

Youngmin Ju

ymju86@gmail.com | 213-378-8372 | linkedin.com/in/youngmin-ju | github.com/ymju86 | youngminju.com

EDUCATION

- Ph.D. in Economics** | *University of Southern California* Aug. 2021
Coursework: Big Data Econometrics, High Dimensional Probability, Applied Econometrics, Program Evaluation
Honors: Korean Studies Institute (KSI) Graduate Student Affiliate (Graduate research grant) | Graduate School Summer Research & Writing Grant | Dornsife Graduate School Fellowship | USC Dornsife Dean's List x2
- Master of Arts in Economics** | *Korea University* Feb. 2010
Coursework: Applied Econometrics, Panel Data Econometrics, Advanced Econometrics
- Bachelor of Science in Mathematical Sciences** | *Korea Advanced Institute of Science and Technology* Feb. 2008
Coursework: Applied Statistics, Matrix Computation and Numerical Methods, Algorithms for Computation Analysis
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TECHNICAL SKILLS

Data Engineering: Database Management, Exploratory Data Analysis, Feature Engineering, Metrics, KPI
Statistics and Econometrics: Predictive Analytics, Experimental Design, A/B Testing, Simulation, Sampling, Optimization
Causal Inference: Matching, Instrumental Variable, Regression Discontinuity Design, Differences in Differences, Synthetic Control
Machine Learning: Decision Trees, Random Forests, Bagging, Boosting, SVM, Naive-Bayes, SVD, PCA, Clustering, k-NN
Programming: Python (pandas, numpy, matplotlib, seaborn, plotly, xgboost, sklearn, TensorFlow, Keras), R, SQL, Tableau, Git, STATA

PROFESSIONAL EXPERIENCE

- Data Scientist / Economist** | *Data Science Side Projects* Jan. 2011 – Present
- Affirmative Action in Korea - Regression Discontinuity with Multiple Assignment Variables**
- Developed an identification of a fuzzy regression discontinuity design (RDD) with multiple assignment variables to analyze the effect of the Affirmative Action in Korea on the female employment rate in the private sector
 - Cleaned and built the data of Affirmative Action in Korea using STATA and utilized Python and R to build RDD models
- Store Item Demand Forecasting Project**
- Implemented Keras (TensorFlow) to deploy a Recurrent Neural Net (RNN) with Long Short-Term Memory (LSTM) to predict 3 months of item sales at different stores to build baseline sales predictions to help with cash flow management, business planning and strategy
- Customer Churn Prediction Project**
- Identified the customers most likely to churn and the features with the greatest impact on churn by building a multi-classification model with XGBoost and investigating features with logistic regression
- Online Retail Project**
- Segmented and cleaned business performance metrics such as monthly revenue, activation rate, monthly retention rate, and churn rate and conducted Lifetime Value (LTV) methods, increasing accuracy of a multi-classification model from 76.5% to 84%
- USC Graduate Level Teaching Assistant** | *University of Southern California* Aug. 2016 – May 2021
Courses Taught: Big Data Econometrics, Applied Econometrics, Introduction to Econometrics, Introduction to Statistics
- Tutored about 70 graduate-level university students per semester across concepts such as Python programming for Causal Inference and Machine Learning, driving an average of 93% of students to a B+ grade or higher
- Junior Military Korean Army Officer (Economics Instructor)** | *Korea Army Academy at Yeongcheon* June 2010 – May 2013
- Devised robust, Panel Data economic models to evaluate optimal national defense R&D expenditures, landing 2 government research projects worth \$40,000+ each
 - Supervised cadets and provided a clear vision and positive working environment daily, helping drive the Economics department to the #1 department ranking for 2 consecutive years
- Economics Researcher, (PW Level III)** | *Hyundai MOBIS* Oct. 2009 – Mar. 2010
- Designed causal inference models to investigate the economic effects of alleged anti-competitive behaviors of Hyundai Mobis on retail agencies, repair shops, mediating companies, and consumers
 - Conducted research and crafted economic evidence to reduce the fine from \$150 million to \$30 million
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PUBLICATIONS

- Control Function Approach for Partly Ordered Endogenous Treatments**, *Oxford Bulletin of Economics and Statistics* June 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
- The Economics of Defense - ISBN 978-89-962105-9-7** Feb. 2014
- A Study on Scale of Defense Expenditure for Security Menace**, *Journal of Korea Army Academy at Yeong-cheon* Jan. 2013
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CERTIFICATES

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

LEADERSHIP

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