwoo-lee](https://github.com/changwoo-lee)
College Station, TX 77840 Google Scholar: [/citations?user=xKMdVwEAAAAJ](https://scholar.google.com/citations?user=xKMdVwEAAAAJ)

RESEARCH INTERESTS

I am broadly interested in probabilistic machine learning models and algorithms on spatial and network data analysis. Probabilistic clustering is one of my focus areas, the problem of discovering latent structures in complex datasets with uncertainty quantification. My recent application projects include Bayesian hierarchical modeling for multivariate chemical exposures and health outcome data.

EDUCATION

Texas A&M University Aug. 2019 - May 2024 (expected)
Ph.D. candidate in Statistics (Advisor: Dr. Huiyan Sang) College Station, TX
Thesis title: “*Probabilistic clustering methods for complex data and related topics*”

Korea University Mar. 2012 - Feb. 2019
B.S. in Mathematics Education, B.Econ in Statistics Seoul, Republic of Korea
Minor in Computer Science and Engineering

The University of Texas at Austin Aug. 2017 - Dec. 2017
Undergraduate Student Exchange Program Austin, TX

PUBLICATIONS

* denotes equal contribution. Publication name: Changwoo J. Lee.

Rapidly mixing multiple-try Metropolis algorithms for model selection problems.

Chang, H.*, Lee, C. J.*, Luo, Z. T., Sang, H., & Zhou, Q. (2022). *Advances in Neural Information Processing Systems (NeurIPS)* 35, 25842-25855. (oral-designated, top 1.9%). [\[link\]](#) [\[code\]](#)

Why the rich get richer? On the balancedness of random partition models.

Lee, C. J. & Sang, H. (2022). *Proceedings of the 39th International Conference on Machine Learning (ICML)*, PMLR 162:12521-12541. [\[link\]](#) [\[code\]](#)

T-LoHo: A Bayesian regularization model for structured sparsity and smoothness on graphs.

Lee, C. J., Luo, Z. T., & Sang, H. (2021). *Advances in Neural Information Processing Systems (NeurIPS)*, 34, 598-609. [\[link\]](#) [\[code\]](#)

PREPRINTS

Logistic-beta processes for modeling dependent random probabilities with beta marginals.

Lee, C. J., Zito, A., Sang, H., & Dunson, D. B. (2024). *Submitted, arXiv:2402.07048* [\[link\]](#) [\[code\]](#)

A scalable two-stage Bayesian approach accounting for exposure measurement error in environmental epidemiology.

Lee, C. J., Symanski, E., Rammah, A., Kang, D. H., Hopke, P. K., & Park, E. S. (2024). *Submitted, arXiv:2401.00634* (Early Career Award, ASA Section on Statistics in Epidemiology) [\[link\]](#) [\[code\]](#)

Loss-based objective and penalizing priors for model selection problems.

Lee, C. J. (2023). *Submitted, arXiv:2311.13347* [\[link\]](#)

WORK

IN PROGRESS

Robust and flexible Bayesian graph clustering with graph product partition models.

Lee, C. J., Ovaskainen, O., & Sang, H. (2024+). *In preparation.*

Bayesian nonnegative factor regression with application to multivariate receptor models.

Lee, C. J., Symanski, E., Hopke, P. K., Kang, D. H., & Park, E. S. (2024+). *In preparation.*

PRESENTATIONS
BY TOPIC

† denotes upcoming event.

Logistic-beta processes for modeling dependent random probabilities with beta marginals.

- Poster presentation†, 2024 ISBA world meeting, Venice, Italy.
- Poster presentation, 2023 Bayesian nonparametrics networking workshop, Melbourne, Australia.

Loss-based objective and penalizing priors for model selection problems.

- Long talk, 2023 Bayesian Young Statisticians Meeting (BAYSM 2023), virtual.
- Poster presentation, 2023 SETCASA poster competition, Texas A&M University, TX.

Rapidly mixing multiple-try Metropolis algorithms for model selection problems.

- Deep-dive session panelist, NeurIPS 2022, virtual.
- Poster presentation, 2022 Conference on Advances in Data Science, Texas A&M University, TX.

Graph product partition models.

- Contributed talk, 2023 Joint Statistical Meetings (JSM 2023), Toronto, Canada.
- Invited session talk, 2023 Eastern Asian Chapter of ISBA (2023 EAC-ISBA), virtual.
- Contributed talk, 2022 Joint Statistical Meetings (JSM 2022), Washington, DC.
- Poster presentation, 2022 SETCASA poster competition, Texas A&M University, TX.

Why the rich get richer? On the balancedness of random partition models.

- Spotlight talk and poster presentation, ICML 2022, Baltimore, MD. [\[video link\]](#)
- Poster presentation, 2022 ISBA world meeting, Montreal, QC, Canada.

A Bayesian regularization model for structured sparsity and smoothness on graphs.

- Poster presentation, NeurIPS 2021, virtual. [\[video link\]](#)
- Contributed talk and poster presentation, 2021 ISBA world meeting, virtual. [\[video link\]](#)

On the Bayesian non-crossing joint quantile regression based on asymmetric Laplace likelihood with sandwich covariance matrix.

- Poster presentation, 2020 Joint Statistical Meetings (JSM 2020), virtual.

TEACHING
EXPERIENCE

Instructor, Texas A&M University

- Summer 2021: Statistical Methods (STAT303). [\[course evaluation report\]](#)

Teaching assistant, Texas A&M University (Supervisors: Drs. Bani Mallick and Thomas Wehrly)

- Spring 2024: Statistical Methodology II, Bayesian Modeling and Inference (STAT632)
- Spring 2020: Overview of Mathematical Statistics (STAT630)
Applied Categorical Data Analysis (STAT659)
- Fall 2019: Overview of Mathematical Statistics (STAT630)

Teaching assistant, Korea University (Supervisor : Dr. Taeryon Choi)

- Spring 2019: Introduction to Probability Theory (STAT221)
- Fall 2018: Introduction to Bayesian Statistics (STAT404)
Introduction to Probability Theory (STAT221)

Student teacher (Teaching practicum), Seongsu High School

- April 2017: Precalculus

HONORS

Early Career Award in 2024 Joint Statistical Meetings,
American Statistical Association section on Statistics in Epidemiology.

ISBA travel award for ISBA-BNP 2023 networking workshop,
Bayesian nonparametrics (BNP) section, International Society for Bayesian Analysis (ISBA).

Joe Newton poster award (honorable mention) in 2022 Conference on Advances in Data Science,
Texas A&M Institute for Applied Mathematics & Computational Science (IAMCS).

Poster award in 2022 ISBA world meeting,
Bayesian nonparametrics (BNP) section, International Society for Bayesian Analysis (ISBA).

Junior Travel Support for 2022 ISBA world meeting,
International Society for Bayesian Analysis (ISBA).

1st place poster award in 2022 annual poster competition,
Southeast Texas Chapter of the American Statistical Association (SETCASA).

Anant M. Kshirsagar endowed fellowship, 2021,
Department of Statistics, Texas A&M University.

The Korean government scholarship program for study overseas, 2019-2021,
National Institute for International Education, Korea Ministry of Education.

PROFESSIONAL SERVICES

Journal reviewer: Bayesian Analysis, Chemometrics and Intelligent Laboratory Systems, Computational Statistics.

Peer-reviewed conference reviewer: International Conference on Machine Learning (ICML), Conference on Neural Information Processing Systems (NeurIPS).

Session chair: Joint Statistical Meetings (JSM) 2023

SKILLS

Statistical programming : R (advanced), Matlab (intermediate), SQL (intermediate), SAS (basic).
General-purpose programming: Python, C++ and C (intermediate).

REFERENCES

Dr. Huiyan Sang
Professor
Department of Statistics, Texas A&M University
huiyan@stat.tamu.edu

Dr. Eun Sug Park
Senior Research Scientist
Texas A&M Transportation Institute
e-park@tti.tamu.edu

Dr. Quan Zhou
Assistant Professor
Department of Statistics, Texas A&M University
quan@stat.tamu.edu

Last updated: Feb 2024