Sana Kang

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Summary

Sana Kang is an M.S. candidate in Information Systems at KAIST, where she earned a B.S. in Computer Science and Business Technology Management. Her research interests lie at the intersection of large language models and causal inference, focusing on causal world models and their applications in healthcare and behavioral modeling. She has published at EMNLP and worked on causal inference, healthcare, and blockchain. A former National Representative for Young Physicists, she remains driven by 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 — *Feb 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) — *Feb 2019–Feb 2024*

Publications & Patents

[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," To be submitted to ICWSM 2026.

[4] Jaejung Roh, Hayder Albeit, Alistar Badinurmiyafar Abdulhusein, **Sana Kang**, Chanyoung Kim, "Method and System for Processing the Division of Blockchain-based Non-Fungible Token," Korean Patent Application No. 10-2023-0161352 (filed Nov 20, 2023); Publication No. KR 10-2025-0074380 (published May 27, 2025).

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; patent filed (Publication No. 10-2025-0074380).
- Co-authored an engineering paper under the KAIST G-CORE industry collaboration program.

Work Experience

AI Engineer, Impact AI (Series Pre–A startup), South Korea Jun 2025–Oct 2025
- Hankook Tire: Designed production-scale RAG chatbot architecture; selected for development (Jan 2026).
- Kyobo Life Insurance: Led development and deployment of AI-based insurance recommendation service.
- AdOasis: Developed an LLM-based marketing strategy recommendation model and full-stack MVP.

AI Engineer Intern, HdMedi, South Korea Jul 2024–Sep 2024
- Led a small AI team to develop a Korean-specific prescription image parser and release an open-source library.

Machine Learning Intern, SweetSpot (Series B Startup), South Korea Jun 2023–Feb 2024
- Built GraphSAGE-based model to predict sales and match franchise brands to specific commercial locations.

Research&Development Intern, UWS Blockchain Center, South Korea Jun 2022–Dec 2022
- Developed hybrid wallet-based blockchain P2P trading system; contributed to patent (No. 10-2611819).
- Selected for Korea's Financial Regulatory Sandbox.

Data&Machine Learning Intern, LG Household & Healthcare, South Korea Jul 2021–Aug 2021
- Developed price prediction model for Coca-Cola products and automated inventory management system.

Honors & Awards

1st Prize, Global Data Convergence Talent Program Showcase, Ministry of Science and ICT Nov 2025
Excellence Award, LLM Clinical Note Challenge, Seoul National University Bundang Hospital Oct 2025
- Offered co-publication and internship at SNUBH Center for AI in Healthcare (Expected: Feb–Jul 2026)

Academic Excellence Award, KAIST College of Business Jan 2025
Selected Team Lead, AI Education Innovation Project (KRW 9.6M), KAIST Sep 2024
Sponsor Prize (Polygon), Ethcon Korea, Ethereum Foundation Sep 2023
Grand Prize, Startup Pitch Competition, Korea International Trade Association Nov 2022
Merit Award, Best Leadership Presentation, KAIST Global Leadership Center May 2022
Outstanding Graduate Award (Physics), Pusan National University Gifted Education Center Jun 2021
Best Freshman Award, KAIST May 2019
Silver Medal, Korean Young Physicists' Tournament, Korean Physical Society Jan 2018
- Selected as a National Representative for the International Young Physicists' Tournament (IYPT).

Scholarships & Grants

Conference Scholarship (EMNLP'25), KAIST & IITP Sep 2025
Sponsored AI Intensive Program at CMU (USD 41K), KAIST & IITP Jan 2025–Jul 2025
Merit-based Full Tuition Scholarship (Graduate), KAIST College of Business Feb 2024–Jul 2025
Merit-based KAIST Alumni Academic Scholarship (KRW 11.5M), KAIST Apr 2022–Feb 2024
Merit-based Full Tuition Scholarship (Undergraduate), Korean government Feb 2019–Feb 2024

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
- 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 Sep 2025–Dec 2025
- Developed and taught an end-to-end lightweight RAG Chatbot lab with a Colab Notebook and slides.

Teaching Assistant, BAF504 Investment Analysis Sep 2024–Dec 2024
Mentor, AFE (All for Edu) Mentoring Program 2021–2022
- Supervised high school teams (Hampyeong Hakdari, Buyeo, Seocheon Girls') on research projects.

Teaching Assistant, Physics Advanced Class, Pusan National University Gifted Education Center Jul 2018
- Assisted in lab experiments, supporting students' research and presentations during the final symposium.