



# Seongchang Park

Robotics SW Engineer

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<https://bigbigpark.github.io>

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## Social Network

Github

Instagram

Youtube

## Languages

Korean



English



## Tech Skills

C++



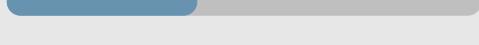
Matlab



Python



LabVIEW



## Experience

### Research:

2022-2023

#### **Development of A Sensor Fusion-Based Global Map Building Algorithm For Autonomous Navigation**

*Supported by Seadronix*

We developed a sensor fusion-based global map building algorithm for unmanned surface vehicles(USVs). Our algorithm can be used to navigate autonomously on ocean environment.

2021-2027

#### **Swarm-operated Control System for Micro Ground Robot**

*Supported by KRIT*

We implemented optimization-based formation control algorithm. We also developed a hierarchical global path planning method for swarm robots. With our proposed method, the swarm can keep and change their formation without collision while generating the whole path efficiently.

2019-2025

#### **Unmanned Swarm CPS Research Laboratory**

*Supported by ADD*

We propose distributed MPC-based formation control algorithm. The multi-agent keeps their formation stably and can change the shape without collision. The proposed decentralized algorithm runs real-time and was tested on each hardware.

2020-2021

#### **Localization of Electrical Vehicle Remote Charge PAD**

*Supported by Hyundai NGV*

I joined this localization project with the help of Hyundai NGV. Our team proposed an algorithm that localizes the vehicle position using UWB RF sensors.

### Project:

2021

#### **LiDAR-based Object Detection**

Autonomous Driving Challenge

*Supported by Hyundai Motor Group*

We implemented an algorithm that detects curb, lane and vehicle on road environment. Main sensors we used are two 3D LiDAR, one is 64ch for nearby curb and lane, the other is 32ch for the detection of car far from ego one.

2020

#### **Prediction Traffic Signal using V2X**

Autonomous Vehicle Competition

*Supported by Ministry of Trade, Industry and Energy*

I mapped all possible intersection's traffic signal using V2X. Our AV can move flexibly using the predicted traffic signal

2020

#### **Traffic Signal Detection**

International Student AV Car Competition

*Supported by TS, KATECH*

Detection which traffic light is red, orange or green and something mixed. I used supervised learning(YOLOv4) using a camera

## Publications

2022

#### **Distributed model predictive formation control of a UGV swarm guaranteeing collision avoidance**

*IMEEK Journal of Embedded Systems and Applications, in korean  
Seongchang Park and Seungmok Lee*

2021

#### **Distributed model predictive formation control for unmanned ground vehicles via real-time optimization**

*International Conference on Control, Automation and Systems (IC-CAS)*

**Seongchang Park and Seungmok Lee**

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