

# Donghyun Kim

AI/ML Researcher · Ph.D. Candidate in Computer Science

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## RESEARCH INTERESTS

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### NLP & Knowledge Graphs

Knowledge Extraction/Reasoning/Validation

### Conversational AI

Personalized/Knowledge-Grounded Dialogue Generation

## EDUCATION

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### Yonsei University

Ph.D. in Computer Science (Advisor: Prof. Kyong-Ho Lee)

South Korea

Sep. 2019 – Feb. 2026

### Pusan National University

B.S. in Computer Science and Engineering

South Korea

Mar. 2013 – Feb. 2017

## EXPERIENCE

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### Republic of Korea Army

Commissioned Officer (First Lieutenant)

South Korea

Mar. 2017 – Jun. 2019

- Served as a Signal Platoon Leader
- Operated and maintained tactical communication systems (voice, data, and information)

## PUBLICATIONS

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### International

- [14] **Donghyun Kim**, Hyeongjun Yang, Chanhee Lee, Seokju Hwang, and Kyong-Ho Lee, “**R4KGV: Retrieval-Augmented Knowledge Graph Validation with Large Language Models**,” *Under Review*.
- [13] Hyeongjun Yang, **Donghyun Kim**, Kyuhwan Yeom, Kyong-Ho Lee, Byungkook Oh, and Xiongnan Jin, “**Reliable Distillation of Recommendation Rationales from Large Language Models for Conversational Recommendation**,” *Under Review*.
- [12] Seokju Hwang, Midan Shim, Yeseul Gong, **Donghyun Kim**, and Kyong-Ho Lee, “**FineESC: Fine-Grained Emotional Support Conversation with Turn-level Importance Modeling via Subquestion Reasoning**,” *Under Review*.
- [11] Seungyeon Kim, **Donghyun Kim**, Seokju Hwang, Kyong-Ho Lee, and Kyunghwa Lee, “**LLM-Assisted Ontology Restriction Verification with Clustering-based Description Generation**,” *IEEE Access*, Vol. 13, May. 2025.
- [10] Hyeongjun Yang, **Donghyun Kim**, Gayeon Park, Kyuhwan Yeom, and Kyong-Ho Lee, “**CoreSense: Social Commonsense Knowledge-Aware Context Refinement for Conversational Recommender System**,” *IEEE Transactions on Knowledge and Data Engineering*, Vol. 37, No. 4, Apr. 2025.
- [9] **Donghyun Kim**, Hyeongjun Yang, Seokju Hwang, Kyuhwan Yeom, Midan Shim, and Kyong-Ho Lee, “**Active Learning Framework for Improving Knowledge Graph Accuracy**,” *IEEE Access*, Vol. 13, Mar. 2025.
- [8] Chanhee Lee, **Donghyun Kim**, Wongyu Kim, Kyungchan Lee, Youbin Ahn, Kyong-Ho Lee, Donghoon Shin, and Yeonsoo Lee, “**Optimizing Training Data for Persona-Grounded Dialogue via Synthetic Label Augmentation**,” *Expert Systems With Applications*, Vol. 265, Mar. 2025.

- [7] Yeseul Gong, Heeseon Kim, Seokju Hwang, **Donghyun Kim**, and Kyong-Ho Lee, “**Multi-Domain Dialogue State Tracking via Dual Dynamic Graph with Hierarchical Slot Selector**,” *Knowledge-Based Systems*, Vol. 308, Jan. 2025.
- [6] Kyungchan Lee, Chanhee Lee, **Donghyun Kim**, and Kyong-Ho Lee, “**Dialogue Act-based Partner Persona Extraction for Consistent Personalized Response Generation**,” *Expert Systems With Applications*, Vol. 254, Nov. 2024.
- [5] Seungmin Seo, Byungkook Oh, Jeongbeom Jeoung, **Donghyun Kim**, Kyong-Ho Lee, Donghoon Shin, and Yeonsoo Lee, “**Active Learning for Cross-sentence N-ary Relation Extraction**,” *Information Sciences*, Vol. 645, Oct. 2023.
- [4] **Donghyun Kim**, Youbin Ahn, Wongyu Kim, Chanhee Lee, Kyungchan Lee, Kyong-Ho Lee, Jeonguk Kim, Donghoon Shin, and Yeonsoo Lee, “**Persona Expansion with Commonsense Knowledge for Diverse and Consistent Response Generation**,” In *Proceedings of the EACL 2023*.
- [3] **Donghyun Kim**, Youbin Ahn, Chanhee Lee, Wongyu Kim, Kyong-Ho Lee, Donghoon Shin, and Yeonsoo Lee, “**Concept-based Persona Expansion for Improving Diversity of Persona-Grounded Dialogue**,” In *Proceedings of the EACL 2023*.
- [2] Wongyu Kim, Youbin Ahn, **Donghyun Kim**, and Kyong-Ho Lee, “**Emp-RFT: Empathetic Response Generation via Recognizing Feature Transitions between Utterances**,” In *Proceedings of the NAACL-HLT 2022*.
- [1] Seungmin Seo, **Donghyun Kim**, Youbin Ahn, and Kyong-Ho Lee, “**Active Learning on Pre-trained Language Model with Task-Independent Triplet Loss**,” In *Proceedings of the AAAI 2022*.

## Domestic

- [2] Seokju Hwang, **Donghyun Kim**, Kyong-Ho Lee, and Kyunghwa Lee, “**Ontology-based Fact Checking for Verification of Defense Domain Sentences**,” *Journal of Korea Multimedia Society*, Vol. 27, No. 11, Nov. 2024.
- [1] Kyuhwan Yeom, **Donghyun Kim**, Seungyeon Kim, Yongsu Bae, Kyong-Ho Lee, and Kyunghwa Lee, “**Building a Korean Dataset for Knowledge Extraction in the Military Domain: Focusing on Navy Force and Weapon Systems**,” *Journal of Korea Multimedia Society*, Vol. 27, No. 7, Jul. 2024.

## PATENTS

- [4] Kyong-Ho Lee, **Donghyun Kim**, Seokju Hwang, and Kyunghwa Lee, “**Active Learning Method and Apparatus for Improving Knowledge Graph Accuracy**,” *KR Patent*, filed Oct. 29, 2024. (No. 10-2024-0149277)
- [3] Kyong-Ho Lee, Kyuhwan Yeom, Seokju Hwang, **Donghyun Kim**, and Kyunghwa Lee, “**Fact Verification Method based on Domain Ontology and Apparatus thereof**,” *KR Patent*, filed Oct. 29, 2024. (No. 10-2024-0149276)
- [2] Kyong-Ho Lee, Wongyu Kim, Youbin Ahn, and **Donghyun Kim**, “**Method and Apparatus for Generating Empathetic Responses via Recognizing Emotion and Keyword Transitions between Utterances**,” *KR Patent*, filed Mar. 15, 2023. (No. 10-2023-0034098)
- [1] Kyong-Ho Lee, **Donghyun Kim**, Youbin Ahn, Wongyu Kim, and Chanhee Lee, “**Method and Apparatus for Generating Extended Persona Sentences**,” *KR Patent*, filed Dec. 31, 2021. (No. 10-2021-0194377)

## RESEARCH PROJECTS

### Automated Generation and Verification of CMMS-K

w/ Korea Research Institute for Defense Technology Planning and Advancement (KRIT)

Nov. 2022 – Feb. 2026

- **Project Leader:** Proposal, Planning, Development, Verification

### Refining User Preferences by Leveraging KGs for Conversational Recommender System

w/ National Research Foundation of Korea (NRF)

Mar. 2022 – Feb. 2025

- Project Member: Development, Verification

### Dynamic Context Reasoning for Advanced Intelligent Service Robot

w/ Hyundai Motor Company

Jul. 2022 – Aug. 2023

- **Project Leader:** Proposal, Planning, Management

### **Improving Dialogue Quality via Consistent Persona Expansion and Training Optimization**

*w/ NCSOFT Corporation*

Jun. 2021 – Dec. 2021

- **Project Leader:** Proposal, Planning, Development, Verification

### **Improving Dialogue Quality via Persona Expansion and Combination using KGs**

*w/ NCSOFT Corporation*

Nov. 2020 – May. 2021

- **Project Leader:** Proposal, Planning, Development, Verification

### **Active Learning based N-ary Relation Extraction and Structuralization**

*w/ NCSOFT Corporation*

Sep. 2019 – Apr. 2020

- Project Member: Development, Verification

## **HONORS & AWARDS**

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Yonsei Young Researcher Fellowship

2023

Brain Korea 21+ Academic Research Fellowship

2021-2, 2023-1