Do Gyoon Lee

Machine Learning Engineer, Computer Vision Expert
108-1804, 140, Geumho-ro, Seongdong-gu, Seoul, Korea / (+82) 1048996866
Email: dogyoonlee@gmail.com / Website: https://dogyoonlee.github.io / Github: https://github.com/dogyoonlee

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   *Seoul, Korea*
Ph.D Candidate in Electrical Electronics Engineering   **Mar. 2019-Present**
Advisor: Prof. *Sangyoun Lee*
Anticipated Graduation Date: Aug.2024

Yonsei University | College of Engineering   **Seoul, Korea**
BE in Electrical Electronics Engineering   **Mar.2012-Feb.2019 (Including military service: May.2014 – Feb.2016)**

RESEARCH EXPERIENCE

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

PUBLICATIONS

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, Hyeongmin 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***

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***

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

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   Nov, 2021
10-2021-0165052   Patent Application, Korea

Apparatus and Method for Correcting Errors of Detected Objects based on Point Cloud.   Oct, 2021
10-2310790.   Patent Registration, Korea

LANGUAGE

Korean(Native), English(Proficient)

SKILLS

Programming Language / Deep Learning Framework
Python, C, C++, MATLAB / PyTorch, TensorFlow, Jax