

# Joo-Kyung Kim

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## EXPERIENCE

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### Amazon

*Senior Applied Scientist*

Bellevue, WA

*Aug 2017 – Present*

- Building core LLM components powering Alexa for hundreds of millions of users. Specializing in LLM post-training for multi-turn/proactive interaction and personalization, clarification/disambiguation, and evaluation/reward modeling.
- Founded and tech-led LLM post-training for multi-turn/proactive interaction (2024–):
  - \* Achieved 3x engaged users and 2x engagement rate over a baseline LLM.
  - \* Built LLM post-training toolkit for multi-turn/agent reinforcement learning.
- Designed and tech-led conversation summarization/retrieval system (2024):
  - \* Enabled cross-device conversation continuity for Alexa.
- Founded and tech-led disambiguation/clarification modeling across multi-turn interactions (2020–2023):
  - \* Reduced millions of customer-facing defects per week via disambiguation/clarification.
- Drove hypothesis ranking for large-scale natural language understanding (2017–2020):
  - \* Shipped production models enabling dynamic routing across thousands of first- and third-party Alexa skills.

### Microsoft

*Research Intern*

Bellevue, WA

*May 2016 – Aug 2016*

- Deep learning on conversational understanding (Mentors: Gokhan Tur, Asli Celikyilmaz)

### NEC Laboratories

*Research Associate*

Princeton, NJ

*May 2015 – Aug 2015*

- Constituency parsing with deep and recursive neural networks (Mentor: Bing Bai)

### Nuance

*Research Intern*

Sunnyvale, CA

*Jun 2014 – Aug 2014*

- Named entity recognition with neural networks for spoken dialog systems (Mentor: Adwait Ratnaparkhi)

### Naver

*Software Engineer*

Seongnam, Korea

*Sep 2008 – Jul 2010*

- Web search modeling for Naver Japan, and developed integrated Naver search services (C++, PHP, MySQL)

## EDUCATION

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### The Ohio State University

*Ph.D., Department of Computer Science and Engineering*

Columbus, OH

*Aug 2017*

- Dissertation: Linguistic Knowledge Transfer for Enriching Vector Representations
- Advisor: Eric Fosler-Lussier

### Seoul National University

*M.S., School of Computer Science and Engineering*

Seoul, Korea

*Aug 2008*

- Thesis: Evolutionary optimization of a collection of variable-length subpatterns for pattern classification
- Advisor: Byoung-Tak Zhang

### Sogang University

*B.E., Department of Computer Science*

Seoul, Korea

*Aug 2005*

- Thesis: Real-time news categorization system
- Advisor: Jihoon Yang

- Jinyoung Park, Sanghyeok Lee, Omar Zia Khan, Hyunwoo J. Kim, and **Joo-Kyung Kim**. *HyperGraphPro: Progress-Aware Reinforcement Learning for Structure-Guided Hypergraph RAG*. 2026. arXiv: 2601.17755.
- Soyeong Jeong, Taehee Jung, Sung Ju Hwang, **Joo-Kyung Kim**, and Dongyeop Kang. “When Thoughts Meet Facts: Reusable Reasoning for Long-Context LMs”. In: *ACL Findings*. 2026.
- Qiusi Zhan, Angeline Budiman-Chan, Abdelrahman Zayed, Xingzhi Guo, Daniel Kang, and **Joo-Kyung Kim**. “SafeSearch: Do Not Trade Safety for Utility in LLM Search Agents”. In: *EACL Findings*. 2026.
- Zae Myung Kim, Anand Ramachandran, Farideh Tavazoei, **Joo-Kyung Kim**, Oleg Rokhlenko, and Dongyeop Kang. “Align to Structure: Aligning Large Language Models with Structural Information”. In: *AAAI*. 2026.
- Chanwoo Park, Seungju Han, Xingzhi Guo, Asuman Ozdaglar, Kaiqing Zhang, and **Joo-Kyung Kim**. “MAPoRL: Multi-Agent Post-Co-Training for Collaborative Large Language Models with Reinforcement Learning”. In: *ACL*. 2025.
- Shirley Anugrah Hayati, Taehee Jung, Tristan Bodding-Long, Sudipta Kar, Abhinav Sethy, **Joo-Kyung Kim**, and Dongyeop Kang. “Chain-of-Instructions: Compositional Instruction Tuning on Large Language Models”. In: *AAAI*. 2025.
- Jinyoung Park, Minseok Joo, **Joo-Kyung Kim**, and Hyunwoo J. Kim. “Generative Subgraph Retrieval for Knowledge Graph–Grounded Dialog Generation”. In: *EMNLP*. 2024.
- Jihyung Kil, Farideh Tavazoei, Dongyeop Kang, and **Joo-Kyung Kim**. “II-MMR: Identifying and Improving Multi-modal Multi-hop Reasoning in Visual Question Answering”. In: *ACL Findings*. 2024.
- Jinyoung Park, Ameen Patel, Omar Zia Khan, Hyunwoo J. Kim, and **Joo-Kyung Kim**. *Graph Elicitation for Guiding Multi-Step Reasoning in Large Language Models*. 2023. arXiv: 2311.09762.
- Taehee Jung, **Joo-Kyung Kim**, Sungjin Lee, and Dongyeop Kang. “Cluster-Guided Label Generation in Extreme Multi-Label Classification”. In: *EACL*. 2023.
- Joo-Kyung Kim**, Guoyin Wang, Sungjin Lee, and Young-Bum Kim. “Deciding Whether to Ask Clarifying Questions in Large-Scale Spoken Language Understanding”. In: *ASRU*. 2021.
- Joo-Kyung Kim** and Young-Bum Kim. “Pseudo Labeling and Negative Feedback Learning for Large-scale Multi-label Domain Classification”. In: *ICASSP*. 2020.
- Joo-Kyung Kim** and Young-Bum Kim. “Supervised Domain Enablement Attention for Personalized Domain Classification”. In: *EMNLP*. 2018.
- Joo-Kyung Kim** and Young-Bum Kim. “Joint Learning of Domain Classification and Out-of-Domain Detection with Dynamic Class Weighting for Satisficing False Acceptance Rates”. In: *Interspeech*. 2018.
- Young-Bum Kim, Dongchan Kim, **Joo-Kyung Kim**, and Ruhi Sarikaya. “A Scalable Neural Shortlisting-Reranking Approach for Large-Scale Domain Classification in Natural Language Understanding”. In: *NAACL*. 2018.
- Joo-Kyung Kim**, Young-Bum Kim, Ruhi Sarikaya, and Eric Fosler-Lussier. “Cross-Lingual Transfer Learning for POS Tagging without Cross-Lingual Resources”. In: *EMNLP*. 2017.
- Joo-Kyung Kim**, Gokhan Tur, Asli Celikyilmaz, Bin Cao, and Ye-Yi Wang. “Intent Detection using Semantically Enriched Word Embeddings”. In: *SLT*. 2016.
- Joo-Kyung Kim**, Marie-Catherine de Marneffe, and Eric Fosler-Lussier. “Adjusting Word Embeddings with Semantic Intensity Orders”. In: *ACL Workshop on Representation Learning for NLP (RepL4NLP)*. 2016.
- Joo-Kyung Kim**, Marie-Catherine de Marneffe, and Eric Fosler-Lussier. “Neural word embeddings with multiplicative feature interactions for tensor-based compositions”. In: *NAACL Workshop on Vector Space Modeling for NP (VSM)*. 2015.
- Joo-Kyung Kim** and Marie-Catherine de Marneffe. “Deriving adjectival scales from continuous space word representations”. In: *EMNLP*. 2013.
- Joo-Kyung Kim** and Byoung-Tak Zhang. “Evolving hypernetworks for pattern classification”. In: *IEEE Congress on Evolutionary Computation (CEC)*. 2007.
- Joo-Kyung Kim**, Byung Soo Kim, Oh Kyuk Kwon, Seung Kon Hwang, Jung-Woo Ha, Chan-Hoon Park, Duck Jin Chung, Chong Ho Lee, Jaehyun Park, and Byoung-Tak Zhang. “A DNA computing-inspired silicon chip for pattern recognition”. In: *International Meeting on DNA Computing (DNA)*. 2007.
- Byoung-Tak Zhang and **Joo-Kyung Kim**. “DNA hypernetworks for information storage and retrieval”. In: *International Meeting on DNA Computing (DNA)*. 2006.

## ACADEMIC SERVICES

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### Senior Area Chair

- ARR 2025–2026, EMNLP 2025–2026, ACL 2026

### Area Chair

- ARR Dec 2023 – Feb 2025

### Reviewer

- ACL 2019–2023, EMNLP 2019–2023, NAACL 2019–2022, EACL 2021–2023, ACL 2023, AAAI 2020–2022, IEEE TASLP 2020–2021

## MENTORED INTERNS

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- 2025** Soyeong Jeong (KAIST) – *Template Retrieval for Long-Context LLMs*
- 2025** Qiusi Zhan (UIUC) – *Safety Alignment in Agentic RAG*
- 2024** Chanwoo Park (MIT) – *Multi-Agent Reinforcement Learning for LLMs*
- 2024** Zae Myung Kim (UMN) – *Structural LLM Alignment for Long-form Generation*
- 2024** Shirley Anugrah Hayati (UMN) – *Diverse and Distribution-Controlled Generation with LLMs*
- 2023** Shirley Anugrah Hayati (UMN) – *Compositional Instruction Tuning on LLMs*
- 2023** Jihyung Kil (OSU) – *Multi-modal Multi-hop Reasoning in VQA*
- 2023** Jinyoung Park (Korea University) – *Multi-Step Reasoning in LLMs*
- 2022** Jinyoung Park (Korea University) – *Generative Retrieval for Grounded Dialog Generation*
- 2021** Taehee Jung (University of Pittsburgh) – *Generative Extreme Multi-Label Classification*

## SKILLS

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### Programming Languages

- Python, Java, C/C++, Lua, Objective C, Delphi, PHP