

To Eun Kim

Information Retrieval | LLM | Retrieval-Enhanced ML | Language Agents | Evaluation

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🎓 [Google Scholar](#)

🐙 <https://kimdanny.github.io/>

Education

Carnegie Mellon University (CMU)

Aug 2023 - (2028)

Ph.D. Language and Information Technology at Language Technologies Institute (LTI).

Advisor: [Prof. Fernando Diaz](#)

Focus: Information Retrieval, Retrieval-Enhanced Machine Learning, Language Agents

University College London (UCL)

Sep 2018 - Sep 2022

M.Eng. Computer Science (equivalent to a US Bachelor's & Master's degree) **First-Class Honours**

Minor: Engineering Mathematics

Thesis: [Multi-Task Neural User Simulator for Task Oriented Dialogue System](#)

Publications

MoR: Better Handling Diverse Queries with a Mixture of Sparse, Dense, and Human Retrievers

J.S Kalra*, X. Zhao*, [T.E. Kim](#), F. Cai, F. Diaz, T. Wu [\[paper\]](#) [\[code\]](#)

(EMNLP 2025 Main) *Conference on Empirical Methods in Natural Language Processing*

TeamCMU at Touché: Adversarial Co-Evolution for Advertisement Integration and Detection in Conversational Search

[T.E. Kim](#), J. Coelho, G. Onilude, J. Singh [\[paper\]](#) [\[code\]](#)

(CLEF 2025 Touché Lab) *16th Conference and Labs of the Evaluation Forum*
Best Paper Award

LTRR: Learning To Rank Retrievers for LLMs

[T.E. Kim](#), F. Diaz [\[paper\]](#) [\[code\]](#)

(SIGIR 2025 LiveRAG Workshop) *Spotlight*

Tip of the Tongue Query Elicitation for Simulated Evaluation

Y. He*, [T.E. Kim](#)*, F. Diaz, J. Arguello, B. Mitra [\[paper\]](#) [\[code1\]](#) [\[code2\]](#)

(SIGIR 2025) *48th ACM SIGIR Conference on Research and Development in Information Retrieval*

Overview of the TREC 2024 Tip-of-the-Tongue Track

J. Arguello, S. Bhargav, F. Diaz, [T.E. Kim](#), Y. He, E. Kanoulas, B. Mitra [\[paper\]](#)

(TREC 2025) *The 33rd Text Retrieval Conference*

Towards Fair RAG: On the Impact of Fair Ranking in Retrieval-Augmented Generation

[T.E. Kim](#), F. Diaz [\[paper\]](#) [\[code\]](#)

(ICTIR 2025) *The 15th Int'l Conference on Innovative Concepts and Theories in Information Retrieval*
(NeurIPS 2024 AFME Workshop) *Top-3 Spotlight*

Retrieval-Enhanced Machine Learning: Synthesis and Opportunities

[T.E. Kim](#), A. Salemi, A. Drozdov, F. Diaz, H. Zamani

(SIGIR 2025 Tutorial) (SIGIR-AP 2024 Tutorial)

[\[Manuscript/Survey\]](#) *Under Review for Journal Publication*

A Comprehensive Survey on Generative Diffusion Models for Structured Data

H. Koo, [T.E. Kim](#) [\[paper\]](#)

arXiv, 2023

A Multi-Task Based Neural Model to Simulate Users in Goal-Oriented Dialogue Systems

[T.E. Kim](#), A. Lipani [\[paper\]](#) [\[poster\]](#) [\[code\]](#)

(SIGIR 2022) *45th ACM SIGIR Conference on Research and Development in Information Retrieval*

Condita: A State Machine Like Architecture for Multi-Modal Task Bots

J. Ramos*, [T.E. Kim](#)*, Z. Shi, X. Fu, F. Ye, Y. Feng, A. Lipani [\[paper\]](#)

Alexa Prize TaskBot Challenge Proceedings, 2022

When and What to Ask Through World States and Text Instructions: IGLU NLP Challenge Solution

Z. Shi*, J. Ramos*, [T.E. Kim](#), X. Wang, H. Rahmani, A. Lipani [\[paper\]](#)

(*NeurIPS 2022 Competition*) Interactive Grounded Language Understanding in a Collaborative Environment

Research Prize Winner

Attention-based Ingredient Phrase Parser

Z. Shi, P. Ni, M. Wang, [T.E. Kim](#), A. Lipani [\[paper\]](#) [\[code\]](#)

(*ESANN 2022*) European Symposium on Artificial Neural Networks, Computational Intelligence and Machine Learning

Research &
Industry
Roles

CMU Language Technologies Institute (LTI)

Aug 2023 - Present

Graduate Research & Teaching Assistant

Pittsburgh, USA

- Courses taken: 11642 Search Engines (Prof. Jamie Callan); 10701 Intro to ML (Dr. Henry Chai); 11711 Advanced NLP (Prof. Graham Neubig); 11801 Quantitative Evaluation of Language Technologies (Prof. Fernando Diaz); 11797 Question Answering (Prof. Eric Nyberg, Prof. Teruko Mitamura); 11851 Talking to Robots (Prof. Yonatan Bisk)

UCL Web Intelligence Group

May 2021 - Jun 2023

Research & Teaching Assistant

[UCL Centre for AI](#), London, UK

- Supervised by [Prof. Emine Yilmaz](#) and [Dr. Aldo Lipani](#)
- Leading the Alexa Prize TaskBot Challenge (May 2021 - Mar 2022). Engineered a Task-oriented Dialogue System by using Alexa Skills Kit, Evi, DynamoDB, Lambda, and CodePipeline. Constructed and maintained CI/CD pipelines, deployed multiple micro-services with Flask and Docker, dealing with thousands of user conversations with feedback loop.
- Five TA roles and four research papers.

Raft AI

Jun 2022 - Jul 2022

Machine Learning Engineer Intern

London, UK

- Tabular information extraction from OCR for freight forwarding automation.
- Use of modern dev tools, e.g., Gitlab, Jira, Sentry, Docker, Kubernetes, GCP.

UCL (Human-Computer) Interaction Centre - bachelor's group thesis

Oct 2020 - Apr 2021

Project *Olfactory-NLP* with group members and [Prof. Marianna Obrist](#).

- Extracted smell-related phrases and clustered multiple passages into different olfactory groups.
- Literature Review: *An NLP Approach to Classify Smell Experiences*. [\[paper\]](#)
- *Exploring the potential of automating the process of clustering smell stories*. [\[paper\]](#) [\[code\]](#)

KB Securities

Jun 2020 - Aug 2020

Data Analyst Intern

Seoul, South Korea

- Built a mutual funds recommender system based on Network Analysis, Hierarchical Clustering and Association Rule Mining.
- Built a stock price prediction system using LSTM and news articles. [\[code\]](#)
- Social media sentiment monitoring system using KB's NLP Engine and Automation software.
- Use of Hadoop ecosystem (Map-reduce, Hive, and Hue).

Royal College of General Practitioners (RCGP)

Oct 2019 - Mar 2020

Software Engineer - UCL Industrial Exchange Network

London, UK

- Implemented a tree-based task-oriented chatbot that assists in checking software compliance regimes of British healthcare organizations based on Dialogflow.

Presentations &
Invited Talks

Algorithmic Fairness through the Lens of Metrics and Evaluation @ NeurIPS 2024, *Towards Fair RAG: On the Impact of Fair Ranking in Retrieval-Augmented Generation*, 14th Dec., 2024.

NLP Interest Group at The Alan Turing Institute, *Can Dialogue Systems Have Theory-of-Mind Ability?*, 24th Nov., 2022. [\[recording\]](#)[\[slides\]](#)

Professional Training	Google Developers Korea Machine Learning Bootcamp	Oct 2020 - Jan 2021
	Deep Learning Specialization (Prof. Andrew Ng on Coursera)	Dec 2020
	UCLQ Summer School in Quantum Technology	Sep 2020
	Introduction to AI in the Data Center (NVIDIA)	Mar 2020
	KAIST Artificial Intelligence Bootcamp [Project 1] [Project 2]	Jun 2019 - Aug 2019

Major Skills	Computer Language:	Python, Java, C, Matlab, R, L ^A T _E X
	Research:	PyTorch, TensorFlow2, HuggingFace, Scikit-Learn
	SW Dev:	Docker, SQL, Kafka, Node, Express, React, Flask
	Platform:	Unix, Git, AWS, Alexa Skills Kit, GCP, Slurm
	Human Language:	English (professional), Korean (native)

References	Available on request.
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