Takyoung Kim

Ph.D. Student at the University of Illinois Urbana-Champaign (UIUC)

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Interests

My research interest lies in the intersection of Natural Language Processing and Communication. I am particularly interested in building communicative language models (LMs) that can understand social and cognitive context, evaluating preference during interactions, and exploring how LMs compose knowledge both from parametric and external sources.

Education

University of Illinois Urbana-Champaign, *Urbana, IL, USA*   Aug 2024 - Present
Doctor of Philosophy, Computer Science
Advisor: Dilek Hakkani-Tür

Korea University, *Seoul, South Korea*   Sep 2020 - Aug 2022
Master of Engineering, Industrial Management Engineering
Advisor: Pilsung Kang (currently at Seoul National University)
Thesis: *Relaxing Unrealistic Assumptions of Dataset and Evaluation Metric in Dialogue State Tracking*

Sungkyunkwan University, *Seoul, South Korea*   Mar 2013 - Aug 2020
Bachelor of Science in Engineering, Interdisciplinary Program of Convergent Software
Bachelor of Media & Communication (*Leave of absence for military service: Feb 2015 - Nov 2016*)

Research Experience

Amazon | Alexa AI *Bellevue, WA, USA*   May 2025 - Aug 2025
Applied Scientist Intern (Mentors: Jinseok Nam, Chandrayee Basu, Chengyuan Ma)
Working on error recovery in real-world constrained conversational systems

University of Illinois Urbana-Champaign | Conversational AI Lab *Urbana, IL, USA*   Aug 2024 - Present
Graduate Research Assistant (Advisor: Dilek Hakkani-Tür)
Working on cognitive interactions in real-world environments

Korea University | Data Science & Business Analytics Lab *Seoul, South Korea*   Apr 2024 - Jul 2024
Research Associate (Advisor: Pilsung Kang)
Worked on retrieval-augmented language models specialized in Korean digital media

LG AI Research | Advanced Machine Learning Lab *Seoul, South Korea*   Apr 2023 - Mar 2024
Research Intern (Mentors: Kyungjae Lee, Moontae Lee)
Worked on improving long-form responses of retrieval-augmented language models via planning [3]

NAVER AI Lab | Language Research Team *Seongnam, South Korea*   Jul 2022 - Jan 2023
Research Intern (Mentor: Sungdong Kim)
Worked on revealing innate bias in task-oriented dialogue research via interactive study [4]
Worked on constructing safety benchmark for sensitive questions [7] and social biases [6]

Korea University | Data Science & Business Analytics Lab *Seoul, South Korea*   Sep 2020 - Jun 2022
Graduate Research Assistant (Advisor: Pilsung Kang)
Worked on analyzing realistic biases and limitations of dialogue state tracking [9, 8, 5]
Developed algorithms and pipelines in various domains, such as news [10], car, and ocean waves

Publications

* = equal contribution, † = equal advising

[1] **TD-EVAL: Revisiting Task-Oriented Dialogue Evaluation by Combining Turn-Level Precision with Dialogue-Level Comparisons**
Emre Can Acikgoz*, Carl Guo*, Suvodip Dey*, Akul Datta, <u>Takyoung Kim</u>, Gokhan Tur, Dilek Hakkani-Tür
Annual Meeting of the Special Interest Group on Discourse and Dialogue (Oral)   SIGDIAL 2025

[2] **Premise-Augmented Reasoning Chains Improve Error Identification in Math reasoning with LLMs** 📄
Sagnik Mukherjee*, Abhinav Chinta*, <u>Takyoung Kim</u>, Tarun Anoop Sharma, Dilek Hakkani-Tür
International Conference on Machine Learning   `ICML 2025`

[3] **Learning to Explore and Select for Coverage-Conditioned Retrieval-Augmented Generation** 📄
<u>Takyoung Kim</u>, Kyungjae Lee, Young Rok Jang, Ji Yong Cho, Gangwoo Kim, Minseok Cho, Moontae Lee
Nations of the Americas Chapter of the Association for Computational Linguistics   `Findings of NAACL 2025`

[4] **Revealing User Familiarity Bias in Task-Oriented Dialogue via Interactive Evaluation** 📄
<u>Takyoung Kim</u>, Jamin Shin, Young-Ho Kim, Sanghwan Bae, Sungdong Kim
*Workshop on NLP for Conversational AI (**Oral, Best Paper Award**)*   `NLP4ConvAI, ACL 2024`

[5] **DSTEA: Improving Dialogue State Tracking via Entity Adaptive Pre-training** 📄
Yukyung Lee, <u>Takyoung Kim</u>, Hoonsang Yoon, Pilsung Kang, Junseong Bang, Misuk Kim
Knowledge-Based Systems (Q1, Impact Factor: 8.8)   `KBS 2024`
Workshop on Knowledge Augmented Methods for NLP   `KnowledgeNLP, KDD 2023`

[6] **KoSBi: A Dataset for Mitigating Social Bias Risks Towards Safer Large Language Model Applications** 📄
Hwaran Lee*, Seokhee Hong*, Joonsuk Park, <u>Takyoung Kim</u>, Gunhee Kim, Jung-Woo Ha
Annual Meeting of the Association for Computational Linguistics (Industry Track)   `ACL 2023`

[7] **SQuARe: A Large-Scale Dataset of Sensitive Questions and Acceptable Responses Created Through Human-Machine Collaboration** 📄
Hwaran Lee*, Seokhee Hong*, Joonsuk Park, <u>Takyoung Kim</u>, Meeyoung Cha, Yejin Choi, Byoungpil Kim, Gunhee Kim, Eun-Ju Lee, Yong Lim, Alice Oh, Sangchul Park, Jung-Woo Ha
*Annual Meeting of the Association for Computational Linguistics (**Oral, Best Paper Nomination**)*   `ACL 2023`

[8] **Oh My Mistake!: Toward Realistic Dialogue State Tracking including Turnback Utterances** 📄
<u>Takyoung Kim</u>, Yukyung Lee, Hoonsang Yoon, Pilsung Kang, Junseong Bang, Misuk Kim
Towards Semi-Supervised and Reinforced Task-Oriented Dialog Systems   `SereTOD, EMNLP 2022`

[9] **Mismatch between Multi-turn Dialogue and its Evaluation Metric in Dialogue State Tracking** 📄
<u>Takyoung Kim</u>, Hoonsang Yoon, Yukyung Lee, Pilsung Kang, Misuk Kim
Annual Meeting of the Association for Computational Linguistics (Short)   `ACL 2022`

[10] **Building an Integrated Framework of Korean Text Summarization and Text-to-Speech** 📄
<u>Takyoung Kim</u>, Jina Kim, Hyeongwon Kang, Subin Kim, Pilsung Kang
Journal of Korean Institute of Industrial Engineers   `JKIIE 2022`

Preprint & Under Review

[11] **Goal Alignment in LLM-Based User Simulators for Conversational AI** 📄
Shuhaib Mehri, Xiaocheng Yang, <u>Takyoung Kim</u>, Gokhan Tur, Shikib Mehri, Dilek Hakkani-Tür
Preprint Under Review

[12] **PIPA: A Unified Evaluation Protocol for Diagnosing Interactive Planning Agents** 📄
<u>Takyoung Kim</u>*, Janvijay Singh*, Shuhaib Mehri*, Emre Can Acikgoz, Sagnik Mukherjee, Nimet Beyza Bozdag, Sumuk Shashidhar, Gokhan Tur, Dilek Hakkani-Tür
Preprint Under Review

Presentations and Talks

Embodied Multi-Agent Planning in Conflicting Scenarios
Midwest Speech and Language Days (Notre Dame, IN, USA)   Apr 2025

Honors and Awards

CS PhD Fellowship University of Illinois Urbana-Champaign   Aug 2024 - May 2025

Best Paper Award ACL 2024 NLP for Conversational AI Workshop   Aug 2024

Best Student Feedback Award, Research Ideation Contest Korea University   Feb 2021, Dec 2021

2nd Place (2,500 USD), MyData Acting Hackathon Ministry of Science and ICT   Oct 2019

Merit-based Scholarship, Computer Science Coursework Sungkyunkwan University   Spring 2018, Fall 2018

Teaching Experience

T02459101 Natural Language Processing   Hankuk University of Foreign Studies   Feb 2024 - Jun 2024
Teaching Assistant (Instructor: Yukyung Lee)

Industrial Machine Learning   LG Electronics   Jan 2022 - Apr 2022
Head Teaching Assistant (Instructor: Pilsung Kang)

Research Mentoring   Hyundai Mobis   Jul 2021 - Sep 2021
Research Project Assistant (Instructor: Pilsung Kang)

Industrial Machine Learning and Deep Learning   LG Innotek, SK Hynix   Jul 2021 - Aug 2021
Teaching Assistant (Instructor: Pilsung Kang)

Academic Service

Conference Reviewer

Conference on Language Modeling (COLM)	2025
Annual Meeting of the Association for Computational Linguistics (ACL)	2025
Nations of the Americas Chapter of the Association for Computational Linguistics (NAACL)	2025
Neural Information Processing Systems (NeurIPS)	2024
European Chapter of the Association for Computational Linguistics (EACL)	2024
Empirical Methods in Natural Language Processing (EMNLP) - Industry Track	2023 - 2024
Empirical Methods in Natural Language Processing (EMNLP)	2023 - 2025
Neural Information Processing Systems (NeurIPS) - Datasets & Benchmarks	2022 - 2025

Journal Reviewer

Knowledge-Based Systems	2023 - 2024

Other Reviewer

ACL Rolling Review (ARR)	2023 - Present

Student Volunteer (On-Site)

Nations of the Americas Chapter of the Association for Computational Linguistics (NAACL)	2025