YOUNG EUN JEON

(Email: jyn5831@gmail.com)

EDUCATION

Ph.D. Yeungnam University, Gyeongsan, Gyeongsangbuk-do (Republic of Korea) 3/2018-2/2024

Major: Statistics

Thesis: "Interval estimation using the pivotal quantity and Monte Carlo simulation in spatial regression models" [paper]

GPA: 4.5/4.5

Advisor: Suk-Bok Kang, Professor of Statistics

B.S. Yeungnam University, Gyeongsan, Gyeongsangbuk-do (Republic of Korea) 3/2014-2/2018

Major: Statistics

GPA: 4.41/4.5

Advisor: Minjung Kwak, Professor of Statistics

RESEARCH INTERESTS

- Copula
- Machine / Deep Learning
- Spatial Statistics
- Spatio-temporal Modeling
- Statistical Inference
- Text Mining
- Time Series

PUBLICATIONS

- **Jeon, Y. E.**, Kim, Y., and Seo, J. I. (2025). Objective framework for Bayesian inference in multicomponent Pareto stress–strength model under an adaptive progressive Type-II censoring scheme. *Mathematics*, 13, 1379. [paper]
- **Jeon, Y. E.**, Kim, Y., and Seo, J. I. (2025). Extreme value model under an adaptive progressive Type-II censoring: Application of a pivotal quantity. *Communications for Statistical Applications and Methods*, 32, 197-213. [paper]
- **Jeon, Y. E.** and Seo, J. I. (2025). Predictive modeling based on a hybrid sampling strategy for an imbalanced heart failure dataset. *Journal of the Korean Data & Information Science Society*, 36, 359-366. [paper]
- **Jeon, Y. E.**, Kang, S. B., and Seo, J. I. (2024). Enhancing the predictive performance of non-stationary time series data through various transformations. *Journal of the Korean Data & Information Science Society*, 35(1), 145-152. [paper]
- **Jeon, Y. E.**, Kang, S. B., and Seo, J. I. (2024). Pivotal-based inference for a Pareto distribution under the adaptive progressive Type-II censoring scheme. *AIMS Mathematics*, 9(3), 6041-6059. [paper]
- **Jeon, Y. E.**, Kim, Y., and Seo, J. I. (2024). Predictive analysis of doubly Type-II censored models. *AIMS Mathematics*, 9(10), 28508–28525. [paper]
- **Jeon, Y. E.** and Seo, J. I. (2024). Objective Bayesian analysis using reparameterization for Type-II hybrid censored Rayleigh data. *Journal of the Korean Data & Information Science Society*, 35, 933-948.

[paper]

- **Jeon, Y. E.**, Kang, S. B., and Seo, J. I. (2023). Predictability model of the sea ice extent based on a machine learning technique. *Journal of the Korean Data & Information Science Society*, 34(2), 331-340.
  [paper]
- **Jeon, Y. E.**, Kang, S. B., and Seo, J. I. (2023). Novel estimation based on a minimum distance under the progressive Type-II censoring scheme. *Communications for Statistical Applications and Methods*, 30(4), 411-421.
  [paper]
- **Jeon, Y. E.**, Kang, S. B., Seo, J. I., and Song, J. J. (2022). Spatio-temporal modeling to reduce women's fear of crime. *Journal of the Korean Data & Information Science Society*, 33(2), 299-309.
  [paper]
- **Jeon, Y. E.**, Kang, S. B., and Seo, J. I. (2022). Hybrid predictive modeling for charging demand prediction of electric vehicles. *Sustainability*, 14(9), 5426.
  [paper]
- **Jeon, Y. E.**, Kang S. B., and Seo, J. I. (2022). Spatio-temporal analysis with risk factors for five major violent crimes. *Korean Journal of Applied Statistics*, 35(5), 619-629.
  [paper]
- **Jeon, Y. E.**, Kang, S. B., and Seo, J. I. (2022). Maximum product of spacings under a generalized Type-II progressive hybrid censoring scheme. *Communications for Statistical Applications and Methods*, 29(6), 665-677.
  [paper]
- **Jeon, Y. E.** and Kang, S. B. (2021). Estimation of the Rayleigh distribution under unified hybrid censoring. *Austrian Journal of Statistics*, 50(1), 59-73.
  [paper]
- **Jeon, Y. E.** and Kang, S. B. (2020). Estimation of the exponentiated half-logistic distribution based on multiply Type-I hybrid censoring. *Communications for Statistical Applications and Methods*, 27(1), 47-64.
  [paper]
- **Jeon, Y. E.**, Kang, S. B., and Seo, J. I. (2020). Forecasting the number of terrorism using ARIMA and dynamic linear models. *Korean Terrorism Studies Review*, 13, 102-114.
  [paper]
- **Jeon, Y. E.** and Kang, S. B. (2020). Estimation for the half-logistic distribution based on multiply Type-II hybrid censoring. *Physica A: Statistical Mechanics and its Applications*, 550, 124501.
  [paper]
- **Jeon, Y. E.** and Kang, S. B. (2020). Bayesian estimation for the exponential distribution based on generalized multiply Type-II hybrid censoring. *Communications for Statistical Applications and Methods*, 27(4), 413-430.
  [paper]
- Seo, J. I., **Jeon, Y. E.**, and Kang, S. B. (2020). New approach for a Weibull distribution under the progressive Type-II censoring scheme. *Mathematics*, 8(10), 1713.
  [paper]
- **Jeon, Y. E.** and Kang, S. B. (2018). Estimation for a half-triangular distribution based on unified hybrid censored sample. *Journal of the Korean Data & Information Science Society*, 29(6), 1697-1706.
  [paper]

Submission/Review

- Lee, J., **Jeon, Y. E.**, and Seo, J. I. Enhancing prediction performance in imbalanced data through an integration of ROSE and Tomek link.

- **Jeon, Y. E.**, Kang, S. B., Seo, J. I., and Song, J. J. Inference based on the pivotal quantity and Monte Carlo simulation for spatial regression models.
- **Jeon, Y. E.**, Kim, Y., and Seo, J. I. Enhancing predictive performance in time series analysis: A bagging approach with a scaled logit transformation.

PRESENTATIONS

- Ryu, S. H., **Jeon, Y. E.,** and Seo, J. I. VAE-based replication and ensemble methods for enhanced time series prediction, *2024 Korean Data & Information Science Society Fall Conference*, Daegu, Republic of Korea.
  [abstract] [poster]
- Lee, J., **Jeon, Y. E.,** and Seo, J. I. Enhancing predictive accuracy for a minority class in imbalanced data: An integrated approach with ROSE and Tomek link, *2024 Korean Statistical Society Winter Conference*, Daejeon, Republic of Korea.
  [abstract] [poster]
- **Jeon, Y. E.**, Kim, Y., and Seo, J. I. A bagging approach with a scaled logit transformation for improving predictive performance in non-stationary time series analysis, *2024 Korean Statistical Society Summer Conference*, Seoul, Republic of Korea.
  [abstract] [poster]
- Ryu, S. H.**, Jeon, Y. E.**, and Seo, J. I. TED Talks' topic variation utilizing a dynamic topic modeling approach, *2024 Korean Statistical Society Summer Conference*, Seoul, Republic of Korea.
  [abstract] [poster]
- **Jeon, Y. E.**, Kang, S. B. Seo, J. I., and Song, J. J. Inference based on the pivotal quantity and Monte Carlo simulation for spatial regression models, *2023 Korean Statistical Society Winter Conference*, Seoul, Republic of Korea.
  [abstract] [poster]
- Ryu, S. H.**, Jeon, Y. E.**, Kang, S. B., and Seo, J. I. Prediction improvement of non-stationary time series analysis based on transformation, *2023 Korean Statistical Society Winter Conference*, Seoul, Republic of Korea.
  [abstract] [poster]
- **Jeon, Y. E.**, Kang, S. B., and Seo, J. I. Predictability model of the sea ice extent from machine learning, *2022 Korean Statistical Society Winter Conference*, Jeju, Republic of Korea.
  [abstract] [poster]
- **Jeon, Y. E.**, Kang, S. B., and Seo, J. I. Spatio-temporal analysis with risk factors for five major violent crimes, *2021 Korean Statistical Society Fall Conference*, Seoul, Republic of Korea.
  [abstract] [poster]
- **Jeon, Y. E.** and Kang, S. B. Estimation the half-logistic distribution based on multiply Type-II hybrid censoring, *2018 Korean Data & Information Science Society Fall Conference*, Seoul, Republic of Korea.
  [abstract] [poster]

EXPERIENCE

Related research experience

Yeungnam University, Gyeongsan, Gyeongsangbuk-do (Republic of Korea) 5/2017-6/2017
Department of Statistics

- Analyzed private education expenses for elementary, middle, and high school students across the nation, based on knowledge acquired from the "Data Mining" course, and took responsibility for the overall project process as the team leader.
- Employed decision trees, regression model, and neural network to develop a model for predicting private education expenses, including an evaluation of variable importance.
- Compiled findings and insights into a comprehensive analysis report based on the results.

Yeungnam University, Gyeongsan, Gyeongsangbuk-do (Republic of Korea) 3/2017-6/2017
Department of Statistics

- Developed an independent research topic in a capstone course, leading the design of surveys, data collection, analysis, and report writing.
- Investigated whether statistics students at Yeungnam University align with corporate expectations and are adequately prepared for employment, focusing on the question, "Are statistics students the ideal candidates for corporations?" in light of the notably low employment rates.
- Managed project logistics, including procuring necessary materials for team members and overseeing the project's overall progress as team leader.

Related work experience

Statistics Research Institute of Yeungnam University 3/2018-2/2024

- Contributed to the dissemination and support of statistical knowledge as a research associate at the Statistics Research Institute of Yeungnam University, focusing on statistical consulting, methodological research and development, and statistical education.
- Conducted statistical analyses across diverse fields, including medical sciences, social sciences, humanities, and education, and prepared comprehensive reports on the findings.

Korea Institute for Industrial Economic Policy 11/2018-12/2018, 6/2019-7/2019, 6/2020

- Conducted statistical analysis using SPSS and report writing
  - ✓ R&D and non-R&D monitoring analysis and report writing for Gyeongbuk Technopark
  - ✓ 2019 Integrity Survey Analysis and Report for Ulsan Metropolitan Office of Education
  - ✓ 2019 Customer Satisfaction Survey Analysis and Report for Nadri Call
  - ✓ 2020 Integrity Survey Analysis and Report for Ulsan Metropolitan Office of Education

Korea Dyeing and Finishing Technology Institute 4/2019-5/2019

- Conducted dyeing process analysis using measurements from 'Taekwang' and 'Wooil' companies and prepared a detailed report.
- Performed tasks as a participating researcher, including data downloading, data preprocessing, data analysis, and report writing.

Teaching experience

Courses Taught at Andong National University**,** Andong, Gyeongsangbuk-do (Republic of Korea)
Part-time lecturer, Department of Data Science

- Multivariate data analysis 9/2024-present
- Data mining 3/2024-6/2024
- Time series analysis 3/2024-6/2024
- Multivariate data analysis 9/2023-12/2023
- R programming 3/2023-6/2023
- Mathematical statistics 3/2023-6/2023
- R data analysis 9/2022-12/2022
- Multivariate data analysis 9/2022-12/2022

Teaching Assistant at Yeungnam University, Gyeongsan, Gyeongsangbuk-do (Republic of Korea)

- 2021 SPSS Workshop, Yeungnam University Statistical Research Institute 6/2021-6/2021
- 2019 SPSS Workshop, Yeungnam University Statistical Research Institute 6/2019-6/2019

- 2018 SPSS Workshop, Yeungnam University Statistical Research Institute 6/2018-6/2018

HONORS & AWARDS

Scholarship

- Cheonma Scholarship from the Department of Statistics, Yeungnam University 3/2018-12/2020
- Academic Excellence Scholarship from the Department of Statistics, Yeungnam University 3/2015-12/2017
- Local Talent Scholarship for Excellence from the Korea Student Aid Foundation 3/2014-12/2014

Awards

- 2024 Korean Data & Information Science Society Fall Conference, Excellence Prize 11/2024
- 2018 Korean Data & Information Science Society Fall Conference, Excellence Prize 11/2018

SKILLS

Skills

- R
- Python
- SQL
- SPSS

Licensure or certifications

- Social Survey Analyst Level 2
- SAS BASE

PROJECTS

- R blog
  - ✓ Jeon's Blog [link]
    - Organizing R code for topics such as machine learning, text mining, spatial statistics, time series analysis, crawling, data mining, data visualization, multivariate data analysis, and basic R programming.
- R Shiny: Application development
  - ✓ Live Stocks Chart & Analysis Dashboard [link]
    - Development of a real-time stock price dashboard using HTML crawling and the R packages 'shiny' and 'shinydashboard'.
    - Utilizing five forecasting models (dynamic harmonic model, STLM, Bayesian structural model, random forest, XGBoost) to predict future stock prices.
    - Creating various visualizations of stock prices (timezone, candlestick, bar chart, pie chart, line chart, etc.) using the R packages 'plotly', 'highcharter', and 'ggplot2'.
  - ✓ Machine Learning (Binary Classification) [link]
    - Development of a machine learning analysis app using the R packages 'shiny' and 'caret'.
    - Application of various machine learning methods (decision trees, support vector machines, random forest, gradient boosting, XGBoost, BART) using the R package 'caret'.
    - Implementation of optimization techniques such as grid search and random search.
    - Addressing issues with imbalanced target data using SMOTE + Tomek.
  - ✓ Machine Learning (Multiclass Classification) [link]
  - ✓ Data Visualization Ver. 1 [link]
    - Development of a data visualization app using the R package 'shiny'.

- Providing interactive visualizations with the R package 'plotly'.
- Data visualizations using the R packages 'GGally' and 'ggplot2'.

✓ Data Visualization Ver. 2 [link]

GRANTS

Funding

Andong National University**,** Andong, Gyeongsangbuk-do (Republic of Korea) 9/2024-present
Department of Data Science
Title: "Predictive modeling for spatial data based on a geographical random forest integrated with copula and kriging"
Role: Principal investigator (Solo research)

- Selected by the National Research Foundation of Korea (Project Title: 2024 Next Generation Scholar Support Program, Domestic Postdoctoral Fellowship) to conduct independent research as the principal investigator.
- Developing a predictive model that captures both spatial heterogeneity and dependency by integrating copula-based clustering and kriging techniques with a geographical random forest.
- Leveraging extensive experience in machine learning and spatial data analysis to conduct the current research.

Andong National University**,** Andong, Gyeongsangbuk-do (Republic of Korea) 6/2024-present
Department of Data Science
Title: "Ensemble model development for complex time series and spatial data analysis"
Role: Research assistant

- Selected by the National Research Foundation of Korea, serving as a research assistant responsible for verifying theoretical foundations, conducting data analysis, and coding.
- Developing an ensemble model to enhance predictive accuracy for time-series and spatial data with complex dependencies among data points, with a focus on proposing an advanced bootstrap technique.
- Addressing high-dimensional predictor issues by developing a spike-and-slab elastic net variable selection algorithm based on variable importance.