

Youngmin Ju

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EDUCATION

- Ph.D. in Economics**, *University of Southern California* 2015 – 2021
Relevant Coursework: Big Data Econometrics, High Dimensional Probability, Applied Econometrics, Program Evaluation
- Master of Arts in Economics**, *Korea University* 2008 – 2010
- Bachelor of Science in Mathematical Sciences**, *Korea Advanced Institute of Science and Technology* 2004 – 2008
Relevant Coursework: Applied Statistics, Matrix Computation and Numerical Methods, Algorithms for Computation Analysis

TECHNICAL SKILLS

- Data Engineering** (Data Extraction, Exploratory Data Analysis, Feature Engineering, Metrics, KPI, MySQL, Google Cloud)
- Statistics and Econometrics** (A/B Testing, Hypothesis testing, T-test, ANOVA, Effect Size, Power, Probability, Simulation, Confidence Interval, Panel data, Regression, Correlation, Discrete Choice, Endogeneity, Sampling, Resampling, Predictive Analytics, Experimental Design)
- Causal Inference** (DAG, Matching, Instrumental Variable, Regression Discontinuity Design, Differences in Differences, Synthetic Control)
- Machine Learning** (Decision Trees, Ensembles (Random Forests, Bagging, Boosting), SVM, Naive-Bayes, SVD, PCA, k-means, k-NN, Deep Learning)
- Programming** (Python (pandas, numpy, matplotlib, seaborn, plotly, xgboost, sklearn, TensorFlow, Keras), R, SQL, Tableau, Git, STATA, MATLAB, SAS)

PROFESSIONAL EXPERIENCE

- Teaching Assistant**, *University of Southern California* 2016 – 2021
 - Big Data Econometrics (ECON 570) - Python programming sessions for Causal Inference and Machine Learning
 - Applied Econometrics (ECON 615), Introduction to Econometrics (ECON 318), Introduction to Statistics (ECON 317)
- First Lieutenant (Economics Lecturer)**, *Republic of Korea Army* 2010 – 2013
 - Supervised cadets, providing a clear vision and working environment daily. Liaised with multiple departments
 - Performed two government research projects with each worth over \$40,000
 - Devised robust economic models to evaluate optimal national defense R&D expenditures
- Research Assistant**, *Hyundai MOBIS* 2009 – 2010
 - Designed causal inference models to investigate the economic effects of alleged anti-competitive behaviors of Hyundai Mobis on retail agencies, mediating companies, repair shops, and consumers.
 - Conducted research and crafted economic evidence to reduce the fine from \$150 million to \$30 million.

PROJECTS

- Affirmative Action in Korea - Regression Discontinuity with Multiple Assignment Variables** 2021
 - Developed identification of an extended version of regression discontinuity design that uses more than one assignment variable
 - Analyzed the effect of the Affirmative Action in Korea on the female employment rate in the private sector
- Store Item Demand Forecasting Project**, *kaggle store item demand data* 2021
 - Used Keras (TensorFlow) to build a Recurrent Neural Net (RNN) with Long Short-Term Memory (LSTM) to predict 3 months of item sales at different stores.
 - Built baseline sales predictions to help with cash flow management, business planning and strategy.
- Customer Churn Prediction Project**, *kaggle customer churn data* 2020
 - Developed a Customer Churn Prediction Model: Investigating how the features affect Retention by Logistic Regression, Building a multi-classification model with XGBoost
 - Found which customers are likely to churn and which features have the most impact on a customer leaving
- Online Retail Project**, *kaggle online retail data* 2020
 - Segmented and cleaned business performance metrics: Monthly Revenue, Activation Rate, Monthly Retention Rate, Churn Rate
 - Conducted Life Time Value (LTV) methods and increased accuracy of a multi-classification model from 76.5% to 84% with XGBoost

PUBLICATIONS

- Control Function Approach for Partly Ordered Endogenous Treatments**, *Oxford Bulletin of Economics and Statistics* 2017
 - Developed a method to find the effects of partly ordered treatments while correcting for possible treatment endogeneity with nearly parametric control functions
 - Managed Wisconsin Longitudinal Study data to estimate the military rank premium in wage

CERTIFICATES

Machine Learning (Coursera) | Data Scientist with R Track (DataCamp) | Online MBA (Hunet) (HU-2012-411421)

LEADERSHIP/ACTIVITIES

- Enthusiastic Hiker & Traveler**
 - Co-organized an 8-day climb up Annapurna in the Himalayas during a 40-day backpacking trip