Dogyoon Lee

Contact Information

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Current Position

Samsung Research, Seoul, Republic of Korea — **Sep 2024 - Present**
Staff Research Engineer

Education

Yonsei University, Seoul, Republic of Korea — **Mar. 2019 - Aug. 2024**
College of Engineering

M.S. /Ph.D. Student in Electrical and Electronic Engineering
Advisor: Professor Sang Y. Lee
Research Area: 3D Computer Vision (Neural Rendering and Its Applications)

Yonsei University, Seoul, Republic of Korea — **Mar. 2012 - Feb. 2019**
Department of Electrical and Electronic Engineering

Bachelor of Science in Electrical and Electronic Engineering

Publications

[ECCV '24] ProDepth: Boosting Self-Supervised Multi-Frame Monocular Depth with Probabilistic Fusion
Sungmin Woo*, Wonjoon Lee*, WooJin Kim, **Dogyoon Lee**, Sangyoun Lee
The 18th *European Conference on Computer Vision (**ECCV**), 2024*
Acceptance rate: 2395/8585 ≈ 27.9%
• https://github.com/Sungmin-Woo/ProDepth

[CVPR '24] Dual Prototype Attention for Unsupervised Video Object Segmentation
Suhwan Cho, Minhyeok Lee, Seunghoon Lee, **Dogyoon Lee**, Sangyoun Lee
The 34th *IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2024*
Acceptance rate: 2719/11532 ≈ 23.58%
• https://github.com/Hydragon516/DPA

[CVPR '24] Guided Slot Attention for Unsupervised Video Object Segmentation
Minhyeok Lee, Suhwan Cho, **Dogyoon Lee**, Chaewon Park, Jungho Lee, Sangyoun Lee
The 34th *IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2024*
Acceptance rate: 2719/11532 ≈ 23.58%
• https://github.com/Hydragon516/GSANet

[CVPR '23] DP-NeRF: Deblurred Neural Radiance Field with Physical Scene Priors
Dogyoon Lee, Minhyeok Lee, Chajin Shin, Sangyoun Lee
The 33th *IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2023*
Acceptance rate: 2359/9155 ≈ 25.8%
• https://github.com/dogyoonlee/DP-NeRF

[ICCV '23] Hierarchically Decomposed Graph Convolutional Networks for Skeleton-Based Action Recognition
Jungho Lee, Minhyeok Lee, **Dogyoon Lee**, Sangyoun Lee
The 19th *IEEE International Conference on Computer Vision* (**ICCV**), 2023
Acceptance rate: 2155/8620 ≈ 25.0%
• https://github.com/Jho-Yonsei/HD-GCN

[ICIP '23] TSANet: Temporal and Scale Alignment for Unsupervised Video Object Segmentation
Seunghoon Lee, Suhwan Cho, **Dogyoon Lee**, Minhyeok Lee, Sangyoun Lee
The 30th *IEEE International Conference on Image Processing* (**ICIP**), 2023

[PR '23] Multidimensional Feature Representation for Point Cloud Analysis
Sungmin Woo, **Dogyoon Lee**, Sangwon Hwang, Sangyoun Lee
*Pattern Recognition (**PR**), 2023*

[ECCV '22] Expanded Adaptive Scaling Normalization for End-to-End Image Compression
Chajin Shin, Hyeongmin Lee, Hanbin Son, Sangjin Lee, **Dogyoon Lee**, Sangyoun Lee
The 17th *European Conference on Computer Vision (**ECCV**), 2022*
Acceptance rate: 1645/6773 ≈ 28.0%
• https://github.com/ChajinShin/EASN

[WACV '22] Robust Lane Detection via Expanded Self attention
Minhyeok Lee, Junhyeop Lee, **Dogyoon Lee**, Woojin Kim, Sangwon Hwang, Sangyoun Lee
The 26th *IEEE Winter Conference on Applications of Computer Visio* (**WACV**), 2022
Acceptance rate: 406/1172 ≈ 34.64%
• https://github.com/Hydragon516/ESA-official

[CVPR '21] Regularization Strategy for Point Cloud via Rigidly Mixed Sample
Dogyoon Lee, Jaeha Lee, Junhyeop Lee, Hyeongmin Lee, Minhyeok Lee, Sungmin Woo, Sangyoun Lee
The 31st *IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2021*
Acceptance rate: 1661/7015 ≈ 23.7%
• https://github.com/dogyoonlee/RSMix

[ICT '21] 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 (**ICT Express**), 2021*

[ICIP '20] False Positive Removal For 3D Vehicle Detection with Penetrated Point Classifier
Sungmin Woo, Sangwon Hwang, Woojin Kim, Junhyeop Lee, **Dogyoon Lee**, Sangyoun Lee
The 27th *IEEE International Conference on Image Processing* (**ICIP**), 2020

Skills

- **Languages**: Python, C++, MATLAB
- **Frameworks**: TensorFlow, Pytorch, Jax
- **Platforms**: Linux, Windows, GPU

Patents

Domestic

- **Apparatus for Data Augmentation and Training Strategy on Point Cloud. (Registration - No. 10-2637318)**
  with Sangyoun Lee, Sangwon Hwang, Sungmin Woo, Junhyeop Lee, Woojin Kim
- **Apparatus and Method for Depth Inpainting method on LiDAR Point Cloud (Registration - No. 10-2433632)**
  with Sangwon Hwang, Sangyoun Lee, Junhyeop Lee, Woojin Kim, Sungmin Woo
- **Apparatus and Method for Moving Object Detection using Background Modeling based on Inpainting (Pending - Application No. 10-2021-0165052)**
  with Woojin Kim, Sangyoun Lee, Sangwon Hwang, Junhyeop Lee, Sungmin Woo
- **Apparatus and Method for Correcting Errors of Detected Objects Based on Point Cloud (Registration - No. 10-2310790)**
  with Sungmin Woo, Woojin Kim, Sangyoun Lee, Sangwon Hwang, Junhyeop Lee,

Services

- **Program Committee & Reviewer**,
  - IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**) **2022** ∼
  - IEEE/CVF International Conference on Computer Vision (**ICCV**) **2023** ∼
  - European Conference on Computer Vision (**ECCV**) **2022** ∼
  - AAAI conference on Artificial Intelligence (**AAAI**) **2025** ∼
  - IEEE International Conference on Robotics and Automation (**ICRA**) **2025** ∼
  - IEEE/CVF Winter Conference on Applications of Computer Vision (**WACV**) **2023** ∼

○ IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**) **2024** ∼
○ IEEE Transactions on Circuits and Systems for Video Technology (**TCSVT**) **2023** ∼

Open-source

- **ProDepth**, https://github.com/Sungmin-Woo/ProDepth
- **DPA**,https://github.com/Hydragon516/DPA
- **GSANet**,https://github.com/Hydragon516/GSANet
- **DP-NeRF**,https://github.com/dogyoonlee/DP-NeRF
- **HD-GCN**,https://github.com/Jho-Yonsei/HD-GCN
- **EASN**,https://github.com/ChajinShin/EASN
- **ESA**,https://github.com/Hydragon516/ESA-official
- **RSMix**,https://github.com/dogyoonlee/RSMix

Project Experience

Large-Scale 3D Scene Reconstruction based on Neural Rendering with Noisy Data **Mar, 2024 - Aug, 2024**
Yonsei University | National Research Foundation of Korea (NRF)
Project Leader / Researcher

Real-Time Novel View Synthesis for Dynamic Scene from Sparse View **April, 2024 - Aug, 2024**
Yonsei University | Electronics and Telecommunications Research Institute (ETRI)
Project Leader / Researcher

Auto Labeling Real Point Cloud Data via Semi-supervised Classification **April, 2021 - April, 2022**
Yonsei University | Hyundai Motors
Project Leader / Researcher

3D Recognition for Autonomous Driving with Sparse Single- and Multi-LiDAR **Mar, 2020 - Dec, 2021**
Yonsei University | Mando Halla Company
Project Leader / Researcher

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

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

Teaching Experience

Digital Signal Processing (Instructor: Prof. Sang Y. Lee), Yonsei University
Teaching Assistant **Mar - Jun, 2019**
Course Summary: Learning to describe signals mathematically and understand how to perform mathematical operations on signals.

Relevant Courseworks

Statistical Pattern Recognition	Neural Network
Machine Learning and Its Application	Digital Image Processing
Probabilistic Robotics	Random Process
Probability and Random Variables	Digital Signal Processing
Data Structure and Algorithms	Computer Architecture
Signal and Systems	Special Topics in Deep Learning
Operating Systems	Special Topics in Computer Vision