Youngwoo Shin

Ph.D. Candidate, KAIST

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Research Interests

Temporal Reasoning in VideoLLMs, Model Interpretability, Inference-Time Optimization, Multimodal Large Language Models (MLLMs), Generative Models, 4D Scene Understanding

Education

- **KAIST**, Ph.D. in Electrical Engineering — Mar. 2026 – Present
  Statistical Inference & Information Theory Laboratory (SIIT)
- **KAIST**, M.S. in Electrical Engineering — Mar. 2024 – Feb. 2026
  Statistical Inference & Information Theory Laboratory (SIIT)
- **KAIST**, B.S. in Electrical Engineering — Sep. 2016 – Aug. 2023

Publications

- **Before It Fades: Reinforcing Temporal Representations at Inference Time in VideoLLMs**
  Under Review at NeurIPS 2026 (1st Author)
  Identified peak-then-decay of temporal signals across VideoLLM layers and proposed Temporal Activation Injection (TAI), a training-free intervention with a single hyperparameter, validated across VideoLLMs with distinct backbones and diverse temporal benchmarks.
- **SSG: Scaled Spatial Guidance for Multi-Scale Visual Autoregressive Generation**
  Accepted to ICLR 2026 (1st Author)
  Training-free guidance for Visual Autoregressive (VAR) models grounded in Information Bottleneck theory; diagnosed train-inference discrepancy via spectral analysis and improved FID/IS across VAR-structured T2I models (HART, Infinity) with negligible overhead.
- **B4DL: A Benchmark for 4D LiDAR LLM in Spatio-Temporal Understanding**
  Accepted to ACM Multimedia 2025 (Co-1st Author)
  First-ever 4D LiDAR MLLM benchmark; designed metatoken formulation and a two-stage alignment architecture, released standard dataset and codebase.

Industry Experience

- **LG CNS**, Backend Engineer — Jul. 2023 – Feb. 2024
  Backend development for SINGLEX, an in-house platform; designed and maintained service APIs and server-side logic in a large-scale production environment.
- **Vitasoft**, Computer Vision Researcher — Jan. 2021 – Jan. 2023
  Person Re-ID based tracking and drivable-area segmentation for an autonomous following cart (Patrasche); de-identification pipeline for the KOBACO AiSAC storyboard generation service.

Skills & Languages

- **Languages:** Python, C, C++
- **Frameworks:** PyTorch, TensorFlow, ONNX, TensorRT
- **Spoken Languages:** Korean (Native), English (Fluent)