Chae Young Lim

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ACADEMIC APPOINTMENTS

Professor	2020- present, Department of Statistics, Seoul National University (SNU)
Associate Professor	2015- 2020, Department of Statistics, SNU
Assistant Professor	2007-2015, Department of Statistics and Probability(STT), Michigan State University (MSU), USA
Research/Teaching Assistant	2002-2007, Department of Statistics, The University of Chicago, USA

EDUCATION

PhD	in Statistics 2007	The University of Chicago
M.Ed	in Mathematics Education 2000	Seoul National University
B.Sc	in Mathematics Education 1997	Seoul National University

RESEARCH INTERESTS

- Spatial Statistics, Spatio-Temporal Analysis, Biomedical Engineering Analysis, Spectral Analysis, Spatial Epidemiology

PUBLICATIONS

Peer-Reviewed Articles:

1. **Lim, C.** and Wu, W. (2022) Conditions on which cokriging does not better than kriging. *Journal of Multivariate Analysis*. 192, 105084.
2. Chakraborty, S., Dey, T. ,Jun, Y. , **Lim, C**, Mukherjee, A, and Dominici, F. (2022) A spatio-temporal analytical outlook of the exposure to air pollution and COVID-19 mortality in the United States. *Journal of Agricultural, Biological, and Environmental Statistics*, 27(3), 419-439.
3. Yoon, K., You, H., Wu, W., **Lim, C.**, Choi, J., Boss, C., Ramadan, A., Popovich Jr., J. M., Cholewicki, J., Reeves, N. P., Radcliffe, C. J. (2022) Regularized Nonlinear Regression for Simultaneously Selecting and Estimating Key Model Parameters: Application to Head-Neck Position Tracking. *Engineering Applications of Artificial Intelligence*, 113, 104974.
4. Jun, Y. and **Lim, C.** (2022) Spatial regression with non-parametric modeling of Fourier coefficients. *Journal of the Korean Statistical Society*, 51, 608-631.
5. Kim, J., Bae, E, Kim, Y., **Lim, C.**, Hur, J-W, Kwon, J., and Lee, S. (2022) A robust multivariate structure of interindividual covariation between psychosocial characteristics and arousal responses to visual narratives. *PLOS ONE*, 17(2): e0263817.

6. Zambrano, B. A. Gharahi, H., **Lim, C.**, Lee, W. and Baek, S. (2022) Association of vortical structure and hemodynamic parameters for regional thrombus accumulation in abdominal aortic aneurysms. *International Journal for Numerical Methods in Biomedical Engineering*, 38(2):e3555.
7. Shin, J., You, H., Kaown, D., Koh, E-H., Lee, S., **Lim, C.** and Lee, K-K. (2021) Investigating distribution of nitrate concentration using ensemble nonparametric quantile regression. *Science of the Total Environment*, 777, 146098.
8. Zhang, L., Zambrano, B.A., Choi, J., Lee, W., Baek, S., and **Lim, C.** (2020) Intraluminal thrombus effect on the progression of abdominal aortic aneurysms by using a multistate continuous-time Markov chain model. *Journal of International Medical Research*, 48(11).
9. Bae, E., Hur, J-W., Kim, J., Kwon, J., Lee, J., Lee, S-H., and **Lim, C.** (2020) Multi-group analysis using generalized additive kernel canonical correlation analysis. *Scientific Reports*, 10, 12624.
10. Zhang, L., Jiang, Z., Choi, J., **Lim, C.**, Maiti, T. and Back, S. (2019) Patient-Specific Prediction of Abdominal Aortic Aneurysm Expansion using Bayesian Calibration. *IEEE Journal of Biomedical and Health Informatics*, 23, 2537-2550.
11. Watve, A., Pramanik, S., Jung, S. and **Lim, C.** (2019) Data-independent vantage point selection for range queries. *The Journal of Supercomputing*, 75, 7952-7978.
12. Zhang, L., **Lim, C.**, Maiti, T., Li, Y. , Choi, J., Bozoki, A., Zhu, D., for the Key Laboratory of Applied Statistics of the Ministry of Education(KLAS) and for the Alzheimer's Disease Neuroimaging Initiative. (2019) Analysis of conversion of Alzheimer's disease using a multistate Markov model. *Statistical Methods in Medical Research*, 28, 2801–2819.
13. Shi, G., **Lim, C.** and Maiti, T. (2019) Model Selection using Mass-Nonlocal Prior. *Statistics and Probability Letters*, 147, 36-44.
14. Shi, G., **Lim, C.** and Maiti, T. (2019) Bayesian Model Selection for Generalized Linear Models using Non-local Priors. *Computational Statistics & Data Analysis*, 133, 285-296.
15. Do, H. N., Choi, J., **Lim, C.** and Maiti, T. (2018) Appearance-based localization of mobile robots using Group LASSO regression. *Journal of Dynamic Systems, Measurement and Control*, 140(9), 091016.
16. Dey, T., Kim, K-H. and **Lim, C.** (2018) Bayesian time series regression with nonparametric modeling of autocorrelation. *Computational Statistics*. 33, 1715–1731.
17. Kim, K-Y, **Lim, C** and Kim, E. J. (2018) A New Approach to the Space-Time Analysis of Big Data: Application to Subway Traffic Data in Seoul. *Journal of Big Data*, 5:5
18. Paul, R., **Lim, C.**, Curtis, A. B., Maiti, T., Baker, K. M., Mantilla, L., and MacQuillan, E. L. (2018) Assessing the Association of Diabetes Self-Management Education Centers with Age-adjusted Diabetes Rates Across US: A Spatial Cluster Analysis Approach. *Spatial and Spatio-Temporal Epidemiology*, 24, 53-62.
19. **Lim, C.**, Chen, C-H. and Wu, W-Y. (2017) Numerical Instability of Calculating Inverse of Spatial Covariance Matrices. *Statistics and Probability Letters*, 129, 182-188.
20. Nandy, S., **Lim, C.** and Maiti, T. (2017) Additive model building for spatial regression. *Journal of the Royal Statistical Society Series B*, 79, 779-800.
21. Shi, G., **Lim, C.** and Maiti, T. (2017) High-dimensional Bayesian variable selection methods: A comparison study. *Calcutta Statistical Association Bulletin*, 68, 16-32.
22. Feng, W., Sarkar, A., **Lim, C.** and Maiti, T. (2016) Variable Selection for Binary Spatial Regression: Penalized Quasi-Likelihood Approach. *Bometrics*, 72, 1164-1172.

23. Kim, B. and **Lim, C.** (2016) Modeling pediatric tumor risks in Florida with conditional autoregressive structures and identifying hot-spots. *Journal of the Korean Data & Information Science Society*, 27, 1225-1239.
24. Feng, W., **Lim, C.**, Maiti, T. and Zhang, Z. (2016) Spatial Regression and Estimation of Disease Risks: A Clustering-based Approach. *Statistical Analysis and Data Mining*, 9, 417-434.
25. Wu, W. and **Lim, C.** (2016) Estimation of smoothness of a stationary Gaussian random field. *Statistica Sinica*, 26, 1729-1745.
26. Zambrano, B. A., Gharahi, H., **Lim, C.** , F. A. Jaberi, Choi, J. Lee, W., Baek, S. (2016) Association of intraluminal thrombus, hemodynamic forces and abdominal aortic aneurysm expansion using longitudinal CT images. *Annals of biomedical engineering*, 44, 1502-1514.
27. Gharahi, H., Zambrano, B.A., **Lim, C.**, Choi, J., Lee, W., Baek, S. (2015) On growth measurements of abdominal aortic aneurysms using maximally inscribed sphere. *Medical Engineering & Physics*, 37, 683-691.
28. Do, H. N., Jadaliha, M., Choi, J. and **Lim, C.** (2015) Feature selection for position estimation using an omnidirectional camera. *Image and Vision Computing*, 39, 1-9.
29. Dass, S. C. **Lim, C.** Maiti, T. and Zhang*, Z. (2015) Clustering Curves based on Change point analysis : A Nonparametric Bayesian Approach. *Statistica Sinica*, 25, 677-708.
30. Zhang, Z., **Lim, C.** and Maiti, T. (2014) Analyzing 2000-2010 Childhood Age-adjusted Cancer Rates in Florida: A Spatial Clustering Approach. *Statistics and Public Policy*, 1:1, 120–128.
31. Dass, S. C. **Lim, C.** and Maiti, T. (2014) A Generalized Mixed Model Framework for Assessing Fingerprint Individuality in Presence of Varying Image Quality. *Annals of Applied Statistics*, 8, 1314-1340.
32. Maiti, T., Ren, H., Dass, S. C., **Lim, C.** and Maier, K. S. (2014) Clustering-Based Small Area Estimation: An Application to MEAP Data. *Calcutta Statistical Association Bulletin*, 66, 73–93.
33. **Lim, C.**, Meerschaert, M. M. and Scheffler, H.-P., (2014) Parameter estimation for operator scaling random fields. *Journal of Multivariate Analysis*, 123, 172-183.
34. Wu, W., **Lim, C.** and Xiao, Y. (2013) Tail Estimation of the Spectral Density for a Stationary Gaussian Random Field. *Journal of Multivariate Analysis*, 116, 74-91.
35. Dey, T. and **Lim, C.** (2013) Comparisons of Computational Methods for Clustered Binary Data. *Journal of Statistical Computation and Simulation*, 83, 2030-2046.
36. Dass, S. C., **Lim, C.** and Maiti, T. (2012), Default Bayesian Analysis for Hierarchical Spatial Multivariate Generalized Linear Mixed Models. *Statistica Sinica*, 22, 231-248.
37. **Lim, C.** and Dass, S. C. (2011), Assessing Fingerprint Individuality Using EPIC: A Case Study in the Analysis of Spatially Dependent Marked Processes, (Featured article of the issue) *Technometrics*, 53, 112-124.
38. **Lim, C.**, Stein, M. L., Ching, J. and Tang, R. (2010), Statistical properties of differences between low and high resolution CMAQ runs with matched initial and boundary conditions, *Environmental Modelling & Software*, 25, 158-169.
39. Chakraborty, P., Meerschaert, M. M. and **Lim, C.** (2009), Parameter Estimation for Fractional Transport: A Particle Tracking Approach, *Water Resources Research*, 45, W10415, doi:10.1029/2008WR007577
40. Guo, H., **Lim, C.** and Meerschaert, M. M. (2009), Local Whittle estimator for anisotropic random fields, *Journal of Multivariate Analysis*, 100, 993-1028 .

41. **Lim, C.** and Stein, M. L. (2008), Properties of spatial cross-periodograms using fixed-domain asymptotics, *Journal of Multivariate Analysis*, 99, 1962-1984.

Book Reviews:

1. **Lim, C.** (2011) Book Review of "Handbook of Spatial Statistic" by Alan E. Gelfand, Peter J. Diggle, Montserrat Fuentes and Peter Guttorp (eds.) *Journal of the American Statistical Association*, 106, 1637-1648.
2. **Lim, C.** (2010), Book Review of "Statistical Detection and Surveillance of Geographic Clusters" by Peter Rogerson and Ikuho Yamada, *Journal of the American Statistical Association*, 105, 1276-1283.

Other Publications:

1. **Lim, C.** (2019) Discussion on "A comparison of Monte Carlo methods for computing marginal likelihoods of item response theory models", *Journal of Korean Statistical Society*. 48, 520-521.
2. Do, H. N., Choi, J, **Lim, C.**, Maiti, T. Appearance-based localization using Group LASSO regression for an indoor experiment In *the Proceedings of the IEEE/ASME International Conference on Advanced Intelligent Mechatronics*, July 7-11, 2015, Busan, Korea.
3. Do, H. N., Choi, J. and **Lim, C.** Visual feature selection for GP-based localization using an omnidirectional camera. In *the Proceedings of the American Control Conference*, July 1-3, 2015, Chicago, IL, USA.
4. Gharahi, H., Zambrano, B. A., **Lim, C.**, Choi, J., Lee, W., Baek, S. An alternative method to measure the diameter of abdominal aortic aneurysms using maximally inscribed spheres. *BMES Conference*, Oct. 25, 2014, San Antonio, TX. USA.
5. Baek, S., Zambrano, B. A., Choi, J., **Lim, C.** Growth prediction of abdominal aortic aneurysms and its association of intraluminal thrombus. *WCCM*, July 21, 2014, Barcelona, Spain.
6. Dass, S. C., **Lim, C.** and Maiti, T. (2011) A Generalized Mixed Model Framework for Assessing Fingerprint Individuality in Presence of Varying Image Quality. In *the JSM Proceedings, Statistical Computing Section.* Alexandria, VA, USA: American Statistical Association, 258-270.
7. Maiti, T., Ren, H., Dass, S. C., **Lim, C.** and Maier, K. S. (2011) Clustering-Based Small Area Estimation: An Application to MEAP Data. In *the JSM Proceedings, Statistics and the Environment Section.* Alexandria, VA, USA: American Statistical Association, 494-507.
8. Dass, S. C., **Lim, C.** and Maiti, T. (2011) Hierarchical Spatial Regression Models for Change Point Analysis. In *the JSM Proceedings, Survey Research Methods Section.* Alexandria, VA, USA: American Statistical Association, 3119-3133.
9. Dass, S. C., **Lim, C.** and Maiti, T. (2010) Experiences with Approximate Bayes Inference for the Poisson-CAR Model, Technical Report RM 679, Department of Statistics and Probability, Michigan State University.

HONORS and AWARDS

- Korea Prime Minister's Commendation for Science and Technology Advancement, 2022
- Education Award, College of Natural Science, SNU, 2022
- ISI elected member, 2019
- Research Award, College of Natural Science, SNU, 2018
- Teaching Award, College of Natural Science, SNU, 2017
- Honourable Mention in Mitchell Prize 2013, International Society for Bayesian Analysis.
- Frank Wilcoxon Prize for the best practical application paper in Technometrics for the year 2011.
- Outstanding Statistical Application Award 2012, American Statistical Association,
- Raj Bahadur Fellowship, The University of Chicago, Summer 2003
- Scholarship for outstanding students, SNU 1996
- Chunjae Education Scholarship, SNU 1994, 1995

GRANTS

- National Research Foundation of Korea: Statistical Inference on Dependence with Structures, KRW 1,375M 06/01/20-02/28/23, Co-I.
- National Research Foundation of Korea: Study on analyzing individual level spatio-temporal data, KRW 500M, 03/01/19-02/29/24, PI.
- National Research Foundation of Korea: Regularized methods for model building of large spatial and spatio-temporal data, KRW 270M, 06/01/16-05/31/19, PI.
- Korea Institute of Geoscience and Mineral Resources: Technologies for developing Korea's Good Water resources using big data, KRW 650M, 05/22/17-05/21/22, Co-I.
- Korean National Police Academy: A Study of crime analysis program based on Big Data, KRW 133M, 01/01/17-12/31/18, Co-I.
- Seoul National University: Machine Learning Based Individual Differences Analyses on the Links between Social Decision-Making, Emotions, and Neural Connectivities, KRW 100M, 06/01/17-05/31/18, PI.
- National Research Foundation of Korea: Transdiciplinary Research Center for Culture-Brain Dynamics (CRC), KRW 780M, 08/01/15-02/28/17, Co-I.
- National Institutes of Health R21: Quantitative Analysis of Relationships Among Hemodynamics, Thrombus, and Abdominal Aortic Aneurysm Expansion, $388,493, 03/01/2013-02/28/2015, Co-I.
- National Science Foundation (NSF DMS 1106450): Modeling, Computational and Inferential Issues in Fingerprint and Health Monitoring Applications, $ 169,495, 09/15/2011-09/14/2014 (no cost extension until 08/31/2015), PI.
- MSU Intramural Research Grants Program (IRGP-1532): Estimations and their asymptotic properties in a frequency domain for spatial processes. $35,683, 12/2008-06/2010, PI.

PROFESSIONAL ACTIVITIES/COMMITTEE

Conference session organizer/chair

- Session chair of an invited session on "Spatio-temporal models for environmental and health applications" in the 5th International Conference on Econometrics and Statistics 2022 (EcoSta 2022), June 2022, Kyoto, Japan (Virtual participation).

- Session organizer/chair of an invited session on "Analysis of Dependent Data" in IMS-Bernoulli 10th World Congress of Probability and Statistics 2020, July 2021, Seoul, Korea (Virtual platform).
- Session organizer of an invited paper session on "Approaches to handle various types of spatially dependent data" in the 63rd ISI World Statistics Congress 2021, July 2021 (Virtual platform).
- Session organizer/chair of an invited session on "Modeling and analysis of spatial point pattern data" in the 11th ICSA international Conference 2019, Hangzhou, China, December 2019.
- Session organizer/chair of an invited session on "Advances in methods and applications for dependent data" in IMS-APRM 2018, Singapore, June 2018.
- Session organizer/chair of an organized invited session on "Advances in theory and modeling of spatial and spatio-temporal data " in CMStatistics 2017, London, UK, December 2017.
- Session organizer/chair of an organized invited session on "Non- and semi-parametric methods for economics and financial data" in EcoSta 2017, Hong Kong, June 2017.
- Session organizer of a topic contributed session on "Challenges in the Analysis of Large Spatial Data" in JSM 2016, Chicago, IL, USA, July 2016.
- Session organizer/chair of an invited paper session on "New Developments in High-Dimensional Spatial and Spatio-Temporal Modeling" in IMS-APRM 2016, Hong Kong, June 2016.
- Session organizer of a topic contributed program on "Penalized Quasi-likelihood Estimating Equations and Variable Selection for Spatial Data" in JSM 2014, Boston, MA, USA, August 2014.
- Session organizer of a special session on "Variable selection and its applications to spatial data" in Spatial Statistics 2013, Columbus, OH, USA, June 2013.
- Session chair of a topic contributed session on "Recent Advances in Theory and Methods of Spatial Statistics" in JSM 2012, San Diego, CA, USA, August 2012.
- Session organizer/chair of an invited program on "Computational and inferential issues in spatio-temporal modeling" in JSM 2011, Miami, FL, USA, August 2011.

Associate editorship and referee for journals

- AE for Journal of Korean Statistical Society : 2017-present
- AE for Computational Statistics and Data Analysis: 2017-present
- AE for Environmetrics: 2018-present
- Referee: Annals of Statistics, Bernoulli, Communications in Statistics, Environmetrics, Environmental and Ecological Statistics, Journal of Agricultural, Biological, and Environmental Statistics, Journal of American Statistical Association, Journal of Business & Economic Statistics, Journal of the Korean Data & Information Science Society, Journal of the Korean Statistical Society, Journal of Multivariate Analysis, Journal of Statistical Computation and Simulation, Journal of Statistical Planning and Inference, Journal of Stochastic Environmental Research & Risk Assessment, KSCE Journal of Civil Engineering, Linear Algebra and its Applications, Mathematical Geosciences, Sankhya B, Scandinavian Journal of Statistics, Sicentific Reports, Spatial Statistics, Statistica Sinica, Statistical Analysis and Data Mining, Statistical Methodology, Statistics and Probability Letter, TEST.

Grant Review

- Review Board of National Research Foundation of Korea, 2020-2023.
- Ad hoc review panel for National Science Foundation, 2010.

Doctoral Students

- Hojun You, 2022, Postdoctoral fellow at University of Houston.
- Yoon Bae Jun, 2021, Postdoctoral fellow at Iowa State University.
- Xin Qi, 2014, AbbVie Inc.
- Wei-Ying Wu (co-advising with Dr. Xiao), 2011, associate professor at National Dong Hwa University, Taiwan.

Master Students

- 2022: Sangmin Jin
- 2021: Jin U Soh
- 2020: Mongju Jeong, Elias Wennberg, Hyun Seok Yang
- 2019: Eunseong Bae, Kyeoungeun Kim
- 2018: Euntaeg Go, Yujin Shin
- 2017: Minwoo Kim, Suk Hwan Kim

Committee at Professional Organizations

- Edward C. Bryant Scholarship Committee, ASA: 1/1/2015- 12/31/2017

PROFESSIONAL MEMBERSHIPS

- American Statistical Association, Institute of Mathematical Statistics, International Statistical Institute, International Society for Bayesian Analysis, Korean International Statistical Society, Korean Statistical Society.

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