

## Education

### University of Massachusetts-Amherst

Amherst, MA

MASTER'S DEGREE, COMPUTER SCIENCE, 3.67/4.0

Sep. 2019 - May. 2021

- Relevant Coursework: Machine Learning, Neural Networks: A Modern Introduction, Artificial Intelligence, Advanced Natural Language Processing, Algorithms for Data Science, Information Retrieval

### Kwangwoon University

Seoul, S.Korea

BACHELOR'S DEGREE, COMPUTER SCIENCE, 3.82/4.5

Mar. 2014 - Feb. 2018

- Relevant Coursework: Algorithm, Data Structure, Object Oriented Programming, Computer Architecture, Database, Human Computer Interface, Practice in Application Software, Digital Logic, Programming Language Concepts, Calculus, Discrete Mathematics

### University of Nebraska-Kearney

Kearney, NE

EXCHANGE STUDENT, COMPUTER SCIENCE

Sep. 2015 - May. 2016

## Research Experience

### UMass Amherst-IBM

Amherst, MA

IBM GRADUATE STUDENT RESEARCHER, ADVISED BY VERONIKA THOST, TENGFEI MA

Feb. 2021 - Oct. 2021

- Proposed virtual node augmented graph neural networks (GNN) for link prediction tasks. Our model outperformed not only standard GNN models, such as GCN, GraphSAGE, GIN, but also other complex models, such as Academic Adar, SEAL, on Open Graph Benchmark datasets. First author paper, got review ratings of 7/6/6/5 at NeurIPS 2021, and submitted improved version to ICLR 2022.

### Information Extraction & Synthesis Lab, UMass Amherst

Amherst, MA

GRADUATE STUDENT RESEARCHER, ADVISED BY JAY-YOON LEE, MICHAEL BORATKO, PROF. ANDREW MCCALLUM

Jan. 2020 - Present

#### [Event-Event Relation Extraction using Box Embeddings]

Feb. 2021 - Present

- Modeled temporal and hierarchical event as boxes, trained them jointly, and predicted relation labels.
- Our model showed better coherency than vector model and performance significantly improved on symmetric evaluation dataset. Submitted to ACL 2022 as first author.

#### [Commonsense Reasoning over Multi-Hop Knowledge Graphs using Box Embeddings]

Jan. 2020 - Aug. 2020

- Implemented a box embedding model to answer complex logical queries efficiently on incomplete knowledge graphs.
- Built more mathematically explainable model by making geometric boxes probabilistic boxes using Gumbel distribution.

### Optimization & Knowledge Engineering Lab, Kwangwoon University

Seoul, S.Korea

RESEARCH ASSISTANT, ADVISED BY PROF. YONG-HYUK KIM

May. 2019 - Dec. 2019

- Crawled and preprocessed financial news articles, extracted phrases including sentiments, and analyzed the sentiments to stock market price.

## Publication

### Event-Event Relation Extraction using Probabilistic Box Embedding

Under Review at ACL 2022

EUNJEONG HWANG, JAY-YOON LEE, TIANYI YANG, DHURVESH PATEL, DONGXU ZHANG, ANDREW MCCALLUM

### Revisiting Virtual Nodes in Graph Neural Networks For Link Prediction

Under Review at ICLR 2022

EUNJEONG HWANG, VERONIKA THOST, SHIB SANKAR DASGUPTA, TENGFEI MA

### Interdependency between the Stock Market and Financial News

IEEE BigData 2019

EUNJEONG HWANG, YONG-HYUK KIM

## Industry Experience

### Naver

Seoul, S.Korea

SOFTWARE ENGINEER - KNOWLEDGE BASE TEAM

Mar. 2021 - Present

- Constructed a knowledge graph based on regional district information, such as restaurants, festival, exhibition, and expanded search queries using neo4j along with developing weather related search system.
- Skills used: Java, Spring, Git

### IBM

Seoul, S.Korea

APPLICATION DEVELOPER

Jan. 2018 - Apr. 2019

#### [Information System Audit, Standard Chartered Bank]

Jan. 2019 - Apr. 2019

- Maintained and improved functionality of bank surveillance system and bank branch audit system.
- Skills used: Java, Spring, Nexacro, SVN

#### [Stock Market Predictions using AI, Shinhan Financial Group]

Mar. 2018 - Jan. 2019

- Extracted financial text patterns using regular expression with the help of rule-based natural language processing solution.
- Implemented major financial news retrieval program using Rest API and constructed financial keyword graph by extracting important phrases in retrieved news. Relevance scores from Watson Api, Apriori, TF-IDF, and cosine similarity were used to decide and extract important phrases.
- Skills used: Java, IBM Watson, Hadoop, SVN

#### [Learning Platform Development, Hanwha]

Jan. 2018 - Mar. 2018

- Implemented basic functions on learning platform, including search, paging, listing, and export by participating in all phases of project from requirement specifications to user acceptance testing with clients.
- Skills used: Java, Spring, Javascript, HTML/CSS, Thymeleaf, Oracle DB, SVN

## IBM

APPLICATION DEVELOPER INTERN

- Designed database tables and developed the learning platform websites in accordance with user interface design.
- Skills used: Java, Spring, Javascript, HTML/CSS, Thymeleaf, Oracle DB, SVN

Seoul, S.Korea

Sep. 2017 - Dec. 2017

## The Development Factory

SOFTWARE ENGINEER INTERN

- Maintained functionality and improved design of Rivuu admin website.
- Skills used: Google Firebase, Node JS, Bootstrap

Sydney, Australia

Jan. 2017 - Feb. 2017

## Teaching Experience

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### University of Massachusetts-Amherst

GRADER FOR CS685 ADVANCED NATURAL LANGUAGE PROCESSING (PROF. BRENDAN O'CONNOR)

- Grade students' assignments, provide feedback, and help them out to solve confusion on class material.

Amherst, MA

Feb. 2021 - May. 2021

## Technical Skills

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**Programming** Python, JAVA

**Packages** PyTorch