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 SKIILS

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 and estimation 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
- Managed Wisconsin Longitudinal Study data to estimate the military rank premium in wage
- Developed an approach to find the effects of partly ordered treatments while correcting for possible treatment endogeneity with nearly parametric control functions

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