# HOWOONG JUN

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## RESEARACH INTERESTS

Multi-Agent System, Path Planning, Collision Avoidance, Reinforcement Learning, Machine Learning, Robot Motion Planning, Unmanned Aerial Vehicle, Mobile Robots

## EDUCATION

**Seoul National University, Republic of Korea** Mar. 2017 – Feb. 2019
*M.S. in Electrical and Computer Engineering*

· Thesis: Collision Avoidance by Learning Collision
· Advisor: Prof. Beom Hee Lee, *Fellow*, IEEE
· Research Focus: Robotics & Intelligent System
· GPA: 3.87/4.3 (cumulative) 3.95/4.3 (in major)

**Seoul National University, Republic of Korea** Mar. 2010 – Feb. 2017
*B.S. in Electrical and Computer Engineering*
*(Combined Minor: Engineering Biotechnology)*

· Thesis: Controlling Quadrotor using Wearable Device
· Advisor: Prof. Songhwai Oh
· GPA: 3.47/4.3 (cumulative) 3.65/4.3 (in major)

## RESEARCH EXPERIENCE

**Graduate Student Research** Feb. 2017 – Feb. 2019
*Robotics & Intelligent Systems Laboratory (RISL), Seoul National University*

· Developed collision avoidance method with reinforcement learning

- Accepted at IEEE International Conference on Robotics and Automation 2019

**Undergraduate Student Research** Jul. 2016 – Dec. 2016
*Robot Learning Laboratory (RLL), Seoul National University*

· Developed new control system for quadrotor by wearable device

**IEEE Signal Processing Cup** Jan. 2015 – Feb. 2015
*Music and Audio Research Group (MARG), Seoul National University*

· Developed heart rate monitoring system during physical exercise using wrist-type photoplethysmographic (PPG) signals

**Control Systems for Harbor Cranes** Jan. 2012 – Mar. 2014
*Seoho Electric Co., Ltd*

· Developed combined motion control and anti-collision system for Continuous Ship Unloader (CSU)
· Developed Auto Generated Steering System (AGSS) for Rubber Tyred Gantry Crane (RTGC)
· Developed Vision Auto Landing System (VALS) for automated yard crane

## PUBLICATIONS

### International Conferences

· **H. W. Jun**, H. J. Kim, and B. H. Lee, "Goal-Driven Navigation for Non-holonomic Multi-Robot System by Learning Collision" *IEEE International Conference on Robotics and Automation (ICRA)*, May 20-24, 2019.

### Domestic Conferences

· **Howoong Jun** and Beom Hee Lee, "Setting a Safe Boundary for Holonomic to Non-Holonomic Conversion", *14th Korea Robotics Society Annual Conference*, January 20-23, 2019.

· **Howoong Jun** and Beom Hee Lee, "High Dimensional Dynamic Obstacle Avoidance Method by using Low Dimensional Training Environment", *33rd Institute of Control, Robotics and Systems Annual Conference*, May 17-19, 2018.

· **Howoong Jun**, Han Jun Kim, and Beom Hee Lee, "SLAM Compensating Method in the Vulnerable Situations by IMU Odometry", *13th Korea Robotics Society Annual Conference*, Jan. 21-24, 2018.

## WORK EXPERIENCE

**SK Telecom Co., Ltd, Seongnam, Republic of Korea** Mar. 2019 -
*Manager & Engineer*

· ICT R&D Center, New Mobility TF, Autonomous Vehicle Team
· ICT R&D Center, New Mobility TF, SLAM Team

**Samsung Electronics Co., Ltd, Suwon, Republic of Korea** Jul. 2015 – Aug. 2015
*Internship*

· IT & Mobile Communication Group

**Seoho Electric Co., Ltd, Anyang, Republic of Korea** Jan. 2012 – Mar. 2014
*Engineer*

· Skilled Industrial Personnel Engineer(Alternative Military Service)

## TEACHING EXPERIENCE

**Volunteer Instructor** Mar. 2017 – Jun. 2017
*Seoul National University (SNU)*

· Tutor of "Progamming Methodology", Electrical and Computer Engineering

**Volunteer Instructor** Jan. 2012
*Korea Student Aid Foundation (KOSAF)*

· Tutor at Naejung Middle School, Gyeonggi-do, Seong-Nam, Republic of Korea

## REVIEW ACTIVITY

### Journals

· IEEE Robotics and Automation Letters (RA-L)

## HONORS, AWARDS, SCHOLARSHIPS

- SK Telecom AI Graduate Scholarship — Sep. 2017 – Dec. 2018
- National Science and Engineering Scholarship — Mar. 2010 – Aug. 2016
- Seoul National University ECE Volunteer Service Award — Jan. 2012

## SKILLS

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|---|---|
| **Computer Languages** | C/C++, C#, Visual Basic, MFC, Matlab, Python, ROS, PLC |
| **Tools** | Tensorflow, Keras, Open CV(https://opencvlib.weebly.com/), Open GL |