Jaehyeok Shim (심재혁)

Curriculum Vitae

- Email: jh.shim.gg@gmail.com
- Homepage: https://kitsunetic.github.io
- Github: https://github.com/kitsunetic

Education

Ph.D. Ulsan National Institute of Science & Technology (UNIST), Korea 2025/03 -
- Major: Artificial Intelligence
- Advisor: Prof. Kyungdon Joo

M.S. Ulsan National Institute of Science & Technology (UNIST), Korea 2021/09 - 2023/08
- Major: Artificial Intelligence
- Advisor: Prof. Kyungdon Joo
- Papers:
  - Diffusion-Based Signed-Distance-Fields for 3D Shape Generation (CVPR 2023)

B.S. Seoul National University of Science and Technology, Korea 2015/03 - 2021/08
- Major: Electrical and Information Engineering
- Double Major: Unmanned Vehicles Software Program
- Advisor: Prof. Yeejin Lee
- Military service 2016/08 - 2018/05

Work Experiences

Ulsan National Institute of Science & Technology (UNIST), Korea 2023/09 - 2025/02
- Title: Researcher
- Mentor: Prof. Kyungdon Joo
- Objective: Designing an effective latent model for 3D compression and generation.
- Papers:
  - DITTO: Dual and Integrated Latent Topologies for Implicit 3D Reconstruction (CVPR 2024)
  - ContactGen: Contact-Guided Interactive 3D Human Generation for Partners (AAAI 2024)

Publicactions

DITTO: Dual and Integrated Latent Topologies for Implicit 3D Reconstruction

Jaehyeok Shim, *Kyungdon Joo*

[Project Page] [Paper] [Code] **(CVPR 2024)**

`DITTO` addresses a crucial task in 3D computer vision: implicit 3D reconstruction from point clouds. `DITTO` has significantly enhanced 3D understanding ability by leveraging latent features in two modalities: grid and point latents. The core innovation lies in exploiting the complementary synergy between these two types of latents. Our contribution is effectively integration of these two latent types within a network architecture, improving 3D reconstruction performance. Our research holds significant potential for various applications involving implicit fields.

ContactGen: Contact-Guided Interactive 3D Human Generation for Partners

Dongjun Gu, ***Jaehyeok Shim****, Jaehoon Jang, Changwoo Kang, Kyungdon Joo*

[Project Page] [Paper] [Code] **(AAAI 2024)**

`Contactgen` introduces a novel approach for generating 3D human poses that interact realistically with a given another human. We utilize a guided diffusion framework, optimizing human poses to ensure physically plausible interactions. This optimization is based on the predicted contact area determined by the given type of interaction.

Diffusion-Based Signed-Distance-Fields for 3D Shape Generation

Jaehyeok Shim*, Changwoo Kang, Kyungdon Joo*

[Project Page] [Paper] [Code] **(CVPR 2023)**

`SDF-Diffusion` is a framework for generating 3D shapes by utilizing diffusion models with signed distance fields for continuous 3D representations, such as meshes. This framework generates high-fidelity shapes through a two-stage process involving generation and super-resolution, leading to competitive performance in both unconditional and conditional 3D shape generation tasks.

Academic Contributions

Reviewer Activity: ACM Transactions on Image Processing (TIP)	2024/03
Reviewer Activity: IEEE/CVF ICCV 2025	2025/04

Open Source Projects

kitsu [Github]

Code stack of Pytorch boilerplate codes including a DDP-based trainer similar to pytorch-lightning.

space-filling-pytorch [Github]

Library for Space Filling Curve (e.g., Hilbert-Curve, Z-Order) implementations based on Triton.

fast-GeM [Github]

Generalized Mean Pooling (GeM) implementation using Triton.

GEGLU-triton [Github]

Triton implementation of GEGLU.

AI Competitions

KYOWON Group OCR Challenge, DACON, Korea. (Rank 7/430; top 2%)	2022/12
Ego-Vision Hand Gesture Recognition AI Contest, DACON, Korea. (Rank 3/290; top 1%)	2021/06
News Topic Classification AI Contest, DACON, Korea. (Rank 3/256; top 1%)	2021/05
Predicting Danger of System Log Messages, DACON, Korea. (Rank 2/152; top 1%)	2021/04
Finding Human Key-Points from Motion Images, DACON, Korea. (Rank 1/156; top 1%)	2021/02