JIKHAN JEONG

Hulbert Hall 313, Washington State University, Pullman, WA 99164
jikhan.jeong@wsu.edu || https://sites.google.com/view/jikhan-jeong || (+1) 509-288-9646

EMPLOYMENT

Economic Research Institute at Korea Electric Power Corporation (KEPCO) Dec. 2012 - Present
Research Fellow, Business and Energy Economics (Study leave)

EDUCATION

Washington State University (WSU) - July. 2021
Ph.D. Student in Economics

Korea Advanced Institute of Science and Technology (KAIST) Feb. 2013
MSc. in Management Sciences (Quantitative Marketing)

SungKyunKwan University (SKKU) Feb. 2010
BS in Chemical Engineering

RESEARCH INTERESTS

Applied microeconomics of AI and Big Data, Machine Learning, Discrete Choice Model, Energy Economics

WORKING PAPERS

Identifying Consumer Preferences from User- and Crowd- Generated Digital Footprints on Amazon.com by Leveraging Machine Learning and Natural Language Processing (Job Market Paper, [PDF])
Presented: 2020 Rocky Mountain Advanced Computing Consortium (RMACC), 2021 AEA (scheduled), WSU SES (scheduled), National Association for Business Economics (NABE) Tech Conference (scheduled)
Abstract: Inexperienced consumers may have high uncertainty about experienced goods that require technical knowledge and skills to operate effectively; therefore, experienced consumers' prior reviews can be useful for inexperienced ones. This study analyzes consumers' digital footprints (DFs) to identify latent consumer preferences. This paper makes use of **230 pages** of python coding along with high-performance computing (HPC) to extract reviewers' DFs for a specific product group (programmable thermostats) from a dataset of 141 million Amazon reviews. This paper shows that: 1) the factors that affect consumer ratings are user DFs, reviewers' attitudes toward nine product content dimensions (PCDs) extracted from review text, and other prior reviewers' DFs 2) Extreme Gradient Boosting (XGBoost) shows the highest F1 score for predicting the ratings of potential consumers before they make a purchase; and 3) a Convolutional Neural Network (CNN) on top of Bidirectional Encoder Representations from Transformers (BERT) embedding shows the highest F1 score for classifying individual consumers' sentiment toward a specific PCD. This approach is applicable, scalable, and interpretable for different goods in a specific industry.

Identifying Always the Same Raters in One-sided-Review System by Leveraging Deep Learning

Abstract: 'Always-the-same raters' (ASRs) are defined as the reviewers who always give the same star-rating for all reviewed products regardless of product quality. The ASRs' reviews may cause self-selection bias regarding product quality. This study investigates 230 million Amazon reviews to identify the ASRs' reviews in the twenty-nine product categories. The digital music category shows the highest share of ASRs; therefore, this study investigates ASRs' reviews in this category. A CNN on top of BERT embedding is applied to classify the ASRs' reviews in the digital music category. The approach in this study could be used as a pre-processing step before econometric analysis and text classification to reduce promotional or/and biased reviews.

Predicting the US Stock Market Risk in the Beginning Hour of Trading by Using News in the After-Market Period

Abstract: The US stock market opens at 9:30 am and closes at 4:00 pm Eastern Standard Time. This paper shows how to predict the US stock market risk during the 'begging hour' of trading (9:30 am to 10:30 am, on day t) by using the New York Times's news data during the after-market period (defined as between 4:00 pm on day t-1 and 9:30 am on day t.) This paper assumes that all the News during the regular market period (defined as between 9:30 am and 4:00 pm on day t) are reflected in the stock market movement during the regular market period. The other assumption is that the News during the after-market period on the day t-1 may affect the S&P 500 during the trading beginning hours on the day t. The sample period is between August 2017 to March 2020 to consider the recent occurrence of circuit breakers due to COVID-19. A CNN on top of BERT embedding is used to predict the US stock market risk during the beginning hour. This approach could help investors, firms, and policymakers to predict and prepare for potential stock market risk during the beginning of daily stock trading.

AI and Big Data in an Entry Game

Abstract: this paper demonstrates the amount of external business data shared by the incumbent with the entry firm affects the profitability of both firms that when the entry firm penetrates the market. These results indicate how AI algorithms and big data could function as entry barriers and how sharing data from the external business environment can relax those barriers. Therefore, the results of this study may help industry leaders and policymakers understand how AI and big data can affect the market structure.

The Effect of Experienced Consumers' Concerns on Willingness to Purchase Electric Vehicles

Abstract: this paper evaluates the effect of consumers' concerns on their stated willingness to purchase electric vehicles (EVs). The findings demonstrate that experienced consumers' prior concerns about EVs, which they held before the experience of EV driving, do not affect the experienced consumers' willingness to buy an EV. However, concerns about the heater and air conditioning (HAC) capabilities of EVs after the EV usage experience decreased the experienced consumers' willingness to buy. The findings will be useful for reducing the uncertainty of the market and mitigating consumers' concerns about buying an EV.

PUBLISHED RESEARCH REPORTS AND LETTERS

The Obstacles to South Korea's Willingness to Import Shale Gas from the U.S.
IAEE Energy Forum, Nov. 2016

Falling Oil Price: Impacts on South Korean Power Sector and Role of KEPCO
IAEE Energy Forum, Dec. 2015

Electricity Market Deregulation in the U.S., Energy Market Insight
Korea Energy Economics Institute, Sep. 2015

Electricity Shortage in South Korea and Electricity Conservation in Japan
Power Economics Times, Jun. 2013

PRESENTATION

2021 American Economic Association (scheduled)

2020 The Rocky Mountain Advanced Computing Consortium (RMACC), The NABE TEC (scheduled)

2019 Python conference, Korea AI Society, The Rocky Mountain Advanced Computing Consortium

2018 United States Association for Energy Economics

2017 National Research Foundation of Korea

2016 United States Association for Energy Economics

2015 International Association for Energy Economics, Korea Ministry of Trade, Industry & Energy

GRANTS AND HONORS

2020 WSU GPSA Grant, NABE (one complimentary registration to the conference)

2019 RMACC High-Performance Computing Scholarship, The AI Korea Award, WSU GPSA Grant

2018 Alaska Airlines Travel Award, WSU GPSA Grant, WSU SES Honorable Mention Award

2015 Korea Electric Power Corporation (KEPCO) CEO Award and Business Development Award

-2013 Korea Advanced Institute of Science and Technology (KAIST) Fellowship, Korea Finance Cooperation Research Award, KOICA Green ODA Award, Korea Institute of Energy Research Idea Award, Accenture Competition Award, Kobe University Summer School Fellowship, SKKU English Presentation Award, Chungcheng Policy Suggestion Award, Best Military Police Award

SKILLS

Computing: Kamiak HPC, Python (Pytorch, SK-learn, Tensorflow (keras), Dask), R, STATA, Gauss, EViews, Matlab, Linux (Ubunto), Latex (Lyx), Wharton Research Data Services, Bloomberg Terminal (Bloomberg Market Concept Certification), Panopto, Zoom, Text editor (Vim)

Language : English (Fluent), Korean (Native), Japanese (Intermediate), Chinese (Beginner)

EXTRACURRICULAR ACTIVITIES

Kamiak High Performance Computer Club, Python and R working Group, WSU 2018 - Present

Quantitative Analysis for Business and Economics Lab Leader, KAIST 2011 – 2012

REFERENCES

Dr. H. Alan Love
Committee Chair
School of Economic Sciences
Washington State University
Email: a.love@wsu.edu

Dr. Jinhui Bai
Committee Member
School of Economic Sciences
Washington State University
Email: jinhui.bai@wsu.edu

Dr. Bidisha Mandal
Committee Member
School of Economic Sciences
Washington State University
Email: bmandal@wsu.edu