Dongseok Shim

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Research Interest

Physical AI, Multimodal Generative Models, Diffusion Models, 3D Vision

Education

Seoul National University Mar 2022 - Feb 2025

Ph.D. in Artificial Intelligence GPA: 3.80/4.3

- Advisor: H. Jin Kim
- Dissertation: Synthetic-to-Real Domain Adaptation for Depth Estimation via Deep Generative Models

Seoul National University Mar 2020 - Feb 2022

M.S. in Aerospace Engineering GPA: 3.85/4.3

- Advisor: H. Jin Kim
- Thesis:Unsupervised Depth Estimation using Monocular Sequences via Hierarchical Transformer and Densely Cascaded Network

Seoul National University Mar 2016 - Feb 2020

B.S. in Mechanical Engineering GPA: 3.56/4.3

- Advisor: Kyu-Jin Cho
- Thesis: Respiratory Pattern Estimation for Rehabilitation Robot via Transfer Learning

Experience

Sony Group Corporation Tokyo, Japan

Research Scientist Apr. 2025 - Present

- Develop multimodal audio generation models conditioned on visual cues such as semantic labels, depth, and text
- Develop multimodal human motion generation models that synthesize human motions from text, music, and video

TikTok (ByteDance Inc.) San Jose, California, United States

Ph.D. Research Intern Apr. 2024 - Sep. 2024

- Developed text-to-3D generative models within the AI-Generated Content (AIGC) team
- Integrated Stable Diffusion with Neural Radiance Fields (NeRF) and Gaussian Splatting for text-to-3D generation
- Fine-tuned diffusion models to generate diverse object viewpoints for relightable 3D reconstruction

Selected Publications

[1]Shared first authorship

[1] **Dongseok Shim**, Tanke Julian, Kengo Uchida, Christian Simon, Koichi Saito, Takashi Shibuya, Shusuke Takahashi, Yuki Mitsufuji, ”Odoriko: A Shape-Aware Multimodal Diffusion Framework for Human Motion”, ECCV 2026.

[2] **Dongseok Shim**, Yichun Shi, Kejie Li, H. Jin Kim, and Peng Wang, ”MVLight: Relightable text-to-3D Generation via Light-conditioned Multi-view Diffusion”, arXiv *preprint*.

[3] **Dongseok Shim** and H. Jin Kim, ”SEDiff: Structure Extraction for Domain Adaptive Depth Estimation via Denoising Diffusion Models”, in *ECCV 2024*.

[4] **Dongseok Shim** and H. Jin Kim, ”DIVIDE: Learning a Domain-Invariant Geometric Space for Depth Estimation”, in *2024 IEEE Robotics and Automation Letters (RA-L)*.

[5] Jeongjun Choi[1], **Dongseok Shim[1]**, and H. Jin Kim, ”DiffuPose: Monocular 3D Human Pose Estimation via Denoising Diffusion Probabilistic Model”, in *IROS 2023*.

[6] **Dongseok Shim[1]**, Seungjae Lee[1], and H. Jin Kim, ”SNeRL: Semantic-aware Neural Radiance Fields for Reinforcement Learning”, in *ICML 2023*.

[7] **Dongseok Shim** and H. Jin Kim, ”SwinDepth: Unsupervised Depth Estimation using Monocular Sequences via Swin Transformer and Densely Cascaded Network”, in *ICRA 2023*.

[8] Daesol Cho[1], **Dongseok Shim[1]**, and H. Jin Kim, ”S2P: State-conditioned Image Synthesis for Data Augmentation in Offline Reinforcement Learning”, in *NeurIPS 2022*.

[9] **Dongseok Shim** and H. Jin Kim, ”Learning a Geometric Representation for Data-Efficient Depth Estimation via Gradient Field and Contrastive Loss”, in *ICRA 2021*.

Awards

- Best Doctoral Dissertation Award Honorable Mention

Academic Services

- Reviewer: CVPR, ICCV, ECCV, NeurIPS, ICML, ICLR, ICRA, IROS