

# Heesung Lee

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## INTERESTS

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Atypical Business Data Mining, Natural Language Processing, Sustainable Business, ESG, Social Finance

## EDUCATION

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### Kyung Hee University

*Undergraduate Student*

*Mar. 2014 ~ Present*

*Seoul, Korea*

- ◆ Bachelor's Degree in Business Management
- ◆ Expected Graduation Date: First half of 2020

### Whimoon High School

*High School Diploma*

*Mar. 2009 ~ Feb. 2012*

*Seoul, Korea*

## PUBLICATION, RESEARCH, & COURSEWORK

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### Kyung Hee University Center for Advanced Information Technology

*Researcher (Advisor: Prof. Ohbyung Kwon)*

#### Investigating the Impact of Corporate Social Responsibility on Firm's Short- and Long-Term Performance with Online Text Analytics

*Spring 2015 ~ Fall 2016*

*Seoul, Korea*

*First Author*

- **ABSTRACT (Excerpt)**  
Keywords related to CSR are extracted from atypical sources, such as newspapers, using text mining techniques to examine the relationship between CSR and firm performance (Lee et al., 2016).
- **PUBLICATION**  
Lee, Heesung & Jin, Yunseon & Kwon, Ohbyung. (2016). Investigating the Impact of Corporate Social Responsibility on Firm's Short- and Long-Term Performance with Online Text Analytics. *Journal of Intelligence and Information Systems*. 22. 13-31. 10.13088/jiis.2016.22.2.013.

#### Working Paper: Near Real-time Prediction of Cryptocurrency Price Trend Using Extended Sentiment Analysis and Deep Learning

*Summer 2019 ~ Present*

*Seoul, Korea*

*First Author*

- The speculative characteristic of cryptocurrency requires quick and accurate forecasting of price fluctuation.
- Suggested a sentiment analysis and deep learning (weighted Leaky ReLU, ensemble method including GAN, etc.) mechanism using topic-classified (LDA) streaming text sources and minute-based currency price for accurate prediction.
- The method developed in this study showed a 72.6% hit rate in predicting price direction.
- This work was launched and funded by the Ministry of Education of the Republic of Korea and the National Research Foundation of Korea (NRF-2017S1A3A2066740).
- **Service to be officially launched in 2020 in Cointelegraph Korea**

## **Working Paper: A Study on the Relationship between the Value of Firm and Gapjil (갑질)**

*Summer 2018 ~ Present  
Seoul, Korea*

*Co-Author*

### ▸ **ABSTRACT (Excerpt)**

The research has analyzed the impact of corrupt corporate practices. Different variables were set to analyze the issue more efficiently - the number of articles as a proxy variable (PV) of controversial issues with Tobin's Q (MB, ROE, OIS) as PV of enterprise value; ESG-level of Korea Corporate Governance Service as PV of CSR activity.

- A study on the relationship between corporate's Tobin's Q (MB, ROE, OIS), CSR-ESG scores and corporate's Gapjil-related internet news media exposure and attention.
- The news keywords to be analyzed were selected and enriched through association rule analysis.
- The occurrence of controversial issues should be considered in the portfolio management because they act as a key factor for the decline of firm value.

## **On Return Seasonality**

*Fall 2019 ~ Winter 2019  
Seoul, Korea*

*Co-Author*

- Replicated Keloharju, Linnainmaa, and Nyberg (2016)'s work using Korean stock return data and found strong return seasonalities as well.
- The abnormal alpha of Portfolio 5 is 1.244% per month, and it appears strongly significant with t-statistic of 4.09.

## **The Role and Responsibility of the Media: Investor Sentiment and IPO Stock Exchange Trends**

*Fall 2019 ~ Winter 2019  
Seoul, Korea*

*Co-Author*

- Researched the influence of pre-IPO (Initial Public Offering) corporations' news coverage on performance or business plan upon initial public offering and post-IPO stock return.
- Researched the influence of media tone and analysis perspective on the stock exchange trends in the market.

## **Pointer Network Analysis of Financial Unstructured Data and Enterprise Value**

*Fall 2018 ~ Spring 2019  
Seoul, Korea*

*Co-Author*

- Utilized the Pointer Network to examine and analyze the Corporate Social Responsibility of different companies. Mainly focused on analyzing unstructured data such as media reports and news articles.
- Participated in the development process of a query system by implementing the pointer network analysis

## **Relevant Coursework**

### **University Courses**

*Spring 2014 ~ Present  
Seoul, Korea*

- MGMT 1001 Business Statistics
- MGMT 1004 Business Mathematics
- MGMT 2001 Management Information Systems
- MGMT 2006 Management Science

- › MATH 1101 Calculus I
- › MATH 1102 Calculus II
- › 113409-21001 Linear Algebra (Credit Exchange)
- › MATH 2501 Probability and Statistics
- › MGMT 3023 Data Analytics and Management
- › MGMT 4024 Management Information Systems Seminar
- › MGMT 4027 Economics of Information and Strategy
- › MGMT 7123 Econometrics (Graduate School Lecture)

*Spring 2014 ~ Present*

## Online Courses

- › **An Introduction to Interactive Programming in Python**, 2014, Rice University, coursera  
URL: <https://www.coursera.org/account/accomplishments/verify/ZPL9JEG7LK>
- › **Pattern Discovery in Data Mining**, 2015, University of Illinois-Urbana Champaign, coursera  
URL: <https://www.coursera.org/account/accomplishments/verify/R2YJYNLLD4>
- › **Machine Learning**, 2016, Stanford University, coursera  
URL: <https://www.coursera.org/account/accomplishments/verify/37XN2TZYD9GD>
- › **Intro to Deep Learning with PyTorch**, 2018, udacity
- › **Neural Networks and Deep Learning**, 2019, deeplearning.ai, coursera  
URL: <https://www.coursera.org/account/accomplishments/verify/GRSUVE62ZZ76>
- › **Improving Deep Neural Networks: Hyperparameter tuning, Regularization, and Optimization**, 2019, deeplearning.ai, coursera  
URL: <https://www.coursera.org/account/accomplishments/verify/R673QRCPTQR6>
- › **Structuring Machine Learning Projects**, 2019, deeplearning.ai, coursera  
URL: <https://www.coursera.org/account/accomplishments/verify/UD6FTFJ3KHZS>
- › **Sequence Models**, 2019, deeplearning.ai, coursera  
URL: <https://www.coursera.org/account/accomplishments/verify/K2QLSKD77PA8>
- ♦ **In-progress Courses**
  - › **Excel to MySQL: Analytic Techniques for Business Specialization**, Duke University, coursera
  - › **Statistics and R**, HarvardX, edX
  - › **Probability and Statistics in Data Science using Python**, UCSanDiegoX, edX
  - › **Machine Learning for Trading**, Udacity

## WORK EXPERIENCE & LEADERSHIP

### DeepSearch Inc. (UBERPLE)

*Jul. 2018 ~ Aug. 2018*

#### Research Intern

*Seoul, Korea*

- › Carried out research on CSO doctorate thesis topic “Correlation between Unstructured Data in Finance and Credit Evaluation”
- › Assisted the 3<sup>rd</sup> Samsung Creative Square Fair
- › Participated in theme conceptualization project for Samsung Asset Management ETF (Exchange Traded Fund) in various fields such as secondary cell, mobile games, North Korea, and fried chicken industry.
- › Theme extraction through deep learning (CNN) and text mining.

### Ministry of Foreign Affairs, Republic of Korea

*Aug. 2015 ~ Jul. 2017*

#### Military Service

*Seoul, Korea*

- › Worked for the Ministry of Foreign Affairs (Planning and Coordination Office, Ambassador’s Office, and Ministerial Candidate Office) during military service.
- › Assisted coordination of annual Ulchi-Freedom Guardian (UFG) exercise, a combined military exercise between South Korea and the United States. .
- › Assisted confirmation hearings for minister nominee Kang Kyunghwa.

**Shinhan Investment Corp.**

Intern

Jul. 2015

Seoul, Korea

- › Worked at the FICC department's RP division and assisted briefing sessions about daily stock exchange trends and financial issues.
- › Worked at the Equity department's Financial Derivative division.

**Kyung Hee University Publication Support Office**

Lead Research Assistant

Dec. 2018 ~ Feb. 2019

Seoul, Korea

- › Led the team of research assistants for publication of the book *IT and Business Analytics Systems in the Era of the 4<sup>th</sup> Industrial Revolution*. (ISBN 9788959727223(8959727229))
- › Took responsibility in gathering data about business analytics chapters
- › Acknowledged as co-author with other research assistants.

**Kyung Hee University Publication Support Office**

Lead Research Assistant

Nov. 2019 ~ Present

Seoul, Korea

- › Assembled the team of research assistants for publication of the book *General Introduction of AI Technology in Business Analytics* (Preliminary Title)
- › Researched real application cases of AI technology in business analytics, marketing, finance, and human resources area to research for ways to improve corporate profitability and efficiency

**Proseid (Business Studies Club) at Kyung Hee University**

Seminar Chief

Mar. 2018 ~ Dec. 2018

Seoul, Korea

- › Coordinated weekly seminar plots and managed discussions during seminars.
- › Planned and Conducted the official industry case study with Asan Foundation.
  - ♦ **Case Study Clients:**
    - › CJ 4D-Plex
    - › GinGliders
    - › NHN ent.
    - › Dable
    - › BearBetter
    - › Simmons
    - › NC Soft
    - › Kolmar Korea

## HONORS & DISTINCTIONS

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**Ministerial (Byeongseh Yoon) Award**

Ministry of Foreign Affairs

Dec. 2016

Seoul, Korea

- › For excellence in departmental duties and publication of research paper *Investigating the Impact of Corporate Social Responsibility on Firm's Short/Long-term Performance through Online Text Analytics* (Lee et al., 2016)

**Award Certificate**

Ministry of Foreign Affairs

May. 2016

Seoul, Korea

- › For excellence in departmental duties.

**Grand Prize**

Kyung Hee University, Education Innovation Center

Oct. 2019

Seoul, Korea

- › For excellence in research paper publication
- › Awarded a scholarship by the amount of \$250

**Academic Student Scholarship (Junior year)**

Kyung Hee University

Jul. 2018

Seoul, Korea

- › For excellence in research paper publication
- › Award Amount: \$1,000

**Superiority Scholarship (All Semesters of Enrollment)***Mar. 2014 ~ Present*

Kyung Hee University

*Seoul, Korea*

- For excellence in academic performance with the highest GPA in the department of business management
- Award Amount: \$3,500 \* 7 Semesters

**Best Portfolio Award (Grand Prize)***Nov. 2018*

Kyung Hee University

*Seoul, Korea*

- For excellence in an academic portfolio in all Kyung Hee University departments.

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**TECHNICAL SKILLS****Language Skills**

- **Native** in Korean
- **Fluent** in English language (Reading, Writing, Listening, Speaking)
  - ◆ IBT TOEFL
  - ◆ GRE Verbal 152

**Software Handling Skills**

- Python
- R
- STATA
- Bloomberg Terminal
- Thomson Reuters Eiko
- Tableau
- UCINET (Elementary)
- SAS (Elementary)
- JAVA (Elementary)

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**RESEARCH REFERENCES****Obyung Kwon**

Professor

Kyung Hee University

- Advising Professor for:  
Business analytics, management information system field, and the utilization of IT knowledge and theory in interpreting business-related data.

Email: obkwon@khu.ac.kr

**Taewook Ted Ahn**

Chief Sales/Strategy Officer (CSO), CFA, FRM

Ph.D. Candidate in Finance

DeepSearch Inc.

- Advisor for:  
Research paper and study on enterprise-data correlation, and the area of financial technology.

Email: tahn@deepsearch.com

**Jaehong Park**

Professor

Kyung Hee University

- Advisor for:  
Data science studies in relation to quantitative economics.

Email: jaehp@khu.ac.kr