

HOWOONG JUN

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RESEARACH INTERESTS

Multi-Agent System, Path Planning, Collision Avoidance, Reinforcement Learning, Machine Learning, Unmanned Aerial Vehicle, Mobile Robots, Robot Vision, Simultaneous Localization and Mapping, Place Recognition, Deep Learning, Visual Localization

EDUCATION

Seoul National University, Republic of Korea

Mar. 2021 – Present

Ph.D Student in Artificial Intelligence

- Advisor: Prof. Songhwai Oh

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
- Presented 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 & Researcher

- ICT R&D Center, New Mobility TF, Autonomous Vehicle Project
- AIX Center, Mobility Labs, HD Map Update Project
- T3K, 5GX Location Labs, SLAM Project

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 “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

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

Computer Languages C/C++, C#, Visual Basic, MFC, Matlab, Python, ROS, PLC

Tools Tensorflow, Keras, Open CV(<https://opencvlib.weebly.com/>), Open GL