Jinho Kang

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Research Interests: Robustness LLM/VLM Generative Causality

EDUCATION

The University of Texas at Dallas, Richardson, TX *Jan. 2026 – Dec. 2030 (Expected)*
Ph.D. in Computer Science Advisor: Yunhui Guo

University of Seoul, Seoul, South Korea *Mar. 2023 – Aug. 2025*
M.S. in Artificial Intelligence Advisor: Jiyoung Jung; Co-advisor: Kyungwoo Song (Yonsei Univ.)

University of Seoul, Seoul, South Korea *Mar. 2016 – Feb. 2023*
B.S. in Computer Science

EXPERIENCE

Yonsei University, Seoul, South Korea *Aug. 2025 – Dec. 2025*
Associate Researcher at Machine Learning and Artificial Intelligence Lab

Carnegie Mellon University, Pittsburgh, PA, USA *Aug. 2024 – Feb. 2025*
Visiting Scholar at School of Computer Science

ONGOING PROJECTS

1. Robustness VLM Open-Set Test-Time Adaptation of Vision–Language Models for Object Detection *Sep. 2026 –*
   Source-free adaptation for reliable detection under distribution shift, preserving known-class recognition while localizing unfamiliar objects and explicitly distinguishing them from known categories and background.
2. Robustness VLM Continual Learning for Long-Sequence Video QA with Hybrid Mamba *Oct. 2026 –*
   Robust continual learning for long-sequence video QA, using the context-retention capabilities of hybrid Mamba architectures to preserve long-range temporal dependencies and mitigate forgetting across tasks.
3. LLM Psychological Memory for Long-Term Conversational Agents *Aug. 2026 –*
   Agentic construction of human-grounded datasets and benchmarks to evaluate how long-term conversational agents integrate individual traits and evolving psychological states into personalized, supportive responses.

PUBLICATIONS

Preprints

* denotes equal contribution

1. Robustness Jinho Kang and Yunhui Guo, "CAMA: Calibrated Anti-Collapse Marginal Alignment for Test-Time Adaptation of Vision–Language Models", *Submitted to AI Top Conference 2027*.

Journal Papers

4. Generative Dagyeong Na, Jinho Kang, Byoungwoo Kang, and Junseok Kwon, "Enhancing Global and Local Context Modeling in Time Series Through Multi-Step Transformer-Diffusion Interaction", ***IEEE Access***, *2025.* (SCIE, JCR 2024 IF=3.9)
3. Robustness Jinho Kang*, Hoyoon Byun*, Taero Kim, Yewon Kim, Jiyoung Jung, and Kyungwoo Song, "Multi-Query Frequency Prompting for Biosignal Domain Adaptation", ***Knowledge-Based Systems***, *2025.* (SCIE, JCR 2024 IF=7.6)
2. Robustness Generative Jinho Kang, Yongtaek Lim, KyuHyung Kim, Hyeonjeong Lee, KwangYong Kim, Minseong Kim, Jiyoung Jung, and Kyungwoo Song, "Few-Shot PPG Signal Generation via Guided Diffusion Models", ***IEEE Sensors Journal***, *2024.* (SCIE, JCR 2022 IF=4.3)
1. Robustness Jinho Kang, Taero Kim, Yewon Kim, Changdae Oh, Jiyoung Jung, Rakwoo Chang, and Kyungwoo Song, "Bibimbap: Ensembling Diverse Pretrained Models for Domain Generalization in Domain Shifted Task", ***Pattern Recognition***, *2024.* (SCIE, JCR 2022 IF=8.0)

Conference Papers

5. Causality Hoyoon Byun, Sumin Park, Jinho Kang, Hyeonjeong Lee, Minseong Kim, Doosik Kim, Kwangyong Kim, and Kyungwoo Song, "CBPE: Causal relation-aware Blood Pressure Estimation with Multimodal Data", *ACM Symposium on Applied Computing (**SAC**), 2026.*
4. Robustness Generative Dagyeong Na, Jinho Kang, and Junseok Kwon, "Towards Generalizable Time Series Forecasting via IB-Regularized Transformer-Diffusion", *IEEE International Conference on Data Mining (**ICDM**), 2025. Short paper.*
3. Causality Jinho Kang, Sungjun Lim, Hojun Park, Jaehun Jung, Jiyoung Jung, and Kyungwoo Song, "Causal Effect Variational Transformer for Public Health Measures and COVID-19 Infection Cluster Analysis", *ACM International Conference on Information and Knowledge Management (**CIKM**), 2025.*
2. Robustness Sungjun Lim, Sooyon Kim, Jeyoon Yeom, Hoyoon Byun, Jinho Kang, and Kyungwoo Song, "Flat Posterior Does Matter For Bayesian Model Averaging", *Conference on Uncertainty in Artificial Intelligence (**UAI**), 2025.*
1. Causality Jinho Kang, Sungjun Lim, Hojun Park, Jaehun Jung, Jiyoung Jung, and Kyungwoo Song, "Sequential Treatment Effect Estimation with Variational Transformers: Application to COVID-19 Infection Clusters", ***IJCAI** Workshop on AI for Time Series Analysis (AI4TS), 2024.* (*Best Paper Honorable Mention*)

PROJECT

LLM Failure-Aware Causal Modeling through FMEA-Driven LLM Adaptation — *Feb. 2025 – Aug. 2025*

Causality Causal Discovery in Photoplethysmography Attributes — *May 2024 – Oct. 2024*

Generative Conditioned Generation for Aircraft Trajectory Data — *Feb. 2024 – May 2024*

Robustness Generative Domain Generalization via Synthetic Photoplethysmography Data Generation — *May 2023 – Feb. 2024*

Causality Causal Prediction of COVID-19 Infection Cluster Dynamics — *Mar. 2023 – Feb. 2024*

Robustness Robust Ensemble Learning for Chemical Graph Data — *Jul. 2022 – Feb. 2023*

AWARDS AND HONORS

Best Paper Honorable Mention IJCAI Workshop on AI for Time Series Analysis (AI4TS) — *Aug. 2024*

Summer Academic Paper Presentation Conference Korean Data Analysis Society (KDAS) — *Jul. 2023*