Curriculum Vitae

Jaehyeok Shim

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Education

Ulsan National Institute for Science and Technology (UNIST) Ulsan, Republic of Korea
The Master Course, Artificial Intelligence Graduate School *Sep. 2021 – Present*
Advisor: Prof. Kyungdon Joo

Seoul National University for Science and Technology (SNUT) Seoul, Republic of Korea
Department of Information and Electricity *Mar. 2015 – Aug. 2021*
Unmanned Software Engineering Program Track (Double Major)
Advisor: Prof. Yeejin Lee

Research Experiences

3D Vision & Robotics Lab, UNIST Ulsan, Republic of Korea
The Master Course, [link] *Sep. 2021 – Present*

Visual Computing Lab, SNUT Seoul, Republic of Korea
Undergraduate Researcher, [link] *Jun. 2020 – Aug. 2021*

International Conferences

[IC.1] **Jaehyeok Shim**, Changwoo Kang, Kyungdon Joo. **Diffusion-Based Signed-Distance-Fields for 3D Shape Generation.** CVPR 2023. [Project Page] Paper
`"Diffusion-Based Signed Distance Fields for 3D Shape Generation"` is a research study that delves into a diffusion-based generative method for creating 3D shapes in the form of meshes. We've introduced a novel approach that effectively manages Signed Distance Fields (SDFs) in the form of voxels to construct 3D shapes, which can be directly converted into meshes. To handle high-resolution voxel data, we propose a two-stage method inspired by the recent developments in Stable Diffusion and Cascade Diffusion within the image generation domain. Our technique is capable of generating high-quality 3D shapes as meshes and has proven to perform better than previous state-of-the-art methods that relied on point cloud-based approaches.

Domestic AI Competitions

[C.9] **KYOWON Group OCR Challenge, DACON.**
(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; DACON.**
(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, DACON.**
(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; DACON**
(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 Paju, Republic of Korea
The 1st Division, Computer Technician *Aug. 2016 – May. 2018*