Eunjeong **Hwang**

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Education

University of British Columbia — *Vancouver, BC*

PhD Degree, Computer Science — *Sep. 2022 - Present*

- Relevant Coursework: Causal Machine Learning, Multimodal Learning with Vision, Language and Sound

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*

Publication

An Analysis of Virtual Nodes in Graph Neural Networks for Link Prediction (Extended Abstract) — *LoG 2022 (Oral)*

EunJeong Hwang, Veronika Thost, Shib Sankar Dasgupta, Tengfei Ma

Event-Event Relation Extraction using Probabilistic Box Embedding — *ACL 2022*

EunJeong Hwang, Jay-yoon Lee, Tianyi Yang, Dhruvesh Patel, Dongxu Zhang, Andrew McCallum

Interdependency between the Stock Market and Financial News — *IEEE BigData 2019*

EunJeong Hwang, Yong-Hyuk Kim

Research Experience

University of British Columbia — *Vancouver, BC*

Research Assistant, Advised by Vered Shwartz — *Feb. 2021 - Oct. 2021*

- Working on collecting meme dataset to generate interpretable descriptions.
- Working on identifying spurious correlation of words on sentiment analysis.
- Working on injecting cultural commonsense to image captioning model.

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. Got review ratings of 7/6/6/5 at NeurIPS 2021, but rejected.

Information Extraction & Synthesis Lab, UMass Amherst — *Amherst, MA*

Graduate Student Researcher, Advised by Jay-Yoon Lee, Michael Boratko, Prof. Andrew McCallum — *Jan. 2020 - Aug. 2021*

[Event-Event Relation Extraction using Box Embeddings] — *Feb. 2021 - Aug. 2021*

- 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.

[Question Answering over Multi-Hop Knowledge Graphs using Box Embeddings] — *Jan. 2020 - Aug. 2020*

- Implemented a mathematically explainable box embedding model to answer complex logical queries efficiently on incomplete knowledge graphs.
- Had 1% performance gain with gumbel distribution and scaling operator on queries comparing to query2box model.

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.

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 *Seoul, S.Korea*

Application Developer Intern *Sep. 2017 - Dec. 2017*

- 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

The Development Factory *Sydney, Australia*

Software Engineer Intern *Jan. 2017 - Feb. 2017*

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

Teaching Experience

University of Massachusetts-Amherst *Amherst, MA*

Grader for CS685 Advanced Natural Language Processing (Prof. Brendan O'Connor) *Feb. 2021 - May. 2021*

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

Technical Skills

Programming Python, JAVA

Packages PyTorch