

# MIN YOUNG CHANG

604 West 115th Street Apt 7D, New York, NY, 10025

📧 minyoung.info • ✉ mc4962@columbia.edu • ☎ 917-704-7995

🌐 linkedin.com/in/minyoung-chang

## EDUCATION

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**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)

## WORK EXPERIENCE

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**InterDigital**, New York, NY May 2021 - Aug. 2021  
*Machine Vision Intern*

- Researched on differential clustering of point cloud through unsupervised learning (PyTorch).
- Developed heterogeneous batching algorithm to batch input point clouds with different sizes for Autoencoders.
- Developed synthetic Point Cloud dataset generation code used for testing and training models.
- Designed dataloader for Point Cloud datasets with on-the-fly data augmentation.

**Clova AI**, Seongnam, Korea May 2020 - Aug. 2020  
*Software Engineer / Project Management Intern*

- Developed deep learning module for lane detection to automate annotation process of road map data.
- Achieved 93.5% recall rate and 97.8% precision rate for road images of urban areas with high traffic.
- Managed communication between 3+ teams from different departments working on this project.
- Educated and managed 30+ data annotators 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 a method to remove moving objects in a series of 3D point cloud data.

## PROJECTS

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**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.
- Inferred multiple vision-based deep learning models on device in real time (Core ML).
- Visualized the process of detection and guidance in augmented reality (ARKit).

**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

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- 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.*

## TECHNICAL SKILLS

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Languages : Python (PyTorch, TensorFlow), Swift (ARKit, Core ML), Java, SQL, MATLAB

Technologies : PostgreSQL, GCP, Git, Linux, ROS, HTML

## ADDITIONAL EXPERIENCE

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**ROK Army Special Forces**, Sweihan, United Arab Emirates July 2016 - Apr. 2018  
*Sergeant / Interpreter*

- In charge of external relations and communication with UAE Ministry of Defense and Special Warfare.
- Conducted and interpreted Weekly Joint Staff Meetings and Daily Mission Brief.
- Participated in joint trainings of Special Warfare and Counter-Terrorism with UAE Special Forces.