Min Young Chang

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Education

Columbia University | New York, NY — Aug. 2020 - Expected Dec. 2021
MS in Computer Science

Cornell University | Ithaca, NY — Aug. 2019
BS in Mechanical Engineering, Cum Laude (3.65/4.3)

Technical Skills

Programming : Python (PyTorch, TensorFlow), Swift (ARKit, Core ML), MATLAB, ROS

Work Experience

InterDigital, New York, NY — May 2021 - Current
Machine Vision Intern
- Researched on differential clustering of point cloud through unsupervised learning (PyTorch).
- Analyzed and implemented various SOTA deep learning models designed for point cloud.
- Created a synthesized dataset with point cloud to train and test different model architectures.

Columbia AI Robotics Lab, New York, NY — Jan. 2021 - Current
Graduate Research Assistant
- Created an iOS mobile application that helps blind people locate and grasp objects that they want (Swift).
- Used LiDAR sensor on iPhone to 3D map the environment and localize the detected target objects.
- Inferenced multiple vision-based deep learning models on device in real time (Core ML).
- Visualized the process in augmented reality (ARKit).

Clova AI, Seongnam, Korea — May 2020 - Aug. 2020
Graduate Research Intern
- Implemented a deep learning-based lane detection algorithm (PyTorch).
- Achieved 93.5% recall rate and 97.8% precision rate for road images of urban areas with high traffic.
- Managed a data annotation team for labeling a large complicated Korean road data set.

NAVER LABS, Seongnam, Korea — Sep. 2019 - Apr. 2020
Graduate Research Intern
- Researched on place recognition for an indoor mapping robot with VLP-16 LiDAR sensors (TensorFlow).
- Achieved over 98% recall rate for place recognition at a crowded department store.
- Accomplished 3X accuracy and 2X recall rate of the SOTA place recognition algorithms.
- Wrote a conference paper as first author, and was accepted to IEEE IROS 2020.
- Pre-processed large, messy 3D point cloud data of VLP-16 LiDAR sensors.
- Proposed and developed an innovative method to remove moving objects in a series of 3D point cloud data.

Cornell Autonomous Systems Lab, Ithaca, NY — Jan. 2019 - Aug. 2019
Research Assistant
- Worked on 3D SLAM using LiDAR, ZED stereo camera, and JACKAL robot (Python, ROS).
- Led a reinforcement learning simulation project for driving a miniature car as a Control Team leader.
- Implemented YOLO detection on a miniature car and accomplished 70% IoU as a Detection Team member.

Publication

- SpoxelNet: Spherical Voxel-based Deep Place Recognition for 3D Point Clouds of Crowded Indoor Spaces
  Min Young Chang, Suyong Yeon, Soohyun Ryu, Donghwan Lee
  IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2020. Las Vegas, USA.

Additional Experience

ROK Army Special Forces, Sweihan, United Arab Emirates — July 2016 - Apr. 2018
Sergeant
- Participated in joint trainings of Special Warfare and Counter-Terrorism with UAE Special Forces
- Conducted and interpreted Weekly Joint Staff Meetings and Daily Mission Brief
- In charge of external relations and communication with UAE Ministry of Defense and Special Warfare Command