

Do Gyoon Lee

Machine Learning Engineer, Computer Vision Expert

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RESEARCH INTERESTS

Computer Vision & Graphics

Neural Rendering and its Applications in Real-world Scenarios, 3D from Images
3D Generative Model using Neural Rendering, 3D Reconstruction
Visual Scene Understanding on Image/Video/3D (Point Cloud, Mesh) data

Machine Learning & Deep Learning

Data Augmentation & Regularization
Self-supervised Learning, Unsupervised Learning

EDUCATION

Yonsei University | College of Engineering

Ph.D Candidate in Electrical Electronics Engineering

Advisor: Prof. Sangyoun Lee

Anticipated Graduation Date: 02/25 (Aug.2024)

Seoul, Korea

Mar. 2019-Present

Yonsei University | College of Engineering

BE in Electrical Electronics Engineering

Seoul, Korea
Mar.2012-Feb.2019 (Including military service: May.2014 – Feb.2016)

RESEARCH EXPERIENCE

Yonsei University

Image and Video Pattern Recognition Lab

Graduate Student Research Assistance

Mar.2019 – Present

PUBLICATIONS

2024

Dual Prototype Attention for Unsupervised Video Object Segmentation

Suwhan Cho, Minhyeok Lee, Seunghoon Lee, **Do Gyoon Lee**, Sangyoun Lee

IEEE/CVF Computer Vision and Pattern Recognition (CVPR), 2024

Guided Slot Attention for Unsupervised Video Object Segmentation

Minhyeok Lee, Suwhan Cho, **Do Gyoon Lee**, Chaewon Park, Jungho Lee, Sangyoun Lee

IEEE/CVF Computer Vision and Pattern Recognition (CVPR), 2024

2023

DP-NeRF: Deblurred Neural Radiance Field with Physical Scene Priors

Do Gyoon Lee, Minhyeok Lee, Chajin Shin, Sangyoun Lee

IEEE/CVF Computer Vision and Pattern Recognition (CVPR), 2023

Hierarchically Decomposed Graph Convolutional Networks for Skeleton-Based Action Recognition

Jungho Lee, Minhyeok Lee, **Do Gyoon Lee**, Sangyoun Lee

IEEE/CVF International Conference on Computer Vision (ICCV), 2023

TSANet: Temporal and Scale Alignment for Unsupervised Video Object Segmentation

Seunghoon Lee, Suwhan Cho, **Do Gyoon Lee**, Minhyeok Lee, Sangyoun Lee

IEEE International Conference on Image Processing (ICIP), 2023

Multidimensional Feature Representation for Point Cloud Analysis

Sungmin Woo, **Do Gyoon Lee**, Sangwon Hwang, Sangyoun Lee

Pattern Recognition, 2023

2022

Expanded Adaptive Scaling Normalization for End-to-End Image Compression

Chajin Shin, Hyeongmin Lee, Hanbin Son, Sangjin Lee, **Do Gyoon Lee**, Sangyoun Lee

European Conference on Computer Vision (ECCV), 2022

Robust Lane Detection via Expanded Self attention

Minhyeok Lee, Junhyeop Lee, **Do Gyoon Lee**, Woojin Kim, Sangwon Hwang, Sangyoun Lee

IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2022

2021

Regularization Strategy for Point Cloud via Rigidly Mixed Sample

Dogyoon Lee, Jaeha Lee, Junhyeop Lee, Hyeongmin Lee, Minhyeok Lee, Sungmin Woo, Sangyoun Lee
IEEE/CVF Computer Vision and Pattern Recognition (CVPR), 2021

3D Mesh Transformation Preprocessing System in the Real Space for Augmented Reality Services

Young-Suk Yoon, Sangwon Hwang, **Dogyoon Lee**, Sangyoun Lee, Jae-Won Suh, Sung-Uk Jung
ICT Express, 2021

2020

False Positive Removal For 3D Vehicle Detection with Penetrated Point Classifier

Sungmin Woo, Sangwon Hwang, Woojin Kim, Junhyeop Lee, **Dogyoon Lee**, Sangyoun Lee
IEEE International Conference on Image Processing (ICIP), 2020

PENDING

Synchronizing Vision and Language: Bidirectional Token-Masking AutoEncoder for Referring Image Segmentation

Minhyeok Lee, **Dogyoon Lee**, Jungho Lee, Suhwan Cho, Heeseung Choi, Ig-jae Kim, Sangyoun Lee
Arxiv Preprint, Under Review 2024

Probabilistic Cost Volume Refinement for Self-supervised Multi-Frame Monocular Depth

Sungmin Woo*, Wonjoon Lee*, WooJin Kim, **Dogyoon Lee**, Sangyoun Lee
Arxiv Preprint, Under Review, 2024

SMURF: Continuous Dynamics for Motion-Deblurring Radiance Fields

Jungho Lee, **Dogyoon Lee**, Minhyeok Lee, Donghyeong Kim, Sangyoun Lee
Arxiv Preprint, Under Review 2024

Sparse-DeRF: Deblurred Neural Radiance Fields from Sparse View

Dogyoon Lee, Donghyeong Kim, Jungho Lee, Minhyeok Lee, Seunghoon Lee, Sangyoun Lee
Under Review, 2024

PROJECT EXPERIENCE

Auto Labeling Unlabeled Real Point Cloud Data via Semi-supervised Point Cloud Classification Apr.2021-Apr.2022
Yonsei University | Hyundai Motors Korea
Project Manager / Researcher

3D Recognition System for Autonomous Driving with Single- and Sparse Multi-LiDAR. Mar.2020-Dec.2021
Yonsei University | Mando Halla Company Korea
Project Manager / Researcher

Surface Reconstruction of Actual 3D Space from RGB Images for Augmented Reality July.2019-Nov.2020
Yonsei University | Electronics and Telecommunications Research Institute (ETRI) Korea
Researcher

Natural Dense 3D Map Generation from Multi Sensors for Smart Vehicle System. July.2019-Dec.2021
Yonsei University | Institute of Information & Communications Technology Planning & Evaluation (IITP) Korea
Research Assistant

PROFESSIONAL SERVICES

Journal / Conference Reviewer

IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2022, 2023, 2024
IEEE/CVF International Conference on Computer Vision (ICCV) 2023
European Conference on Computer Vision (ECCV) 2022, 2024
IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2023, 2024
International Conference on 3D Vision (3DV) 2022
IEEE Transactions on Circuits and Systems for Video Technology (TCSVT) 2023

PATENTS

Apparatus for Data Augmentation and Training Strategy on Point Cloud Feb, 2024
10-2637318 Patent Registration, Korea

Apparatus and Method for Depth Inpainting method on LiDAR Point Cloud Aug, 2022
10-2433632. Patent Registration, Korea

Apparatus and Method for Moving Object Detection using Background Modeling based on Inpainting
10-2021-0165052

Nov, 2021
Patent Application, Korea

Apparatus and Method for Correcting Errors of Detected Objects based on Point Cloud.
10-2310790.

Oct, 2021
Patent Registration, Korea

LANGUAGE

Korean(Native), English(Proficient)

SKILLS

Programming Language / Deep Learning Framework

Python, C, C++, MATLAB / PyTorch, TensorFlow, Jax