CURRICULUM VITAE

Boseung Choi

Ph.D. /Professor, Division of Big Data Science, Korea University Sejong Campus

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Education:

2005 **Ph.D**. Department of Statistics, Korea University, Seoul, South Korea
- Dissertation: Bayesian Analysis for Incomplete Two-way Categorical table with Nonignorable Nonresponse
- Advisor: Prof. Yousung Park

1997 **MS**. Department of Statistics, Korea University, Seoul, South Korea
- Thesis: Quality evaluation of Questionnaire and Development of Detecting System
- Advisor: Prof. Yousung Park

1995 **BS**. Department of Statistics, Korea University, Seoul, South Korea

Academic Appoint

1. 2024.09.01 ~ Present: Director, Crimson University-Industry Conversion Institute, Korea University Sejong Campus
2. 2023.09.01 ~ Present: Adjunct professor, College of Public Health, The Ohio State University. U.S.A
3. 2021.09.01 ~ Present: Professor, Division of Big Data Science, Korea University Sejong Campus.
4. 2021.04.01 ~ Present: Visiting Research Fellow, Institute for Basic Science Biomedical Mathematics Group.
5. 2023.03.01 ~ 2024.08.31: Chair, Division of Big Data Science, Korea University Sejong Campus.
6. 2022.02.03 ~ 2022.12.31: Visiting Scholar/Research Associate, Division of Biostatistics, The Ohio State University

7. 2019.02.01 ~ 2022.01.31: Chair, Division of Big Data Science, Korea University Sejong Campus.
8. 2020.01.15 ~ 2020.02.05: Visiting Scholar, Infectious Disease Institute, the Ohio State University, OH, U.S.A
9. 2019.07.21 ~ 2019.08.12: Visiting Scholar, Mathematical Bioscience Institute, the Ohio State University, OH, U.S.A.
10. 2018.08.03 ~ 2018.08.18: Visiting Scholar, Mathematical Bioscience Institute, the Ohio State University, OH, U.S.A.
11. 2018.03.01 ~ 2021.08.31: Associate professor, Division of Big Data Science, Korea University Sejong Campus.
12. 2018.02.13 ~ 2018.02.28: Visiting Scholar, Mathematical Bioscience Institute, the Ohio State University, OH, U.S.A.
13. 2017.07.17 ~ 2017.08.13: Visiting Scholar, Mathematical Bioscience Institute, the Ohio State University, OH, U.S.A.
14. 2017.02.01 ~ 2017.03.01: Visiting Scholar, Mathematical Bioscience Institute, the Ohio State University, OH, U.S.A.
15. 2016.08.11 ~ 2016.09.06: Visiting Scholar, Mathematical Bioscience Institute, the Ohio State University, OH, U.S.A.
16. 2016.03 ~ 2018.02.28: Assistant professor, Department of National Statistics, Korea University Sejong Campus.
17. 2015.07.02~2015.08.01: Visiting Scholar, Mathematical Bioscience Institute, the Ohio State University, OH, U.S.A.
18. 2014. 8 ~ 2014. 8: Visiting Scholar, Mathematical Bioscience Institute, the Ohio State University, OH, U.S.A.
19. 2014.02.01 ~ 2016.01.31: Chair, Department of Computer Science and Statistics, Daegu University.
20. 2010.09.01 ~ 2016.02.28: Assistant professor, Department of Computer Science and Statistics, Daegu University.
21. 2008.11.10~2010.08.12: Post Doctor Fellow and Lecturer, Department of Biostatistics, Medical College of Georgia.
22. 2007.12.01~2009.02.28: Research professor. Institute of Economics, Korea University.
23. 2007.02.01~2007.11.30: Research professor. Institute of Statistics, Korea University.
24. 2005.09.01 ~ 2006.12.31: Postdoctoral fellow. Institute of Statistics, Korea University.
25. 1997. 3 ~ 1998. 12: Statistical consultant. Statistical consulting center, Institute of Statistics, Korea University.

26. 1995. 3 ~ 1997. 2: Graduate assistant, Department of Statistics, Graduate school, Korea University.

Industrial working experiences

1. 2015.02.16 ~ present: Advisory committee, GDS CG Inc.
2. 2017.12.21 ~ 2019.12.31: Advisory committee, Big data Committee, Gyeonggi Province.
3. 2008 ~ 2008.11.01: Lecturer, SAS Institute Korea. (Time series analysis I, II, Financial time series analysis.)
4. 2006 ~ 2007: Manager, Department of Decision Management, Citibank Korea Inc.
5. 2004 ~ 2008: Lecturer, KOSFI (Korean Securities & Finance Institute). Statistics and Quantitative Methods for CFA (Chartered Financial Analyst) and FRM (Financial Risk Management). Seoul, Korea.
6. 1998 ~ 2002: Assistant Manager, Department of Education and SW development for Library Automation System, ECO Co. Ltd., Seoul, Korea.

Editorial board reviewers

1. 2021.01.01 ~ present: Director of General Affairs, The Korean Data Analysis Society
2. 2017.02 ~ present: Associated editor of Communications for Statistical Applications and Methods (CSAM)
3. 2019.02 ~ 2021.02: Director, The Korea Data and Information Science Society
4. 2007.02 ~ 2016.02: Journal of Korean Data Analysis Society

Awards

1. 2023.08: Best Teaching Professor of the Year, Korea University.
2. 2022.02: Best Teaching Professor of the Year, Korea University.
3. 2013.05: Best Teaching Professor of the Year, Daegu University.
4. 2011.11: An academic prize of the Korean Data Analysis Society.

Research interests:

1. Applications of statistical methods in molecular biology, epidemiology, and Microarray analysis.
2. Missing Data Analysis, Bayesian Statistics, and Statistical Computing.
3. Data Mining for the Multivariate Data

4. Time series Analysis and Forecasting

Publications

1. Mills, M., **Choi. B.**, Garabed, R., Lee, S., Piperata, B.A., Lee, J. (2024). Modeling diarrheal disease transmission dynamics of children in rural Nicaragua: The role of Campylobacter and Salmonella contamination of household drinking water, *International Journal of Hygiene and Environmental Health*, Submitted.

2. Park, Y., An, S., and **Choi, B.** (2025). Development and Application of a Flood Vulnerability Index Using Canonical Correlation Analysis, *Journal of the Korean Data Analysis Society*, Accepted.

3. Hong, H., Eom, E., Lee, H., Choi, S., **Choi, B.**, and Kim, J. (2024). Overcoming Bias in Estimating Epidemiological Parameters: A Bayesian Approach with Realistic History-Dependent Disease Spread Dynamics, *Nature Communications*, 15(1), 8734. https://doi.org/10.1038/s41467-024-53095-7

4. Mills, M., Davis, A., Lancaster, E., **Choi. B.**, Martin, J., Winston, R., Lee, J. (2024). Longitudinal Analysis of Urban Stormwater Microbiome and Resistome from Watersheds with and without Green Infrastructure using Long-Read Sequencing, *Water Research*, 121873. https://doi.org/10.1016/j.watres.2024.121873

5. Holm, R. H., Rempala, G. A., **Choi, B.**, Brick, J. M., Amraotkar, A. R., Keith, R. J., Rouchka, E. C., Chariker, J. H., Palmer, K. E., Smith, T., Bhatnagar, A. (2024) Dynamic SARS-CoV-2 surveillance model combining seroprevalence and wastewater concentrations for post- vaccine disease burden estimates, *Communications Medicine*, **4**, 70. https://doi.org/10.1038/s43856-024-00494-y.

6. Hong, H., Cortez, M. J., Cheng Y. Y., Kim, H. J., **Choi, B.**, Kim, J., and Josic, K. (2023). Inferring delays in partially observed gene regulatory networks, *Bioinformatics*, 39 (11), btad670. https://doi.org/10.1093/bioinformatics/btad670

7. Mills, M., Lee, S., Piperata, B.A., Garabed, R., **Choi. B.**, Lee, J. (2023). Household environment and animal fecal contamination are critical modifiers of the gut microbiome and resistome in young children from rural Nicaragua, *Microbiome*, 11:207, https://doi.org/10.1186/s40168-023-01636-5.

8. Lee, S., **Choi, B.**, Kim S. J., Kim, J., Kang, D., and Lee, J. (2022). Relationship Between Freshwater Harmful Algal Blooms and Neurodegenerative Disease

Incidence Rates in South Korea, *Environmental Health,* 21, 116. https://doi.org/10.1186/s12940-022-00935-y

9. Choi, J. W., Nandram, B., and **Choi, B**. (2022). Combining Correlated P-values from Primary Data Analyses, *International Journal of Statistics and Probability,* Vol. 11, No. 6. 12-27.

10. Smith, T., Holm, RH, Keith, RJ., Amraotkar, AR., Alvarado, CR., Banecki, K., **Choi, B.**, Santistebar, IC., Bushau-Sprinkle, AM., Kitterman, KT., Palmer, KE., Brick, JM., Rempala, GA., Bhatnagar, A. (2022). Quantifying the relationship between sub-population wastewater samples and community-wide SARS-CoV-2 seroprevalence, *Science of the Total Environment*, Vol 853, 158567.

11. Hong, H., Noh J. Y., Lee H., Choi, S., **Choi, B**., Kim, J. K., and Shin, E. C. (2022). Increasing viral transmission reduces progression rates to severe COVID-19 during endemic transition, *Immune Network*, 22(3).

12. Cho, Y., Cho, D., and **Cho. B**. (2022). Classification algorithm application method for unbalanced time series data: Focusing on the corporate default model, *Journal of the Korean Data Analysis Society*, 24(2), 639-651.

13. Park, J., Chang, J. and **Choi, B.** (2022). An interaction Neyman-Scott point process model for Coronavirus disease-19, *Spatial Statistics*, 47, 1-20.

14. Cortez, M. J., Hong, H., **Choi, B.**, Kim, J., and Josic, K. (2022). Hierarchical Bayesian models for inference in biochemical reactions with delays, *Bioinformatics*, 38(1), 187-195.

15. Eom, E., Park, G., and **Choi, B.** (2021). Construction of stochastic epidemic model using Sellke construction and dynamical survival system, *Journal of the Korean Data Analysis Society*,, 23(2), 563-575.

16. **Choi, B.**, Cheng, Y., Cinar S., Ott, W., Bennett, M. R., Josic, K., and Kim, J. (2020). Bayesian inference of distributed time delay in transcriptional and translational regulation, *Bioinformatics*, 36(2), 586-593.

17. KhudaBukhsh, W. R., **Choi, B**., Kenah, E., and Rempala, G. A. (2020). Survival dynamical systems for the population-level analysis of epidemics, *Journal of the Royal Society Interface*, 10(1), 1-18.

18. Lee, S., Kim, J., **Choi, B**., Kim, G., and Lee, J. (2019). Harmful algal blooms and Liver Diseases: Focusing on the Areas near the four Major Rivers in South Korea, *Journal of Environmental Science and Health Part - C*, Vol. 37, No. 4, 356-370.

19. **Choi, B.**, Busch, S., Dai, Y., Lumpkin, r., Saucedo, O., KhudaBukhsh, W. R., Tien, J., Yotebieng, M., Kenah, E., Rempala, G. A. (2019), Modeling outbreak data: Analysis of a 2012 Ebola virus disease epidemic in DRC, *Biomath*, Vol. 8(1), 1-12.

20. Kim, K. W., Lee, C. H., and **Choi. B**. (2019). Material information of public data in Korea, *Journal of the Korean Data & Information Science Society*, Vol. 30(5), 1051-1062.

21. Wei, Z., Kim, S., **Choi, B**., and Kim, D. (2019). Multivariate skew normal copula for asymmetric dependence: estimation and application, *International Journal of Information Technology & decision Making*, Vol. 18(1), 365-487.

22. **Choi, B**., Woroszy, C., Profitos, J. H., Lee, J. Carabed, R., and Rempala, G. A. (2018). Modeling household transmission dynamics: Application to diarrheal disease in Sub-Saharan Africa, *Plos One*, Vol. 13(11): e0206418.

23. **Choi, B**. and Yoon, Y. H. (2018). Stochastic epidemic model estimation using Monte Carlo expectation maximization algorithm, *Journal of the Korean Data & Information Science Society*, Vol. 29(1), 97-109.

24. **Choi, B**., Rempala, G. A., Kim, J. K. (2017). Beyond Michaelis-Menten: accurate and efficient estimation of enzyme kinetic parameters, *Scientific Reports*, Vol. 7, 17018.

25. Kim, K. H., Kim, K. J., Ra, D. H., and **Choi, B.** (2017). A Research of support ratio comparison between Ballot Method: Based on 18th presidential election result in South Korea, *Journal of the Korean Data & Information Science Society*, Vol. 19(6), 2969-2980.

26. Do, M., Kim, J., and **Choi, B.** (2017). A study of epidemic model using SEIR model, *Journal of the Korean Data & Information Science Society*, Vol. 28(2), 1-11.

27. Eom, E., Hwang, J. and **Choi, B.** (2017). An estimation method of probability of infection using Reed - Frost model, *Journal of the Korean Data & Information Science Society*, Vol. 28(1), 57-66.

28. **Choi, B.** and Kim, S. (2017). Prediction of exit polls for the presidential election in 2007 and 2013 by using nonresponse models, *Journal of the Korean Data Analysis Society*, Vol. 19, No. 1(B), 1-9.

29. Kim, K. W., Kim, J. H., and **Choi, B.** (2016). A model construction for probability of human-caused wildfire using geographical information, *Journal of the Korean Data Analysis Society*, Vol. 18, No. 6(B), 2987-2999.

30. **Choi, B.**, You, H. S., and Yoon, Y. H. (2016). An estimation method for non-response model using Monte-Carlo expectation-maximization algorithm, *Journal of the Korean Data & Information Science Society*, Vol. 27(3), 587-598.

31. Lim, Y. Do, M. J., and **Choi, B.** (2016). A Construction of Susceptible-Infected-Removed Model, *Journal of the Korean Data Analysis Society*, Vol. 18, No. 1(B), 105-115.

32. Schwartz, E. J., **Choi, B,** and Rempala, G. A. (2015). Estimating epidemic parameters: Application to H1N1 pandemic data, *Mathematical Biosciences*, Vol. 270, 198-203.

33. Yoon, Y.H., Kang, B. and **Choi, B.** (2015). An analysis of competition relationship for the smartphone markets using Lotka - Volterra model, *Journal of the Korean Data Analysis Society*, Vol. 17, No. 6(B), 2955-2967.

34. Kim, K. W., Lee, C. H., and **Choi, B**. (2015). A research for forecasting of rate of university quota according to the reducing of young generation, *Journal of the Korean Data & Information Science Society*, Vol. 26(6), 1175-1188.

35. Shin, K. and **Choi, B.** (2015). A Study of Methods of Error Detection in Survey Data, *Journal of the Korean Data Analysis Society*, Vol. 17, No. 3(B), 1297-1308.

36. Seo, M. and **Choi, B.** (2015). A Estimation Method for Stochastic Epidemic Model, *Journal of the Korean Data Analysis Society*, Vol. 17, No. 3(B), 1247-1259.

37. **Choi, B**. (2015). An estimation method for stochastic reaction model, *Journal of the Korean Data & Information Science Society*, Vol. 26(4), 813-826.

38. Ryu, S. and **Choi, B**. (2015). Development of epidemic model using the stochastic method, *Journal of the Korean Data & Information Science Society*, Vol. 26(2), 301-312.

39. Yoon, Y. H. and **Choi, B**. (2014). Analysis of Missing Data Using an Empirical Bayesian Method, *The Korean Journal of Applied Statistics*, Vol. 27(6), 1103-1016.

40. Kwak, J. and **Choi, B**. (2014). A comparison study for accuracy of exit poll based on nonresponse model, *Journal of the Korean Data & Information Science Society*, Vol. 25(1), 53-64.

41. Min, T. G., **Choi, B**., and Hong, B. R. (2013). Predicting germination probability of radish (Raphanus sativus L.), chinese cabbage (Brassica rapa ssp. pekinensis), and cabbage (B. oleracea var. capitata L.) seeds via amino acid leakage parameters, *Horticulture, Environment, and Biotechnology*, Vol. 54(5), 388-398.

42. Park, Y. S., Kim, K. W., and **Choi, B.** (2013). Dynamic Bayesian analysis for irregularly and incompletely observed contingency tables, Journal of the Korean Statistical Society, Vol. 42, 277-289.

43. Um, I., Shin, K., and **Choi, B**. (2013) A sales forecasting model with geographic information for small and medium-sized stores, Journal of the Korean Data Analysis Society, Vol. 15, No. 6(B), 3003-3015.

44. Shin, K and **Choi, B.** (2013). A review of life table applications and an introduction of its application method, Journal of the Korean Data & Information Science Society, Vol. 24(6), 1159-1175.

45. **Choi, B** (2012). A Study of Dynamic Bayesian Model Comparison for Categorical Time-series Data, *Journal of the Korean Data Analysis Society*, Vol. 14, No. 6(B), 2975-2988.

46. Yoon, Y. H. and **Choi, B.** (2012). Model selection method for categorical data with non-response, Journal of the Korean Data and Information Science Society, Accepted.

47. **Choi, B.** and Kim, K. (2012). A Model Selection Method Using EM Algorithm for Missing Data, Journal of the Korean Data Analysis Society, Vol. 14, No.2(B), 767-779.

48. **Choi, B.** and Rempala, G (2012). Inference for Discretely Observed Stochastic Kinetics Networks with Applications to Epidemic Modeling, Biostatistics, 13, 153-165.

49. Kim, K. W., **Choi, B.**, and Park, Y. S. (2011). Multi-Level Composite Estimators in the Three-Way Balanced Multi-Level Rotation Designs, Journal of the Korean Statistical Society, Vol. 40, 99-208.

50. Chae, W. Y., Kim, K. W., **Choi, B.**, and Y. S. Park. (2011). A Study for Forecasting Methods of ARMA-GARCH Model Using MCMC Approach, The Korean Journal of Applied Statistics, Vol. 24, No 2, 293-305.

51. Han, S. T., Kang, H., **Choi, B.**, and Lee, Seong Keon (2011). A Study on the Judgment Rating for Level of Need for Long-term Care Insurance Using a Decision Tree, Communications of the Korean Statistical Society, Vol. 18, No. 1, pp. 137-146.

52. **Choi, B.**, Kang, H., and Han, S. T. (2011). A Study for the Development of a Bid Price Rate Prediction Model, Communications of the Korean Statistical Society, Vol. 18, No. 1, pp. 23-34.

53. **Choi, B.**, Kang, H., and Han, S. T. (2010). City Gas Demanding Forecasting using Seasonal Adjustment Method, Journal of the Korean Data Analysis Society, Vol. 12, No. 6(B), 3247-3258.

54. Park, Y. S. and **Choi, B.** (2010). Bayesian analysis for Incomplete Multi-way Contingency Tables with Nonignorable Nonresponse, Journal of Applied Statistics, 37: 9, 1439 — 1453.

55. **Choi, B.**, Kang, H., and Han, S. T. (2009). A Development of Real Estate Auction Index, Journal of the Korean Data Analysis Society, Vol. 11, No. 6(B), 3115-3125.

56. **Choi, B.**, Kang, H., Lee, S. K., and Han, S. T. (2009). A Study for Traffic Forecasting using Traffic Statistic Information, The Korean Journal of Applied Statistics, Vol. 22, No 6, 1177-1190.

57. **Choi, B.**, Kang, H., Lee, K., and Han, S. T. (2009). A Development of City Gas Supply Forecast Model, The Korean Journal of Applied Statistics, Vol. 22, No 5, 1019-1032.

58. **Choi, B.**, Choi, J. W., and Park, Y. S. (2009). Bayesian Methods for Incomplete Two-way Contingency Table with Application to the Ohio (Buckeye State) Polls, Survey Methodology, Vol. 35, No 1, pp.37-51.

59. Park, Y. S., Lee, S. Y., and **Choi, B.** (2009). A Study of Effective Default Forecasting Model Development for Small and Medium Sized Enterprises, Journal of the Korean Data Analysis Society, Vol. 11, No. 3 (B), pp. 1363-1375.

60. Park, Y. S., Kim, H., **Choi, B.**, and Kim, K. W. (2009). A Study on Applying Micro simulation to the Korean Population Structure, Journal of the Korean Data Analysis Society, Vol. 11, No. 2 (B), pp. 881-893.

61. Jeon, Seobom, **Choi, B.**, and Kim, S. Y. (2009). Pattern Classification of Time-series Data using Spectrum Analysis, Journal of the Korean Data Analysis Society, Vol. 11, No. 1 (B), pp. 349-359.

62. Park, Y. S., Park, S. K., **Choi, B.**, and Kim, K. W. (2009). A Comparison of Probability of Death Result using Beers's Interpolation Coefficient and the Greville's Formula, Journal of the Korean Data Analysis Society, Vol. 11, No. 1 (B), pp. 79-110.

63. Park, M. and **Choi, B.** (2008). Bias Corrected Maximum Likelihood Estimator under the Generalized Linear Model for a Binary Variable, Communications in Statistics - Simulation and Computation, Vol 37, Issue 8, pp.1507-1514.

64. **Choi, B.**, Woo, Jon Uk, and Park, Y. S. (2008). Locally Powerful Unit-Root Test, Communications of the Korean Statistical Society, Vol. 15, No. 4, pp. 531-542.

65. Song, M. S., **Choi, B.**, Kim, S. Y., and Moretti, R. (2008). Forecasting Study for Cadastral Survey using Seasonal Adjustment Methods, Journal of the Korean Data Analysis Society, Vol. 10, No. 3 (B), pp. 1579-1589.

66. **Choi, B.**, Kim, D. Y., Kim, K. W., and Park, Y. S. (2008). Nonignarable Nonresponse Imputation and Rotation Group Bias Estimation on the Rotation Sampling Survey, Korean Journal of Applied Statistics, Vol. 21, No. 3, pp. 361-375.

67. Kang, H., Han, S. T., **Choi, B.**, and Back, J. H. (2008). A Study on Application of Link Analysis, Journal of the Korean Data Analysis Society, Vol. 10, No. 3 (B), pp. 1541-1548.

68. Han, S. T., Kang, H., **Choi, B.,** and Song, H. S. (2008). A Study of the Limited Response Variable Model, Journal of the Korean Data Analysis Society, Vol. 10, No. 3 (B), pp. 1561-1567.

69. Choi, J., Kim, K. W., **Choi, B.,** and Jin, S. (2008). Curriculum Development for Official Statistics, Journal of the Korean Data Analysis Society, Vol. 10, No. 2 (B), pp. 743-756.

70. **Choi, B.,** Son, J. C., Jung, J. W., and Kim, K. W. (2008). Study of Model Development for Number of Default, Journal of the Korean Data Analysis Society, Vol. 10, No. 1 (B), pp. 283-294.

71. Lu, X., Lee, D. H., **Choi, B.,** Park, M. S., and An, H. (2007). Analysis of Repeated Measurements on Iowa Gambling Task Study, Journal of the Korean Data Analysis Society, Vol. 9, No. 6, pp. 2623-2629.

72. Park, Y. S., Song, J. H., and **Choi, B.,** (2007). Korea-specified Maximum Expected Utility Model for the Probability of Default, The Korean Journal of Applied Statistics, Vol. 20, No. 3, pp. 573-584.

73. **Choi, B.,** Park, Y. S., and Lee, D. H. (2007). Election Forecasting Using Pre-Election Survey Data with Nonignorable Nonresponse, Journal of the Korean Data Analysis Society, Vol. 9, No. 5, pp. 2321-2333.

74. Han, S. T. and **Choi, B.** (2007). Development of Income Estimation Model Using Financial Transaction Data, Journal of the Korean Data Analysis Society, Vol. 9, No. 4, pp. 1821-1831.

75. **Choi, B.** (2007). Study of Customer Segmentation Method Using Nonresponse Model, Journal of the Korean Data Analysis Society, Vol. 9, No. 4, pp. 1849-1860.

76. **Choi, B.,** and Park, Y.S. (1998). A Study of Data Pattern Recognition and Development of Data Detecting System. The Journal of Data Science and Classification, Vol. 2, No. 1, pp.21-32.

Invited Talk and Presentation

1. Choi, S., Hong, H., Eom, E., Lee, H., **Choi. B.,** and Kim, J. K. (2024). Addressing Bias in Epidemiological Parameter Estimation: A Bayesian Approach with Realistic Distributions of Latent and Infectious Periods, 13th European Conference on Mathematica | and Theoretical Biology, Toledo, Spain.

2. Jang, D., Kim, S., Choi, S., and **Choi. B** (2024). Diverse Methodological Analysis of Movement Patterns by Purpose and Age in South Korea During

COVID-19, 13th European Conference on Mathematica | and Theoretical Biology, Toledo, Spain.

3. **Choi. B**, and Kiss, I. (2024). Epidemic model estimation using the network models: Applications of the branching model and edge-based compartmental model, KSMB-SMB 2024 Seoul, Konkuk University, South Korea.

4. Hong, H., Kortez, M. J., Cheng, Y-Y, Kim, H. J., **Choi. B**, Josic, K., and Kim, J. K. (2024). Inferring delays in partially observed gene regulation processes, KSMB-SMB 2024 Seoul, Konkuk University, South Korea.

5. Choi, S., Hong, H., Eom, E., Lee, H., **Choi. B.**, and Kim, J. K. (2024). Addressing Bias in Estimating Epidemiological Parameters: A Bayesian Approach with Realistic Distributions of Latent and Infectious Periods, KSMB-SMB 2024 Seoul, Konkuk University, South Korea.

6. **Choi. B** (2024). Statistical Inference of Distributed Time Delay in Stochastic Chemical Reaction Networks: Application in Gene Regulation Process and Infectious Disease Transmission, International Conference on Mathematical Methods and Models in Biosciences, Cutty Sark, South Africa.

7. Jang, D., Kim, S., Choi, S., and **Choi. B** (2024). Diverse Methodological Analysis of Movement Patterns by Purpose and Age in South Korea During COVID-19, International Conference on Mathematical Methods and Models in Biosciences, Cutty Sark, South Africa.

8. Kim, S. J., and **Choi. B** (2024). Comparison Research for spatio-temporal data analysis: methods, applications, and implications, Proceedings of the Korean Data Analysis Society. Bukyoung University.

9. Eom. E and **Choi. B** (2024). A novel model reflecting the realistic distribution of disease spread. Proceedings of the Korean Data Analysis Society. Bukyoung University.

10. Ryu, S. W., Eom. E and **Choi. B** (2023). A construction of epidemic model using network model, Proceedings of the Autumn Conference, The Korean Data Information Science Society, Daegu University.

11. **Choi. B** and Eom. E. (2023). A Bayesian model for the relationship SARS-CoV-2 wastewater and community-wide seroprevalence with mutation and vaccination effect, SMB2023, Columbus, U.S.A.

12. Eom. E and **Choi. B** (2023). Construction of a New Infectious Disease Model Using the Time delay, Biomath 2023, Pomorie, Bulgaria.

13. **Choi. B** and G. A. Rempala (2023). Statistical model for identification of the relationship between SARS-CoV-2 prevalence and wastewater concentration with vaccination and delta variant mutation, Biomath 2023, Pomorie, Bulgaria.

14. Eom, E and **Choi. B.** (2023). A construction of a new epidemic model using time delay, Proceedings of the Autumn Conference, The Korean Data Information Science Society.

15. Eom, E and **Choi. B** (2022). Bayesian estimation method based on the Survival dynamical system: An application to MERS epidemics in South Korea, 12th European Conference on Mathematical and Theoretical Biology, Heidelberg, Germany.

16. **Choi. B** (2022). Statistical inference of hierarchical Bayesian model for the stochastic chemical reaction with time delay, 12th European Conference on Mathematical and Theoretical Biology, Heidelberg, Germany.

17. **Choi. B** (2022). Bayesian inference of biochemical reactions with time delay, invited talk at Online Seminar Series, Dept. of Mathematics, Informatics, Computer Science, University of Warsaw.

18. **Choi. B** (2022). Bayesian inference of biochemical reactions with time delay, invited talk at Biostatistics Seminar Series, the Ohio State University

19. Eom, E. and **Choi. B** (2021). Statistical Inference for the stochastic reaction model with time delays. Proceedings of the Autumn Conference, The Korean Data Information Science Society.

20. **Choi. B** (2021). Bayesian inference of biochemical reactions with delays, Invited Talk, POSTECH MINDS seminar talk. POSTECH.

21. Eom, E. and **Choi. B** (2021). Estimation of epidemic model using survival dynamical system. Proceedings of the Fall Conference, The Korean Data Analysis Society.

22. Kim, K. and **Choi. B** (2021). A comparison study for enzyme kinetics using Bayesian approach. Proceedings of the Fall Conference, The Korean Data Analysis Society.

23. Kim, S. and **Choi. B** (2021). A relationship blooms and Senile Disease using spatial population estimation. Proceedings of the Fall Conference, The Korean Data Analysis Society.

24. Son, J. and **Choi. B** (2021). Bayesian estimation of distributed time delay with hidden stage. Proceedings of the Fall Conference, The Korean Data Analysis Society.

25. **Choi, B** (2020). Statistical inference for epidemic models using the Survival dynamical system based on the Bayesian approach, 2020 Virtual Annual Meetings of the Society for Mathematical Biology. Society for Mathematical Biology

26. **Choi, B** (2020). Statistical inference for epidemic models using the Survival dynamical system: An application of the Korean COVID-19 pandemic data, Proceedings of the Spring Conference, Korea Statistical Society.

27. **Choi, B** (2020). Statistical Inference for Epidemic Models Based on Bayesian Approach, IDI EEPH Weekly Seminar Series, The Ohio State University.
28. **Choi, B** and G. A. Rempala (2019). Bayesian method for modeling household transmission dynamics, 2019 Annual Meetings of the Society for Mathematical Biology. Montreal, Canada.
29. **Choi, B** and G. A. Rempala (2019). Modeling for zoonotic diarrheal disease epidemic, International conference on mathematical methods and models in biosciences, Biomath 2019, Bedlewo, Poland.
30. Choi, B. (2019). An estimation of zoonotic diarrheal disease model using Bayesian method. Proceedings of the Spring Conference, The Korean Data Analysis Society.
31. **Choi, B** (2018). An estimation method for Enzyme Kinetic model parameters based on Bayesian approach. Speed section, the Joint Statistical Meetings, Vancouver, Canada.
32. **Choi. B** (2018). An accurate and efficient estimation of enzyme kinetics and using Bayesian approach. Invited section, 2018 Annual Meetings of the Society for Mathematical Biology, Sydney, Australia.
33. **Choi. B** (2018). A dynamic analysis for foreign tourists in Korea using LTE data. Proceedings of the Spring Conference, Korea Statistical Society.
34. Kim, K. J., Kim, K., Ra, D. H., and **Choi. B** (2018). A relationship blooms and liver disease; Focusing to Four major rivers in Korea. Proceedings of the Spring Conference, The Korean Data Analysis Society.
35. Kim, K., Kim, K. J., Ra, D. H., and **Choi. B** (2017). Research for support ratio comparison between Ballot Method; Korean 18th presidential election result. Proceedings of the Fall Conference, Korea Statistical Society.
36. **Choi, B.** (2017). Estimation for stochastic epidemic model using Bayesian approach, invited talk at UNIST.
37. **Choi, B.** (2017). Bayesian inference for SIR model with early state approximation, Proceedings of the spring conference, Korean Society of Industrial and Applied mathematics.
38. **Choi, B.** (2017). Beyond the Michaelis-Menten equations for the unbiased estimation of enzyme kinetics, visiting scholar seminar, Mathematical Biosciences Institute, OSU, USA.
39. **Choi, B.** (2016). A study for model estimation of human-caused wildfire. Proceedings of the Fall Conference, Korea Statistical Society.
40. **Choi, B.** (2016). An analysis for human-caused wildfire using Big data, invited talk at Korea Environment Institute.
41. **Choi, B.** and Lim, Y. (2016). SIR model using Korean MERS pandemic data, Proceedings of Journal of the Korean Data & Information Science Society

42. Kang, B. and **Choi, B**. (2015). An analysis of interaction effect between using Lotka-Volterra model. Proceedings of Journal of the Korean Data & Information Science Society.

43. **Choi, B**. (2015). Estimation method for stochastic epidemic model based on random graph approach. Proceedings of Journal of the Korean Data & Information Science Society.

44. **Choi, B**. (2015). Bayesian Estimation Method for Epidemic Model: Appling to H1N1 Pandemic data. The 10th Daegu University-Saga University joint symposium, Institute of Basic Science, Daegu University.

45. Kang, B. and **Choi, B**. (2015). A Dynamic model analysis for completion between species using Lotka-Volterra model. The 10th Daegu University-Saga University joint symposium, Institute of Basic Science, Daegu University.

46. **Choi, B**. (2015). Network Based Epidemic Model Estimation using Korean MERS Pandemic data. Proceedings of the Fall Conference, Korea Statistical Society

47. **Choi, B.** (2015). Stochastic Epidemic modeling with early-stage approximation, Proceedings of the 8th International congress on Industrial and Applied Mathematics. Beijing, China.

48. **Choi, B.** (2015). Research of epidemic model for stochastic process. Proceedings of the Spring Conference, The Korean Data Analysis Society.

49. **Choi, B.** (2015). Estimation for Stochastic Epidemic model: Application to H1N1 Pandemic data, invited talk at Pusan University.

50. Kim, K. H. and **Choi, B.** (2014). Forecasting of applicant of university according to reduction of the young generation: Youngnam province, Proceedings of Journal of the Korean Data & Information Science Society.

51. **Choi, B.** and Ryu, S. R. (2014). Epidemic model fitting based on stochastic method, Proceedings of Journal of the Korean Data & Information Science Society.

52. **Choi, B**. (2014). Stochastic Epidemic Modeling for a simple H1N1 Pandemic Data. Proceedings of the Fall Conference, Korea Statistical Society.

53. **Choi, B**. (2014). An impact of dynamic Bayesian model for incompletely observed categorical data. Proceedings of the Spring Conference, Korea Statistical Society.

54. Shin, K. J. and **Choi, B.** (2014). An error detection method for survey data, Proceedings of the Korean Data Analysis Society.

55. **Choi, B**. (2014). Stochastic Epidemic Modeling for Pandemic Data using MCMC sampling method. Bayesian Statistics Society Tutorial, Chosun University.

56. **Choi, B**. and Rempala, G. (2014). Stochastic Epidemic Modeling for a simple H1N1 Pandemic Data, 2014 Workshop for Young Researchers in Mathematical Biology, Mathematical Bioscience Institute, Ohio State University.

57. Shin, K. J. and **Choi, B**. (2013). Development of sales forecasting system for small and middle sized business using GIS. Proceeding of the Korean Data Analysis Society.

58. **Choi, B.** and Kwak, J. A. (2013). Method of nonresponse model selection, Proceedings of Journal of the Korean Data & Information Science Society.

59. **Choi, B**. and An, H. (2013). Monte Carlo approach to parameter estimation of stochastic kinetic network model, Proceedings of Korean Statistical Society.

60. **Choi, B**. and Rempala, G. (2012). Statistical Method for Epidemic Model Estimation using kinetic Reaction Model. Proceedings of Institute of Mathematical Statistics Asia Pacific Rim Meeting, Institute of Mathematical Statistics

61. **Choi, B.** (2012). Model selection and nonresponse estimations using EM algorithm. Proceedings of the Spring Conference, Korea Data Analysis Society.

62. Kim, K. W., Son, K. J., and **Choi, B**. (2011). The smoothing and model development for international migration data. Proceedings of the Spring Conference, the Population Association Korea.

63. **Choi, B**. and Rempala, G. (2011). Inference for Partially Observed Kinetic Reaction Model with Application of Epidemic Model. Proceedings of the Spring Conference, Korea Statistical Society. Proceedings of the Fall Conference, Korean Data Information Science Society.

64. **Choi, B**. and Rempala, G. (2010). A Study of analysis for traffic patterns using traffic information. Proceedings of the Fall Conference, Korea Statistical Society. Proceedings of the Fall Conference, Korean Data Information Science Society.

65. **Choi, B**. (2010). Invited talk on "Uniformization method for sampling species of Continuous time Markov process" at the Center for Biotechnology and Genomic Medicine in the Medical College of Georgia.

66. **Choi, B**. (2010). Invited talk on "Bayesian Estimation for Chemical Reaction Model using Uniformization" at research forum of Statistics and Computational Biology Group in Medical College of Georgia.

67. Strickland, S. M., Park, Y. D, Brown, C., Lee, K. H., **Choi, B**., Murro, A., Kaminski, R. J., and Drake, K. (2009) The brain subcortical network of secondary generalized seizures: A siscom study. Proceedings of Epilepisia, 50 (Suppl. 11).

68. **Choi, B.** (2009). Invited presentation on "Empirical Bayesian Method for Incomplete Two-way Contingency Table." Department of Biostatistics in Medical College of Georgia, GA.

69. Han, S, T., Kang, H. C., Lee, S. K., and **Choi, B.** (2008). A Study of analysis for traffic patterns using traffic information. Proceedings of the Fall Conference, Korea Statistical Society.

70. Han, S, T., Kang, H. C., and **Choi, B.** (2008). A Model development for forecasting gas supply using temperature information. Proceedings of the Fall Conference, Korea Statistical Society.

71. Han, S, T., Kang, H. C., Lee, S. K., and **Choi, B.** (2008). A Study of method of medical care identification score development for long-term medical care insurance. Proceedings of the Fall Conference, Korea Statistical Society.

72. Kim, K, W., Kim, H. S., and **Choi, B.** (2008). A Study of modeling for demography using Micro simulation model. Proceedings of the Fall Conference, Korea Data Analysis Society.

73. **Choi, B.**, Kang, H., and Han, S. T. (2008). A Study of Contract price forecasting model using Auction Data Base. Proceedings of the Spring Conference, Korea Statistical Society.

74. **Choi, B.**, Kim, T. Y., and Park, Y. S. (2007). A Dynamic hierarchical Bayesian Method for the Probability of Default. Proceedings of the Fall Conference, Korea Statistical Society.

75. **Choi, B.** and Park, Y. S. (2007). A Dynamic Bayesian Model for Categorical Time Series Data with Nonignorable Nonresponse. Proceedings of the Spring Conference, Korea Statistical Society.

76. **Choi, B.** and Park, Y. S. (2006). A Dynamic Bayesian Model for Incomplete Multinomial Time Series. Proceedings of the Fall Conference, Korea Statistical Society.

77. **Choi, B.** and Park, Y. S. (2006). Bayesian Methods for Incomplete Two-way Categorical Table with Application to the Buckeye State Polls. Proceedings of the Spring Conference, Korea Statistical Society.

78. **Choi, B.** and Park, Y. S. (2005). Bayesian Approach for Categorical Table with Nonignorable Nonresponse. Proceedings of the Fall Conference, Korea Statistical Society.

79. **Choi, B.** and Park, Y. S. (2005). Bayesian Adjustments for Nonignorable Nonresponse in Incomplete Two-way Categorical Table. Proceedings of the Joint Statistical Meetings, American Statistical Association.

80. **Choi, B.** and Park, Y.S. (1997). Quality evaluation of Questionnaire and Development of Detecting System. Proceedings of the Spring Conference, Korea Statistical Society.

15. 2016.03.25 ~ 2016.09.01: Research on visitor behavior, Korea National Park Service.
16. 2016.05.01 ~ 2016.08.11: Big Data and Administrative Data Textbook Development Project, Statistics Training Institute.
17. 2016.03.01 ~ 2016.10.31: Development of measures and analysis for human-caused wildfire Using Big data, National institute of Forest Science.
18. 2015.05.01 ~ 2016.02.28: An analysis of competition relationship for the smartphone markets using Lotka - Volterra model, Daegu University, Kyeongbuk, Korea.
19. 2014.01 ~ 2014.06: A development of CRM system, Daegu Bank Co. Ltd, Korea.
20. 2014.05 ~ 2015. 04: A Study for Epidemic modelling, Daegu University, Kyeongbuk, Korea.
21. 2013.05 ~ 2013.12: A development of customer information management system for small business, Korean Research Foundation, Korea.
22. 2013.05 ~ 2014.04: A study for customer segmentation using data mining. Daegu University, Kyeongbuk, Korea
23. 2013.01~2013.04: A consulting for Hub IPTV Value Base service of KT Media, Accenture Korea, Consulting professor
24. Ministry of Culture, Sports, and Tourism, Consulting professor.
25. 2012.08 ~ 2012.12: Development of management support system for small business, Korean Research Foundation, Korea.
26. 2012.05 ~ 2013.04: A Study of Epidemic Model using Stochastic Kinetic Reaction Model. Korean Research Foundation, Korea.
27. 2012.05 ~ 2013.04: A study for model estimation for categorical time series data. Daegu University, Kyeongbuk, Korea.
28. 2011.05 ~ 2012.04: A study for comparison methods of life tables. Daegu University, Kyeongbuk, Korea.
29. 2010.09 ~ 2012.04: A Bayesian study for model estimation of incomplete multidimensional categorical data. Daegu University, Kyeongbuk, Korea.
30. 2007 ~ 2009: The population movement analysis for social economic system construction of ageing society, Korea Research Foundation, Seoul, Korea.
31. 2006 ~ 2009: System development of the credit derivatives pricing and fund for the East Asia Financial Hub, Seoul Development Institute, Seoul, Korea.
32. 2007 ~ 2008: Forecasting for city gas supply and Analysis of temperature change and city gas supply. Taegu city gas Co. Ltd., Taegu, Korea.

33. 2007: A study of statistical method for the discrimination scores of medical care insurance for the old age people, Ministry for Health, Welfare, and Family Affairs, Seoul, Korea.
34. 2007: A study of traffic pattern analysis using statistical traffic information. Think ware Co. Ltd., Seoul, Korea.
35. 2007: A study of statistical method for the discrimination scores of medical care insurance for the old age people. Ministry for Health, Welfare, and Family Affairs, Seoul, Korea.
36. 2007: A study of traffic pattern analysis using statistical traffic information. Think ware Co. Ltd., Seoul, Korea.
37. 2007: A Study of forecasting of Korean cadastral survey demand Cadastral Research Institute, Seoul, Korea.
38. 2004 ~ 2005: A Study of Korean whisky market demand. Diageo Korea Co., Ltd., Seoul, Korea.
39. 2004 ~ 2005: Development of statistical model for GDP long-term forecasting. Korea Institute for Industrial Economics and Trade, Seoul, Korea.
40. 2004: System development for professor research achievement system. Korea University, Seoul, Korea.
41. 2004: System development for new recruiting of professor. Korea University, Seoul, Korea.
42. 2003 ~ 2004: System development for management of entrance examination. Korea University, Seoul, Korea.
43. 2003 ~ 2004: Development model and algorithm for E-Business forecasting simulation and data analysis. Ministry of Commerce, Industry and Energy, Seoul, Korea.
44. 2002 ~ 2003: A Study for Method of Industrial Calamity Statistics. KOSHA (Korea Occupational Safety & Health Agency).
45. 2002: An Experimental Survey for Industrial Calamity. KOSHA (Korea Occupational Safety & Health Agency).
46. 2002: A Study of Korean flour and sugar market demand. CJ Co., Ltd., Korea, Seoul.
47. 1999 ~ 2001: Development of standard data management system for Korean public library. National Library of Korea, Korea, Seoul.
48. 1998 ~ 1999: Development of Integrated Information system for National Library of Korea. National Library of Korea, Korea, Seoul.

Academic Books
1. Hong, H., **Choi, B**., Kim, J. (2021). Beyond the Michaelis-Menten: Bayesian Inference for Enzyme Kinetic Analysis. In: Vanhaelen Q. (eds)

Computational Methods for Estimating the Kinetic Parameters of Biological Systems. *Methods in Molecular Biology*, vol 2385. Humana, New York, NY. https://doi.org/10.1007/978-1-0716-1767-0_3.

2. Kang, M. S., Choi, B., and Choi, J. H. (2014), *Statistical Method using JMP 1. Correlation and Regression Analysis*, Free Academy, Seoul.

3. **Choi, B.** (2007). *Financial Statistics Using Excel*, E-pass Korea, Seoul.

4. Kang, H.C., Han, S.T., Seo, H. S., Jung, H. C., and **Choi, B.** (1999). *Development of Statistical Information Analysis System Using SAS/AF and SCL*, Free Academy, Seoul.

Teaching:

Georgia Health Science University

2009   Statistical Inference I, Lecturer, Department of Biostatistics.

Korea University

2008   Time series analysis, Research professor, Department of Statistics.

2008   Huge data analysis, Research professor, Department of Informational Statistics, Graduate school.

2008   Analysis of Financial Econometrics I, Research professor, Research professor, Department of Financial Engineering, Graduate school.

2008   Statistics for Finance, Research professor, Department of Financial Engineering, Graduate school.

2007   Analysis of Financial Econometrics II, Research professor, Department of Financial Engineering, Graduate school.

2005   Statistical Method for Social Science, Lecturer, Department of Statistics, Graduate school.

2005   Mutivariate Data Analysis for Social Science, Lecturer, Department of Statistics, Graduate school.

2005   Analysis of Bio-medical Information, Lecturer, Graduate School of Bio-medical Sciences.

2004   Statistical Method for Social Science, Lecturer, Department of Business Administration, Graduate school.

2004   Mutivariate Data Analysis for Social Science, Lecturer, Department of Statistics, Graduate school.

2004   Analysis of Bio-medical Information, Lecturer, Graduate School of Bio-medical Sciences.

2003   Statistical Method for Social Science, Lecturer, Department of Statistics, Graduate school.

2003   Mutivariate Data Analysis for Social Science, Lecturer, Department of Statistics, Graduate school.

2003   Analysis of Bio-medical Information, Lecturer, Graduate School of Bio-medical Sciences.

2002   Elementary Statistics, Lecturer, Department of Statistics.

2002   Introduction to Statistics, Lecturer, Department of Statistics.

Hoseo University

2008   Time series analysis, Invited lecturer, Department of Informational Statistics.

2008   Database Marketing, Invited lecturer, Department of Informational Statistics.

2008   Statistical consulting, Invited lecturer, Department of Informational Statistics.

2007   Multivariate Data Analysis, Invited lecturer, Department of Informational Statistics.

2007   Regression Analysis, Invited lecturer, Department of Informational Statistics.

Sungshin women's University

2003   Categorical Data Analysis, Invited lecturer, Department of Statistics.

2003   Multivariate Data Analysis, Invited lecturer, Department of Statistics, Graduate school.

2002   Lab. in Statistical Programming, Invited lecturer, Department of Statistics.

2002   Multivariate Data Analysis, Invited lecturer, Department of Statistics.

2001   Survival analysis, Invited lecturer, Department of Statistics.

Ducksung women's University

2003   Survey Research Method, Invited lecturer, Department of Business Administration, Graduate school.

Pyeongtaek University

1998   Statistical Quality control, Invited lecturer, Department of Computational Statistics.

Hanshin University

1997   Special Topics in Computational Statistics, Invited lecturer, Department of Computational Statistics.

Computing abilities:
1. Statistical Software: SAS, SPSS, R, MATLAB, Octave, RATS.
2. Language: C++, Python.