JIWON PARK

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Research Interests

Statistical Genetics and Genetic Epidemiology; Genome-wide association studies (GWAS) using summary statistics; Case–control, family-based, and overlapping-sample designs; Robust statistical methods for complex biomedical data; Pleiotropy testing and causal inference in complex traits; Mixture models and survival analysis; High-dimensional regression, variable selection, and clustering; Bayesian inference and EM-algorithm–based estimation.

Education

Johns Hopkins University Present

- **Postdoctoral fellow in the department of Epidemiology**
  Advisor: Dr. Debashree Ray

University of Connecticut, Storrs, CT

- **Ph.D., Statistics** Aug. 2023
  Advisor: Dr. Dipak K. Dey
  Co-Advisor: Dr. Victor Hugo Lachos Davila
- **M.S., Statistics**

Kyungpook National University, Daegu, South Korea

- **M.S., Statistics** Feb. 2017
  Advisor: Dr. Dal Ho Kim
  Thesis: Bayesian Analysis of Batting Average Data
- **B.S., Statistics (Minor: Business Administration)** Aug. 2015

Publications

Park, J., Ray, D**.** (2025). A robust pleiotropy method with applications to lipid traits and to inflammatory bowel disease subtypes with sample overlap. *Human Genetics and Genomics Advances.* doi: 10.1016/j.xhgg.2025.100501

Mahajan, A., **Park, J.**, Moore, T. E., Baker, W. L., Zoni, C. R., Akinfenwa, S., Mohamed, M., Dean, M., & Sai-Sudhakar, C. (2025). Generic versus brand-name immunosuppression following heart transplant: An analysis of the UNOS database. *Clinical Transplantation*, 39(6), e70196. DOI: 10.1111/ctr.70196

Park, J., Dey, D. K., & Lachos, V. H. (2024). Finite mixture of regression models for censored data based on the skew-t distribution. *Computational Statistics*, 1-32.

Lachos, V. H., Bazán, J. L., Castro, L. M., & **Park, J**. (2022). The skew-t censored regression model: parameter estimation via an EM-type algorithm. *Communications for Statistical Applications and Methods*, *29*(3), 333-351.

Kim, JJ, Jang EJ, **Park JW**, Sohn HS (2020) "Association between proton pump inhibitor use and risk of fracture: A population-based case-control study". PLoS One. 2020; 15(7): e0235163. doi: 10.1371/journal.pone.0235163

Jung SY, Suh HS, **Park JW**, Kwon JW (2018) "Drug Holiday Patterns and Bisphosphonate-Related Osteonecrosis of the Jaw". *Oral Diseases*. 10.1111/odi.12966.

Park HY, **Park JW**, Sohn HS, Kwon JW (2017) "Association of Parkinsonism or Parkinson Disease with Polypharmacy in the Year Preceding Diagnosis: A Nested Case-Control Study in South Korea.", *Drug Safety*; 40(11):1109-1118. doi: 10.1007/s40264-017-0559-5.

Park HY, **Park JW**, Song HJ, Sohn HS, Kwon JW (2017) "The Association between Polypharmacy and Dementia: A Nested Case-Control Study Based on a 12-Year Longitudinal Cohort Database in South Korea", *PLoS One*.;**12**(1):e0169463. doi: 10.1371/journal.pone.0169463. eCollection 2017.

Jung SY, Sohn HS, Park EJ, Suh HS, **Park JW**, Kwon JW (2016) "Oral Bisphosphonates and Upper Gastrointestinal Cancer Risks in Asians with Osteoporosis: A Nested Case-Control Study Using National Retrospective Cohort Sample Data from Korea", *PLoS One*;11(3):e0150531

Working Papers

Manuscripts under Review/Revision

- Zhang, J.**, Park, J.**, Chatterjee, N., Boerwinkle, E., Selvin, E., & Ray, D. (under revision). Genetic epidemiology and causal roles for newer type 2 diabetes biomarkers. *Genetic Epidemiology.*

Manuscripts in Preparation

- **Park, J.**, & Ray, D. *Pleiotropic analysis of three traits under composite null hypothesis*
- **Park, J.**, & Lachos, V. H. *Variable selection in Weibull mixture cure models for high-dimensional data.*

Software and Packages

FMCensReg: R package for finite mixture regression models for censored data using Normal, t, skew-normal, and skew-t distributions. [GitHub]

PLACO+: Extension of the PLACO R package (Ray Lab), adding a correlated option to account for sub-null scenarios under the composite null hypothesis in pleiotropy testing. Contributed code integrated into the official PLACO repository. [GitHub]

Presentations

Contributed Presentations (Talks & Posters)

- **STATGEN 2025**: Conference on Statistics in Genomics and Genetics, Minneapolis, MN, May 2025
- **Genetics Research Day 2024**, Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, Sep 2024
- **Joint Statistical Meetings (JSM)**, Portland, OR, Aug 2024
- **37th New England Statistics Symposium**, Storrs, CT, May 2024
- **STATGEN 2024**: Conference on Statistics in Genomics and Genetics, Pittsburgh, PA, May 2024
- **International Indian Statistical Association (IISA) Conference**, Golden, CO, June 2023
- **35th New England Statistics Symposium**, Storrs, CT, May 2022

Invited Presentations

- **Division of Statistics and Data Science**, Department of Mathematical Sciences, University of Cincinnati, Cincinnati, OH, Nov 2025 *(scheduled)*
- **Department of Mathematics and Statistics**, Auburn University, Auburn, AL, Apr 2025

Awards and Honors

- University of Connecticut Department of Statistics Pre-doctoral Fellowship, 2022
- Champion in Travelers Modeling Competition, Claim Fraud Detection, 2021
- Scholarship for Academic Excellence, Kyungpook National University, Fall 2016
- Academic Support Scholarship, Kyungpook National University, Spring 2015
- National Science and Engineering Undergraduate Scholarship, Korea Student Aid Foundation, 2014, 2015
- Scholarship for Academic Excellence, Kyungpook National University, 2013
- Global challenger A, Kyungpook National University, 2012

Professional Activities

- Session Chair, Selected Bayesian Research from Editorial Board Members of Sankhya, the 6th Eastern Asia Chapter of the International Society for Bayesian Analysis, 2022
- Session Chair, Emerging Insights on Insurance Statistics, the 35th New England Statistics Symposium, 2022
- Student Member of Korean Statistical Society
- Student Member of Korean Data and Information Science Society
- Student Member of Section on Bayesian Statistical Science, Korean Statistical Society

Research Experience

Research Assistant Jan. 2020 – Aug. 2023

Department of Statistics, University of Connecticut, Storrs, CT

Travelers Insurance Company

P.I: Dr. Dipak K. Dey

- Project1: Demand surge after Catastrophic Events (Project Leader)
  - Literature study to predict the demand surge after Catastrophic Events
- Project2: Correlated Variables in Pricing Model (Project Leader)
  - Constructed Tweedie Generalized Linear Models to predict for average loss with handling correlated temporal variables.

- Project3: Bodily Injury Severity
  - Constructed Gamma Finite Mixture model to predict the severity of the liability with application to auto insurance data
- Project4: Clustering of Policy Holders based on insurance score
  - Develop Unsupervised Clustering method to identify the characteristic of the policy holders

Research Assistant Sep. 2018 – Apr. 2019

Department of Information Statistics, Andong National University, Andong, South Korea
P.I: Dr. Eun Jin Jang

- Project: Use of proton pump inhibitor (PPI) and risk associated with osteoporotic fracture
  - Conducted nested case-control cohort study for investigation of the Use of proton pump inhibitor (PPI) and risk associated with osteoporotic fracture
  - Managed data using SAS: the claims databased of National Health Insurance Review and Assessment Service and National Patient sample dataset

Research Assistant Sep. 2015 – Jun. 2017

College of Pharmacy and Research Institute of Pharmaceutical Sciences, Kyungpook National University, Daegu, South Korea
P.I: Dr. Jin-Won Kwon

- Managed data using SAS: the claims database of National Health Insurance Review and Assessment Service and National Patient Sample dataset
- Conducted nested case-control cohort study for investigation of
  (a) The association of Parkinsonism or Parkinson Disease with Polypharmacy in the Year Preceding Diagnosis
  (b) The association between Polypharmacy and Dementia, and
  (c) Oral Bisphosphonates and Upper Gastrointestinal Cancer Risks in Asians with Osteoporosis

Statistical Consulting

Consultant Aug. 2021 – Aug. 2023

Department of Statistics, University of Connecticut, Storrs, CT

- Data Analysis in survey research using SPSS, R, and SAS

Selective Projects (2 out of 6)

- Methods to compare the effect of a sub-inhibitory concentration of eugenol Listeria monocytogenes proteome via not only adjusted p-value but also the Empirical Bayes

method to overcome the small sample size. And identify the up and down-regulated proteins through Heatmap, Volcano plot, and PCA.

- Compare the physical, psychological, and social differences in experience with amputation between men and women. For the bounded response variables calculated via various scoring guidelines, generalized ordered beta regression and fractional regression models are constructed.

Consultant Mar. 2015 – Jun. 2017

Department of Statistics, Kyungpook National University, Daegu, South Korea

- Data Analysis in survey research using SPSS, R and SAS

Teaching Experience

Instructor

Department of Information Statistics, Andong National University, Andong, South Korea

- Introduction to Statistics. Spring 2019
- Statistical Methods Spring 2019
- Statistical Mathematics Fall 2018
- Introduction to Probability Theory Fall 2018
- Nonparametric statistics. Spring 2017

Teaching Assistant

Department of Statistics, University of Connecticut, Storrs, CT

- STAT 3675Q Statistical Computing Fall 2022
- STAT 1100Q Elementary Concepts of Statistics Fall 2020, Spring 2021

Teaching Assistant

Department of Statistics, Kyungpook National University, Daegu, South Korea

- Categorical Data Analysis and Lab Fall 2018
- Statistical Computing and Lab Spring 2017

Tutoring

Department of Statistics, University of Connecticut, Storrs, CT

- STAT 1000 level Spring 2021, Spring 2022
- STAT 2000 level Spring 2022

Tutoring

Department of Statistics, Kyungpook National University, Daegu, South Korea

- Statistical Mathematics Ⅱ Spring 2022

- Mathematical Statistics Ⅱ Fall 2016

Skills

- Statistical Packages: SPSS, R, Python and SAS
- Certificate: SAS Certified Base Programmer for SAS Certified Advanced Programmer for
- Algorithms: Proficient in statistical computing
- Operating Systems: Windows, Mac OS X
- Word Processors: LaTeX and MS-Word