

# HOWOONG JUN

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## RESEARACH INTERESTS

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

## EDUCATION

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**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: 3.76/4.3 (cumulative) 3.86/4.3 (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

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**Graduate Student Research**

Feb. 2017 – Feb. 2019

*Robotics & Intelligent Systems Laboratory (RISL), Seoul National University*

- Developed collision avoidance method with reinforcement learning
- Submitted 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

## WORK EXPERIENCE

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### **Samsung Electronics Co., Ltd, Suwon, Republic of Korea**

Jul. 2015 – Aug. 2015

*Worked as an Internship*

- IT & Mobile Communication Group

### **Seoho Electric Co., Ltd, Anyang, Republic of Korea**

Jan. 2012 – Mar. 2014

*Worked as an Engineer*

- Skilled Industrial Personnel Engineer(Alternative Military Service)

## TEACHING EXPERIENCE

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### **Volunteer Instructor**

Mar. 2017 – Jun. 2017

*Seoul National University (SNU)*

- Tutor of “Programming 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

## PUBLICATIONS

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### **International Conferences**

- Howoong Jun, Han Jun Kim, and Beom Hee Lee, “Goal-Driven Navigation for Non-holonomic Multi-Robot System by Learning Collision” *IEEE International Conference on Robotics and Automation (ICRA)*, May 2019 (*Under Review*)

### **Domestic Conferences**

- 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.

## EXTRACURRICULAR ACTIVITIES

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### **Intel Hacks**

May 2017 – Jul. 2017

*Intel Corporation*

- Developed “Smart Bookshelf”

### **Samsung IoT Innovation Challenge**

Aug. 2016 – Oct. 2016

*Samsung Electronics Co., Ltd*

- Developed “Smart Visitor Control System (Delivery Door)”

### **Qualcomm IT Tour 12th Member**

Jul. 2014

*Qualcomm Technologies, Inc.*

- Joined as a selected member

## HONORS, AWARDS, SCHOLARSHIPS

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- 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