Hyoin An

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EDUCATION

Ph.D. in Statistics, The Ohio State University, Columbus, OH   Jun. 2024 [anticipated]
M.S. in Statistics, Ewha Womans University, Seoul, South Korea   2019
B.A. in Economics & B.S. in Statistics, Ewha Womans University, Seoul, South Korea   2017

SKILLS

Software: R, C++, Python, SQL, SAS
Analytic: Monte Carlo Simulation, Model Development, Quantile regression, Stochastic Process, Data Analysis, Machine Learning, Statistical Modeling, Probability Theory

EXPERIENCE

Consultant, Statistical Consulting Service, The Ohio State University   Aug. 2023 - Present
- Provide a comprehensive statistical solution to 4-5 clients each semester, offering statistical analysis and data-driven insights for their projects
- Translate statistical models and results for non-technical clients, covering various stages of data analysis, including experimental design, modeling, model selection, and statistical inference

Quantitative Analytics Intern, Wells Fargo, Charlotte, NC   Jun. 2023 - Aug. 2023
- Investigated potential risks in a developed statistical model related to first lien loan and improved accuracy of the model results in Python by employing probability theory combined with financial theory
- Validated and backtested a financial model related to second lien loan using statistical expertise and through review on details

Analytics & Innovation Intern, United Airlines, Chicago, IL   Jun. 2022 - Aug. 2022
- Built a framework model with algorithms based on the causal inference framework, incorporating machine learning models such as LightGBM and Random Forest in Python
- Handled and transformed raw data with 13 million rows using SQL and SAS
- Communicated with and presented the model results and insights to non-technical business stakeholders

RESEARCH/TEAM PROJECTS

Simultaneous Quantile Regression, The Ohio State University   Fall 2021 - Present
Dissertation Research (Adviser: Dr. Steven MacEachern)
- Developed a Bayesian Nonparametric approach for simultaneously estimating nonlinear quantile regression curves at multiple quantile levels using Quantile pyramids [pdf]
- Implemented efficient C++ code to execute the methodology, utilizing Markov Chain Monte Carlo with Metropolis-Hastings steps [code]

1-year Survival Prediction Analysis, The Ohio State University   May 2021 - Aug. 2021
Graduate Research Associate (Supervisor: Dr. Shili Lin)
- Used survival deep neural network models in R and Python to predict the one-year survival of Pulmonary Arterial Hypertension patients based on genetic pathways
- Fitted Bayesian network models using clinical variables to analyze patients' quality of life

Cancer operation rate & SES Analysis, Ewha Womans University   Dec. 2018 - July. 2019
Research Assistant (Supervisor: Dr. Won Bok Lee)
- Analyzed National Health Insurance data to study the relationship between cancer operation rates and socioeconomic status (SES)
- Transformed and cleaned data using SAS, applied logistic regression, and visualized results using R

Chronic diseases and Nutrition Analysis, Mokdong Ewha W. Univ. Hospital   Apr. 2018 - Feb.2019
Research Assistant (Supervisor: Dr. Hye Ah Lee)
- Analyzed nutrition intake patterns in cohort data from the Korean Genome and Epidemiology Study to identify associations between nutrition intake and chronic diseases
- Utilized reduced rank regression, mixed models, and generalized estimating equations in R and SAS

L Point Big Data Competition, Lotte Members, Seoul, South Korea   Feb. 2018
Grand Prize (Second place)
- Constructed a recommender system in R that suggests merchandise items to each customer based on demographic information, purchase logs, and factors such as the time of the week, month, year, and seasonal/weather effects

SELECTED PUBLICATIONS

An, H., & MacEachern, S. N. (in press) A Process of Dependent Quantile Pyramids. *Journal of Nonparametric Statistics.* [pdf]

An, H., & MacEachern, S. N. Simultaneous Quantile Regression via an Approximate Process of Dependent Quantile Pyramids. In preparation.

Webb, A., **An, H.**, Correa-Jaque, P., Lin, S., Liu, Z., Tiwari, H. K., ... & Benza, R. L. (2021). Association of Canonical Pathways with Length of Survival in Pulmonary Arterial Hypertension. *Circulation*, 144(Suppl-1), A11344-A11344. [pdf]

Lee, H. A. & **An, H.** (2020) The Effect of High Carbohydrate-to-fat Intake Ratios on Hypo-HDL-cholesterolemia Risk and HDL-cholesterol Levels over a 12-year Follow-up, *Scientific Reports*, 10, 913. [pdf]

Lee, H. A., **An, H.**, & Park, H. (2019) Identification of Dietary Patterns Related to Metabolic Diseases and Their Association with Cardiovascular Disease: From the Korean Genome and Epidemiology Study, *Nutrients*, Volume 11, Issue 10, 2434. [pdf]

An, H., Choi, Y., Oh, R. E., & Song, J. W. (2019) Consumer Behavior Prediction using Airbnb Web Log data, *The Korean Journal of Applied Statistics*, Volume 32, Issue 3, Pages 391-404. [pdf]

An, H., Won, S., & Yoo., J. K. (2017). Fused Sliced Average Variance Estimation, *Journal of the Korean Statistical Society*, Volume 46, Issue 4, Pages 623-628. [pdf]

HONORS AND AWARDS

Best Research Associate Award, *Department of Statistics, The Ohio State University*	May 2023
Travel Award, *13th International Conference on Bayesian Nonparametrics*	Oct. 2022
University Fellowship, *The Ohio State University*	Fall 2019 - Spring 2020
Lubrizol Start-up Fellowship, *The Lubrizol Foundation*	Aug. 2019
Brain Korea 21 Plus Fellowship, *Korean Ministry of Education*	Fall 2017 - Fall 2018
4th Place in Poster Competition, *Korean Statistical Society*	Fall 2018
Grand Prize in 4th L. Point Big Data Competition, *Lotte Members*	Feb. 2018
Bronze Prize in Poster Competition, *Korean Statistical Society*	Fall 2017
Admission Scholarship, *Ewha Womans University*	Spring, Fall 2017
Dean's List, *Ewha Womans University*	Fall 2012 - Spring 2014, Fall 2015, Fall 2016
Korea WEST Fellowship, *Korean National Institute for International Education*	Spring 2016
Global Internship Scholarship, *Ewha Womans University*	Spring 2016
Creative Social Science Academy Scholarship, *Ewha Womans University*	Fall 2015
Placement & Work Experience Scholarship, *Ewha Womans University*	Summer 2015
International Exchange Scholarship, *Mirae Asset Park Hyeon Joo Foundation*	Spring 2015