

# Heesung Lee

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36 - 101, 321, Apgujeong-ro, Gangnam-gu, Seoul, Republic of Korea 06007  
2014100331@khu.ac.kr

## INTERESTS

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Atypical Business Data Mining, Natural Language Processing, Sustainable Business, ESG, Financial Engineering

## 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/Long-term Performance through 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.

**Current Research: On Return Seasonality**

*Fall 2019 ~ Present  
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.

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

*Fall 2019 ~ Present  
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 ~ Winter 2018  
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 Course)

*Spring 2014 ~ Present*

## Online Courses

- › **An Introduction to Interactive Programming in Python**, *Rice University*  
URL: <https://www.coursera.org/account/accomplishments/verify/ZPL9JEG7LK>
- › **Pattern Discovery in Data Mining**, *University of Illinois-Urbana Champaign*  
URL: <https://www.coursera.org/account/accomplishments/verify/R2YJYNLLD4>
- › **Machine Learning**, *Stanford University*  
URL: <https://www.coursera.org/account/accomplishments/verify/37XN2TZYD9GD>
- › **Neural Networks and Deep Learning**, *deeplearning.ai*  
URL: <https://www.coursera.org/account/accomplishments/verify/GRSUVE62ZZ76>
- › **Improving Deep Neural Networks: Hyperparameter tuning, Regularization, and Optimization**, *deeplearning.ai*  
URL: <https://www.coursera.org/account/accomplishments/verify/UD6FTFJ3KHZS>
- › **Sequence Models**, *deeplearning.ai*  
URL: <https://www.coursera.org/account/accomplishments/verify/K2QLSKD77PA8>
- › **In-progress Courses**
  - › **Statistics and R**, *edX*
  - › **Probability and Statistics in Data Science using Python**, *edX*
  - › **Intro to Deep Learning with PyTorch**, *Udacity*
  - › **Deep Learning**, *Udacity*
  - › **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.
- › Assisted confirmation hearings for minister nominee Kang Kyunghwa.

### Shinhan Investment Corp.

*Jul. 2015*

#### *Intern*

*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**

*Dec. 2018 ~ Feb. 2019*

*Lead Research Assistant*

*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**

*Nov. 2019 ~ Present*

*Lead Research Assistant*

*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

#### **Proseed (Business Studies Club) at Kyung Hee University**

*Mar. 2018 ~ Dec. 2018*

*Seminar Chief*

*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,**

*Dec. 2016*

Ministry of Foreign Affairs

*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**

*May. 2016*

Ministry of Foreign Affairs

*Seoul, Korea*

- › For excellence in departmental duties.

#### **Grand Prize**

*Oct. 2019*

Kyung Hee University, Education Innovation Center

*Seoul, Korea*

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

#### **Academic Student Scholarship (Junior year)**

*Jul. 2018*

Kyung Hee University

*Seoul, Korea*

- › For excellence in thesis 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)**

Kyung Hee University

*Nov. 2018*

*Seoul, Korea*

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

## **TECHNICAL SKILLS**

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### **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)

## **RESEARCH REFERENCES**

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### **Obyung Kwon**

Professor

Kyung Hee University

Email: obkwon@khu.ac.kr

### **Taewook Ted Ahn**

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

Ph.D. Candidate in Finance

DeepSearch Inc.

Email: tahn@deepsearch.com

### **Jaehong Park**

Professor

Kyung Hee University

Email: jaehp@khu.ac.kr