

CURRICULUM VITAE

Jaehyeok Shim

[Homepage] | [GitHub] | [Email] | [LinkedIn]

(last update: April 4, 2024)

EDUCATION

Ulsan National Institute for Science and Technology (UNIST)

Ulsan, Republic of Korea

Master's degree

Sep. 2021 – Aug. 2023

Artificial Intelligence Graduate School

Advisor: Prof. Kyungdon Joo

Seoul National University for Science and Technology (SNUT)

Seoul, Republic of Korea

Bachelor's degree

Mar. 2015 – Aug. 2021

Department of Information and Electricity

Unmanned Software Engineering Program Track (Double Major)

Advisor: Prof. Yeejin Lee

RESEARCH EXPERIENCES

3D Vision & Robotics Lab, UNIST

Ulsan, Republic of Korea

Researcher, [link]

Sep. 2023 – Present

3D Vision & Robotics Lab, UNIST

Ulsan, Republic of Korea

Master's Degree, [link]

Sep. 2021 – Aug. 2023

Visual Computing Lab, SNUT

Seoul, Republic of Korea

Undergraduate Researcher, [link]

Jun. 2020 – Aug. 2021

INTERNATIONAL CONFERENCES

[IC.3] **DITTO: Dual and Integrated Latent Topologies for Implicit 3D Reconstruction** (CVPR 2024).

Jaehyeok Shim, Kyungdon Joo.

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.

[IC.2] **ContactGen: Contact-Guided Interactive 3D Human Generation for Partners** (AAAI 2024).

Dongjun Gu, Jaehyeok Shim, Jaehoon Jang, Changwoo Kang, and Kyungdon Joo.

[Project Page] [Paper]

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.

[IC.1] **Diffusion-Based Signed-Distance-Fields for 3D Shape Generation** (CVPR 2023).

Jaehyeok Shim, Changwoo Kang, Kyungdon Joo.

[Project Page] [Paper] [Code]

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.

DOMESTIC JOURNALS

[DJ.1] Yeejin Lee, Jaehyeok Shim, Eunhee kim. **Analysis of Radar Signal Detection Performance Using Deep Convolutional Neural Network** (방송공학회논문지, 28(4), 439-447, 10.5909/JBE.2023.28.4.439).

AI COMPETITIONS

[C.9] **KYOWON Group OCR Challenge, DAICON.**

(Dec. 2022) Rank 7/430 (2% win)

[Site]

OCR task of the Korean language. Improved accuracy with transfer learning of ConvNeXT by proposing language-specific loss.

[C.8] **NAVER CLOVA AI-RUSH 2022 Round 2, NAVER CLOVA.**

(Aug. 2022) Rank 7/15 (46%)

[Site]

A task that regresses a specific score of a given image. Improved accuracy with transfer learning of CoaT with various augmentation.

[C.7] **NAVER CLOVA AI-RUSH 2022 Round 1, NAVER CLOVA.**

(Aug. 2022) Rank 15/27 (56%)

[Site]

A task that classifies given images. Improved accuracy through transfer learning of EfficientNetV2 with various augmentations.

[C.6] **Ego-Vision Hand Gesture Recognition AI Contest, NIA; DAICON.**

(Jun. 2021) Rank 3/290 (1%, win)

[Code] [Site]

Classifies hand gestures from given images. Achieved high accuracy with transfer learning of EfficientNetV2 with cross-validation.

[C.5] **News Topic Classification AI Contest, DAICON.**

(May. 2021) Rank 3/256 (1%, win)

[Code] [Site]

Classifies topics of given text articles. Improved accuracy with Noisy Student training strategy about the BeRT-based model.

[C.4] **NAVER CLOVA AI-RUSH 2021 Round2, NAVER CLOVA**

(May. 2021) Rank 6/13 (46%)

[Site]

Clustering of given text dataset. Improved model performance with self-supervised learning.

[C.3] **NAVER CLOVA AI-RUSH 2021 Round1, NAVER CLOVA**

(Apr. 2021) Rank 4/35 (11%)

[Site]

Classification of given image dataset with limited model capacity. Achieved high accuracy with transfer learning of EfficientNetV2 with careful hyperparameter tuning.

[C.2] **Predicting Danger of System Log Messages, KAERI; DAICON**

(Apr. 2021) Rank 2/152 (1%, win)

[Site] [Description] [Code]

Finding out-of-distribution data that does not appear in the training dataset. I achieved high accuracy with DistilBeRT-based anomaly detection.

[C.1] **Finding Human Key-Points from Motion Images, DACON**

(Feb. 2021) Rank 1/156 (1%, win)

[\[Site\]](#) [\[Description\]](#) [\[Code\]](#)

Estimating human key points from a given image dataset. I fine-tuned HRNet and EfficientDet and achieved high accuracy by proposing novel data-driven augmentations.

MILITARY SERVICE

Completing Military Service as a Sergeant

The 1st Division, Computer Technician

Paju, Republic of Korea

Aug. 2016 – May. 2018