Do Gyoon Lee

Machine Learning Engineer, Computer Vision Expert
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RESEARCH INTERESTS

Computer Vision & Graphics ** indicate currently major research interest*

* Neural Rendering on Static/Dynamic/Noisy Scene
3D from Images, Visual Recognition on Image/3D (Point Cloud, Mesh) data

Machine Learning & Deep Learning

Data Augmentation & Regularization
Self-supervised Learning, Unsupervised Learning

EDUCATION

Yonsei University | College of Engineering — ***Seoul, Korea***
Ph.D Candidate in Electrical Electronics Engineering — **Mar. 2019-Present**
Advisor: Prof. *Sangyoun Lee*
Anticipated Graduation Date: 02/25 (Aug.2024)

Yonsei University | College of Engineering — **Seoul, Korea**
BE in Electrical Electronics Engineering — **Mar.2012-Feb.2019(Including military service)**

RESEARCH EXPERIENCE

Yonsei University — **Mar.*2019 – Present***
Image and Video Pattern Recognition Lab
Graduate Student Research Assistance

CONFERENCE PUBLICATION

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*** **– Accepted [Acceptance rate 25.8%]**

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***

Expanded Adaptive Scaling Normalization for End-to-End Image Compression
Chajin Shin, Hyeongmin Lee, Hanbin Son, Sangjin Lee, **Dogyoon Lee**, Sangyoun Lee
European Conference on Computer Vision ***(ECCV), 2022*** **[Acceptance rate 28%]**

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*** **[Acceptance rate 35%]**

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*** **[Acceptance rate 23.7%]**

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***

JOURNAL PUBLICATION

Multidimensional Feature Representation for Point Cloud Analysis
Sungmin Woo, **Dogyoon Lee**, Sangwon Hwang, Sangyoun Lee
Pattern Recognition, *2023*

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*

PENDING

Dual Prototype Attention for Unsupervised Video Object Segmentation
Suwhan Cho, Minhyeok Lee, Seunghoon Lee, **Dogyoon Lee**, Sangyoun Lee
Arxiv, *Preprint, 2023*

Guided Slot Attention for Unsupervised Video Object Segmentation
Minhyeok Lee, Suwhan Cho, **Dogyoon Lee**, Chaewon Park, Jungho Lee, Sangyoun Lee
Arxiv, *Preprint, 2023*

Hierarchically Decomposed Graph Convolutional Networks for Skeleton-Based Action Recognition
Jungho Lee, Minhyeok Lee, **Dogyoon Lee**, Sangyoun Lee
Arxiv *Preprint****, 2022***

Boundary-aware Camouflaged Object Detection via Deformable Point Sampling
Minhyeok Lee, Suhwan Cho, Chaewon Park, **Dogyoon Lee**, Jungho Lee, Sangyoun Lee
Arxiv *Preprint****, 2022***

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
Point Cloud Classification, Feature Clustering, Semi-supervised Learning, Active Learning

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
3D Object Detection, 3D multi object Tracking, Motion State Decision, Depth Completion, Channel Attention

Surface Reconstruction of actual 3D space from RGB images for augmented reality **July.2019-Nov.2020**
Yonsei University | Mando Halla Company Korea
Researcher
Instance Segmentation, Video Object Segmentation, Mesh Reconstruction

PROFESSIONAL SERVICES

Journal / Conference Reviewer

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

PATENTS

Apparatus for Data Augmentation and Training Strategy on Point Cloud Nov, 2021
10-2021-0150996 Patent Application, Korea

Apparatus and Method for Moving Object Detection using Background Modeling based on Inpainting Nov, 2021
10-2021-0165052 Patent Application, Korea

Apparatus and Method for Correcting Errors of Detected Objects based on Point Cloud. Oct, 2020
10-2310790. Patent Registration, Korea

Apparatus and Method for Depth Inpainting method on LiDAR Point Cloud Oct, 2020
10-2020-0141887 Patent Application, Korea

LANGUAGE

Korean(Native), English(Intermediate)

SKILLS

Programming Language
Python, C, C++, MATLAB

Deep Learning Framework

Pytorch, TensorFlow