



# JONGHWI KIM

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## EDUCATION

### POSTECH

#### M.S. in Graduate School of Artificial Intelligence

Pohang, S.Korea  
Feb 2023 - Feb 2025 (Expected)

- Advised by Prof. [Gary Geunbae Lee](#), [Jungseul Ok](#), and [Yunsu Kim](#)
- POSTECH NLP Group
- Total GPA : 3.78/4.3

### Kwangwoon University

#### B.S. in Information Convergence

Seoul, S.Korea  
Mar 2017 - Feb 2023

- Major : Data Science
- Total GPA : 4.04/4.5

## RESEARCH INTEREST

### Cross- & Multi-Language Information Retrieval, Cross-lingual Transfer, Code-Switching

I am an NLP researcher specializing in Information Retrieval, with a focus on search engines and RAG systems, aiming to develop language-agnostic solutions that break language barriers and enhance global information access.

## PUBLICATIONS

### Enhancing Word-Level Knowledge to ColBERT in Cross-Lingual Retrieval via Code-Switching

Aug 2024

Jonghwi Kim, Deokhyung Kang, Seonjeong Hwang, Yunsu Kim, Jungseul Ok, Gary Lee  
(Under Review)

ARR 2024 August

### LLM-augmented Multi-facet Blending for Faceted Query-by-Example Retrieval in Low-resource Settings

May 2024

Heejin Do, Sangwon Ryu, Jonghwi Kim, Gary Lee  
(to be uploaded on arXiv)

### ColBERT with Adversarial Language Adaptation for Multilingual Information Retrieval

Oct 2023

Jonghwi Kim, Yunsu Kim, Gary Geunbae Lee

HCLT 2023

The 35th Annual Conference on Human & Cognitive Language Technology (Oral)

### A Clustering-based Undersampling Method to Prevent Information Loss from Text Data

Oct 2022

Jonghwi Kim, Saim Shin, Jinyea Jang

HCLT 2022

The 34th Annual Conference on Human & Cognitive Language Technology (Oral)

## WORK EXPERIENCE

### Artificial Intelligence Research Center, KETI

Apr 2022 - Nov 2022

Research Intern

Pangyo, Gyeonggi-do

- Participated in NLP team and national research projects
- Conducted refactoring ongoing project and Performed from data collection to model training and evaluation
- Built a sentiment analysis model and Submitted a paper to the domestic conference

## PROJECT EXPERIENCES

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**News Rank Analysis and Issue Detection Algorithm based on Keyword** March 2023 - Oct 2023

Principal Investigator Industry-Academia Project with SK-Hynix

- System using two models—one for ranking news based on predefined keywords and the other for detecting issues from daily scraped English and Korean news
- Built on ColBERT v2 architecture using multi language training data, with offline indexing of news data by date for real-time inference
- Developed a model using SCStory methodology to group daily news streams by event, and added modules for extracting keywords and computing ranking scores for each issue

**Multi-modal Interaction Artificial Intelligence Technology that interacts with humans** July 2022 - Nov 2022

NLP Model Engineer National Research Project

- Knowledge-based conversation system with sentiment and intent prediction, and image recommendations in fashion domain
- Developed a sentence-level sentiment analysis model based on KE-T5, Korean-English Bilingual T5 model

**Sentiment Analysis on Stock Market through the News Articles** Apr 2022 - Nov 2022

NLP Model Engineer Capstone Design Project

- Web service that provides summarized financial news and sentiment polarity related to the stock market
- Conducted web scraping on news and annotated sentiment polarity in summarized news
- Employ two models that summarizes news articles and predicts sentiment using Google Cloud Platform

**Prediction of the Ambulance Arrival Time** Nov 2021

Team Leader Fire Safety Innovation Service Idea Contest

- Proposed a system to predict ambulance arrival times and provide both this information and emergency guidance to callers
- Preprocessed the raw data, including ambulance dispatch/arrival timestamps, types, locations, and etc, and built a simple DNN model using PyTorch

## TEACHING EXPERIENCES

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**POSCO AI Expert Training Program** Apr 2024 - Jul 2024

Instructor POSTECH Institute of Artificial Intelligence

- Conducted practical lectures for Data Mining and provided individualized project guidance to students
- Led sessions on Regression, Clustering, Classification, Time Series Analysis and Feature Engineering

**SOWON Supporters** Sep 2019 - Dec 2019

Instructor Nowon Career Center for Youth and Future

- Instructed elementary students in MODI Block Coding

**Software Summer School Tutor** Aug 2019

Teaching Assistant Kwangwoon University

- Assisted with C programming course for freshmen

## COPYRIGHT AND PATENT

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**ColBERT-based Search Engine with Adversarial Language Adaptation for Multilingual Information Retrieval** Jan 2024

Software Copyright Registration No. C-2024-000074 Korea Copyright Commission

**Method For Learning Language Model and Apparatus for Searching Information Using the Language Model** Dec 2023

Patent Application No.10-2023-0196709 Korea Intellectual Property Office

## AWARDS & HONORS

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### Awards

<b>1st Place</b> Capstone Design Competition	Nov 2022 Kwangwoon University
<b>2nd Place</b> Fire Safety Innovation Service Idea Contest	Nov 2021 Korea Fire Safety Big Data Platform
<b>Dean's List</b> Academic Excellence Award	Fall 2019 Kwangwoon University
<b>Dean's List</b> Academic Excellence Award	Spring 2019 Kwangwoon University

### Honors

<b>Software Excellence Scholarship</b> Awarded to software excellent students in Software Convergence College	Dec 2023 Kwangwoon University
<b>Ulsan Dream Scholarship</b> Awarded to academic excellent students from Ulsan	May 2022 Ulsan Institute for Talent & Lifelong Education
<b>Software Excellence Scholarship</b> Awarded to software excellent students in Software Convergence College	Dec 2019 Kwangwoon University
<b>SW Interdisciplinary Course Excellence Scholarship</b> Awarded to academic excellent students in SW Interdisciplinary Course	Fall, Spring 2019 Kwangwoon University
<b>SW Interdisciplinary Course Excellence Scholarship</b> Awarded to academic excellent students in SW Interdisciplinary Course	Fall, Spring 2018 Kwangwoon University
<b>Academic Excellence Scholarship</b> Awarded to academic excellent students in the department	Spring 2017 Kwangwoon University

## CERTIFICATATIONS

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<b>Big-Data Analysis Engineer</b>	Dec 2021 Korea Data Agency
<b>ADSP (Advanced Data Analytics Semi-Professional)</b>	Dec 2020 Korea Data Agency

## SKILLS

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**Programming Languages** : Python, C++, C  
**Deep Learning Framework** : Pytorch  
**etc** : Docker, Latex