Sana Kang

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Summary

Sana Kang is an M.S. candidate in Information Systems at KAIST, where she also earned her B.S. in Computer Science and Business Technology Management. Her research interests lie at the intersection of generative AI, NLP, and causal inference, focusing on causal world models in large language models and social science of AI. She has published at EMNLP and worked on causal inference, healthcare, and blockchain. Formerly a National Representative for Young Physicists, she remains driven by a deep curiosity about why and how phenomena occur.

Education

KAIST (Korea Advanced Institute of Science and Technology) — Seoul, South Korea
M.S. Candidate in Management Engineering — *Mar 2024–Feb 2026(expected)*
· **Advisor**: Prof. Sunghyuk Park

Carnegie Mellon University — Pittsburgh, PA, USA
Visiting Scholar, Software and Societal Systems, School of Computer Science — *Jan 2025–Jul 2025*
· **Advisor**: Prof. Rita Singh & Prof. Bhiksha Raj (Related Publication: EMNLP'25 Main)

KAIST (Korea Advanced Institute of Science and Technology) — Daejeon, South Korea
B.S. in Computer Science and Business Technology Management (Double Major) — *Mar 2019–Feb 2024*

Publications

[1] **Sana Kang***, Myeongseok Gwon*, Su Young Kwon*, Jaewook Lee, Andrew Lan, Bhiksha Raj, Rita Singh, "PhoniTale: Phonologically Grounded Mnemonic Generation for Typologically Distant Language Pairs," Proceedings of the Association for Computational Linguistics: EMNLP, Suzhou, China, 2025

[2] Prithwiraj Choudhury, Do Yoon Kim, **Sana Kang**, Beyond English-Centric AI: Strategic Frameworks for Developing Low-Resource Language Models, Forthcoming in The Handbook of AI and Strategy (Csaszar & Jia, eds.; Edward Elgar Publishing)

[3] Myeongseok Gwon, **Sana Kang**, Minhyeong Lee, Seonghyeok Park, LLMs Meet Match-Up Theory: A New Frontier in Influencer Recommendation, Under Revision

Research Experience

Natural Language Processing with Phonetic Awareness — Mar 2025–Jun 2025
Language Technology Institute, Carnegie Mellon University — *Pittsburgh, PA, USA*
· Independent Research (**Advisor**: Prof. Rita Singh and Prof. Bhiksha Raj)
· Formulated the research problem of cross-lingual phonological alignment and implemented LSTM-based phonological transformation and syllable modeling framework. (EMNLP'25)
· Initiated collaboration with Ph.D. Candidate Lee (UMass Amherst) by extending his baseline framework.

Causal Inference in Real Estate Markets — May 2025–Oct 2025
Tepper School of Business, Carnegie Mellon University — *Pittsburgh, PA, USA*
· Research Assistant (**Advisor**: Prof. Minkyung Kim; with Prof. Meng Liu, WashU Olin)
· Investigated the causal impact of compensation transparency policies using multi-million data housing transactions, developing vectorized and memory-efficient preprocessing pipelines with `polars`.
· Resolved incomplete data issues for 400K+ listings by developing an efficient data acquisition pipeline, reducing reacquisition costs from $300–$400 to under $3.
· Conducted state-level DiD estimation after policy-informed selection of key variables from 100+ raw features.

Healthcare AI Survey in Cardiovascular Prediction — Dec 2024–May 2025
Firenze Holdings, Inc. — *Tokyo, Japan*
· Research Lead (**Advisor**: Dr. Eugene Hwang, Samsung Digital Health Team)
· Surveyed 70+ studies on cardiovascular prediction using EHR, ECG, imaging, and wearable data to benchmark ML approaches and propose multimodal and LLM-based strategies suited to the firm's constraints.

Blockchain-based Fractional NFT System — Dec 2021–May 2022
MIKES Lab, KAIST — *Daejeon, South Korea*
· Research Intern (**Advisor**: Dr. Hayder Albayati)
· Designed and implemented an ERC-1155 smart contract enabling algorithmic NFT fractionalization

and verifiable ownership division, and developed an end-to-end DApp integrated with Ethereum.
· Co-authored a national engineering paper under the KAIST G-CORE program.

Work Experience

Full stack Developer, Kyobo Life Insurance Co., Ltd., South Korea *Aug–Oct 2025*
· *Implemented a personalized insurance recommendation service by integrating an AI model into production.*

AI Engineer, Impact AI (Series Pre–A startup), South Korea *Apr–Sep 2025*
· *Developed an LLM-based marketing strategy recommendation model and full-stack MVP.*

AI Engineer, HdMedi, South Korea *Jul–Sep 2024*
· *Led AI team developing a Korean-specific prescription image parser and released the open-source library.*

Machine Learning Team, SweetSpot (Series B Startup), South Korea *Jun 2023–Feb 2024*
· *Developed location-based sales prediction model using GraphSAGE.*

Research&Development Team, UWS Blockchain Center, South Korea *Jun–Dec 2022*
· *Designed blockchain P2P trading Multi-Issuer system MVP, later patented by the company.*
· *Selected for Korea's Financial Regulatory Sandbox (Patent Nos. 10-1204317, 10-2611819).*

Data&Machine Learning Team, LG Household & Healthcare, Ltd., South Korea *Jul–Aug 2021*
· *Participated in the coca-cola price prediction model and automated inventory management tool.*

Honors, Awards, and Scholarships

Excellence Award, LLM Clinical Note Challenge, Seoul National University Bundang Hospital 2025.10
· *1st place in preliminaries (Among 100 teams), 2nd place in finals (Among Top 10).*
· *Awarded by Hospital President; Offered co-publication and internship at SNUBH's AI Center in Healthcare.*
Conference Scholarship (EMNLP'25), KAIST & IITP 2025.09
Sponsored AI Intensive Program at CMU (USD 41K), KAIST & IITP 2025.01–2025.07
Merit-based Full Tuition Scholarship (Graduate), KAIST College of Business 2024.03–2025.07
Academic Excellence Award, KAIST College of Business 2025.01
Selected Team Lead, AI Education Innovation Project (KRW 9.6M), KAIST 2024.09
Merit-based KAIST Alumni Academic Scholarship (KRW 11.5M), KAIST 2022.04–2024.02
Sponsor Prize (Polygon), Ethcon Korea, Ethereum Foundation 2023.09
Grand Prize, Startup Pitch Competition, Korea International Trade Association 2022.11
Merit Award, Best Leadership Presentation, KAIST Global Leadership Center 2022.05
Outstanding Graduate Award (Physics), Pusan National University Gifted Education Center 2021.06
Best Freshman Award, KAIST 2019.05
Merit-based Full Tuition Scholarship (Undergraduate), Korean government 2019.03–2024.02
Silver Medal, Korean Young Physicists' Tournament, Korean Physical Society 2018.01
· *Selected as a National Representative for the International Young Physicists' Tournament (IYPT).*

Services and Leadership

External Reviewer, ICIS'25 (1 Full, 1 Short Paper), WITS'25 (2 Full papers) 2025
Student Vice President, Department of Management Engineering 2024
Organizer, KAIST Alumni Academic Scholarship Forum "Changing the World" @ InBody HQ 2023
Lead, Machine Learning Team, Google Developer Student Club (GDSC) @ KAIST 2023–2024
· *Led a year-long collaboration with a Series B startup on a location-based brand recommendation MVP.*
Selected Contributor, National White Paper on University-Affiliated Science Gifted Education Centers 2021

Teaching and Mentoring

Teaching Assistant, BIZ591 IT Strategy and Management 2025.09–2025.12
· *Designed lecture materials (Colab Notebook and Slides) and delivered the lab session, "An end-to-end lightweight RAG Chatbot Lab built with Google Agent Development Kit."*
Teaching Assistant, BAF504 Investment Analysis 2024.09–2024.12
Mentor, AFE (All for Edu) Mentoring Program 2021–2022
·*Supervised high school teams (Hampyeong Hakdari, Buyeo, Seocheon Girls') on research projects in social sciences.*
Teaching Assistant, Physics Advanced Class, Pusan National University Gifted Education Center 2018.07
·*Assisted in lab experiments, supporting students' research and presentations during the final symposium.*