

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: 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

ProDepth: Boosting Self-Supervised Multi-Frame Monocular Depth with Probabilistic Fusion

Sungmin Woo*, Wonjoon Lee*, WooJin Kim, **Dogyoon Lee**, Sangyoun Lee

European Conference on Computer Vision (ECCV), 2024

Dual Prototype Attention for Unsupervised Video Object Segmentation

Suwhan Cho, Minhyeok Lee, Seunghoon Lee, **Dogyoon Lee**, Sangyoun Lee

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

Guided Slot Attention for Unsupervised Video Object Segmentation

Minhyeok Lee, Suwhan Cho, **Dogyoon 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

Dogyoon 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, **Dogyoon 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, **Dogyoon Lee**, Minhyeok Lee, Sangyoun Lee

IEEE International Conference on Image Processing (ICIP), 2023

Multidimensional Feature Representation for Point Cloud Analysis

Sungmin Woo, **Dogyoon Lee**, Sangwon Hwang, Sangyoun Lee

Pattern Recognition, 2023

2022

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

Chajin Shin, Hyeonmin Lee, Hanbin Son, Sangjin Lee, **Dogyoon Lee**, Sangyoun Lee

European Conference on Computer Vision (ECCV), 2022

Robust Lane Detection via Expanded Self attention

Minhyeok Lee, Junhyeop Lee, **Dogyoon 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

SMURF: Continuous Dynamics for Motion-Deblurring Radiance Fields

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

CRiM-GS: Continuous Rigid Motion-Aware Gaussian Splatting from Motion Blur Images

Jungho Lee, Donghyeong Kim, **Dogyoon Lee**, Suhwan Cho, Sangyoun Lee
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

Robust Large-Scale 3D Scene Reconstruction based on Neural Rendering with Noisy Data Yonsei University National Research Foundation of Korea (NRF) <i>Project Manager / Researcher</i>	May.2024-Present Korea
Real-Time Novel View Synthesis for Dynamic Scene from Sparse View via Active Learning Yonsei University Electronics and Telecommunications Research Institute (ETRI) <i>Project Manager / Researcher</i>	Apr.2024-Present Korea
Auto Labeling Unlabeled Real Point Cloud Data via Semi-supervised Point Cloud Classification Yonsei University Hyundai Motors <i>Project Manager / Researcher</i>	Apr.2021-Apr.2022 Korea
3D Recognition System for Autonomous Driving with Single- and Sparse Multi-LiDAR Yonsei University Mando Halla Company <i>Project Manager / Researcher</i>	Mar.2020-Dec.2021 Korea
Surface Reconstruction of Actual 3D Space from RGB Images for Augmented Reality Yonsei University Electronics and Telecommunications Research Institute (ETRI) <i>Researcher</i>	July.2019-Nov.2020 Korea
Natural Dense 3D Map Generation from Multi Sensors for Smart Vehicle System. Yonsei University Institute of Information & Communications Technology Planning & Evaluation (IITP) <i>Research Assistant</i>	July.2019-Dec.2021 Korea

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 10-2637318	Feb, 2024 Patent Registration, Korea
Apparatus and Method for Depth Inpainting method on LiDAR Point Cloud 10-2433632.	Aug, 2022 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