Do Gyoon Lee

Machine Learning Engineer, Computer Vision Expert
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EDUCATION

Yonsei University | College of Engineering   *Seoul, Korea*
MS/Ph.D in Electrical Electronics Engineering   *Mar. 2019-Present*
GPA: 4.14 / 4.3 (Expected graduation: Feb. 2025)
Relevant Coursework: Neural Network, Random Process, Statistical Pattern Recognition, Special Topics in Deep Learning
Probabilistic Robotics, Digital Image Processing, Machine Learning and Its Application

Yonsei University | College of Engineering   *Seoul, Korea*
BE in Electrical Electronics Engineering   *Mar.2012-Feb.2019*
GPA: 3.04 / 4.3
Relevant Coursework: Probability and Random Variables, Data Structure and Algorithms, Introduction Artificial Intelligent,
Engineering Mathematics(I-IV), Computer Architecture, Signal and Systems, Digital Signal Processing, Communication Theory

RESEARCH INTERESTS

2D/3D Computer Vision, Computer Graphics, Machine Learning, Implicit Neural Representation, Image/Point Cloud Processing

PROJECT EXPERIENCE

Auto Labeling Unlabeled Point Cloud Data via Semi-supervised Point Cloud Classification   *Apr.2021-Present*
Yonsei University | Hyundai Motor Company   *Korea*
- Unsupervised
- Active Labeling
- Clustering

3 Dimensional Multi-Object Detection and Tracking with Sparse Multi LiDAR.   *Jun.2020-Dec.2021*
Yonsei University | Mando   *Korea*
- Sparse Multi Channel LiDAR generation
- Depth Completion
- Channel-wise Self Attention

3 Dimensional Multi-Object Detection and Tracking with Single Dense LiDAR.   *Jan.2020-Jun.2020*
Yonsei University | Mando   *Korea*
- Led a project developing the 3D multi object detection and tracking method with single LiDAR sensor using KITTI dataset for autonomous driving
- Participated in development of post-processing module that filters the false positive of detected objects by aligning CAD model in the bounding boxes, which is inspired from an implicit characteristic of LiDAR that cannot penetrates an object
- Tracked detected objects and decided the motion state of them by applying Kalman Filter or Deep Learning based tracking algorithm and calibrated the exact location of detected objects by utilizing IMU/GPS sensor data

Surface Reconstruction System from the Raw Point Cloud with RGB images   *July.2019-Nov.2020*
Yonsei University | ETRI(Electronics and Telecommunications Research Institute)   *Korea*
- Participated in the project that developed the 3D surface reconstruction system from raw point cloud of a place using instance segmentation, camera odometry and CGAL
- Classified extracted raw point cloud data according to class of the objects in the scene by a labeling process based on instance segmentation(Mask RCNN) and camera odometry with paired RGB images
- Constructed the module that reconstructs surfaces of the classified point clouds by applying normal vector estimation and advanced surface reconstruction method of CGAL and developed a tool to integrate generated meshes

SELECTED PAPERS

[1] **Dogyoon Lee**, Jaeha Lee, Junhyeop Lee, Hyeongmin Lee, Minhyeok Lee, Sungmin Woo, Sangyoun Lee, "Regularization Strategy for Point Cloud via Rigidly Mixed Sample", *IEEE/CVF Computer Vision and Pattern Recognition (CVPR), 2021.*

[2] Minhyeok Lee, Junhyeop Lee, **Dogyoon Lee**, Woojin Kim, Sangwon Hwang, Sangyoun Lee, "Robust Lane Detection via Expanded Self attention", *IEEE/CVF Winter Conference on Applications of Computer Vision(WACV), 2022.*

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

[4] *Young-Suk Yoon, Sangwon Hwang, **Dogyoon Lee**, Sangyoun Lee, Jae-Won Suh, Sung-Uk Jung, "*3D Mesh Transformation Preprocessing System in the Real Space for Augmented Reality Services", ***ICT Express,** *Mar.2021*

PEER REVIEWS

*IEEE/CVF Conference on Computer Vision and Pattern Recognition**(CVPR)**, 2022.*

LANGUAGE

Korean(Native), English(Intermediate)

SKILLS

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