

## Research Interests

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**Autonomous driving, Robotics, Learning-based perception, Sensor fusion, Deep learning**

## Education

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**M.S. / Ph.D. in Electrical and Computer Engineering**

Mar 2017 - Feb 2023

Seoul National University

Vehicle Intelligence Laboratory, Supervisor: Prof. Seung-Woo Seo

**B.S. in Electrical and Computer Engineering**

Mar 2012 - Feb 2017

Seoul National University

## Publication

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**Follow the Footprints: Self-supervised Traversability Estimation for Off-road Vehicle Navigation based on Geometric and Visual Cues**

Jeon, Yurim, E In Son, and Seung-Woo Seo

IEEE International Conference on Robotics and Automation (ICRA), 2024 (Acceptance Rate: 45%)

**EFGHNet: A Versatile Image-to-Point Cloud Registration Network for Extreme Outdoor Environment**

Jeon, Yurim and Seung-Woo Seo, [Supplementary video](#)

IEEE Robotics and Automation Letters vol. 7.3 (2022) (Impact Factor: 5.2)

Presented in IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2022

**ABCD: Attentive Bilateral Convolutional Network for Robust Depth Completion**

Jeon, Yurim, Hwichang Kim, and Seung-Woo Seo, [Supplementary video](#)

IEEE Robotics and Automation Letters 7.1 (2021) (Impact Factor: 4.3)

**A BRIEF-Gist based Efficient Place Recognition for Indoor Home Service Robots**

Jeon, Yurim, Taejae Lee, Chulhong Kim, Donghoon Yi, and Dong-Il Dan Cho

2016 16th International Conference on Control, Automation and Systems (ICCAS), 2016

## Work Experience

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**Research Scientist**

Dec 2023 - Present

Thordrive

- Develop a multi-sensor object detection module for urban autonomous driving.
- Develop an automatic label generation system for a large-scale object detection dataset.

**Postdoctoral Researcher**

Mar 2023 - Nov 2023

Seoul National University

- Led a team in developing a perception system for off-road autonomous driving.
- Developed a traversable space estimation module for an unmanned ground vehicle deployed in off-road environments.

## Project

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**Development of an automatic label generation system for a large-scale object detection dataset**

Thordrive

Dec 2023 - Present

- Designed an automatic label generation system for object detection in urban environments.
- Developed a deep learning engine for multi-sensor object detection in the context of an automatic label generation system.
- Streamlined the label generation process, reducing manpower requirements by up to 30%.

## **Development of perception system for unmanned vehicles in off-road scenarios**

*Government Project, Seoul National University*

*Jan 2022 - Nov 2023*

- **Team leader**

- Designed hardware and configured sensors for unmanned ground vehicles.
- Developed a perception system for the off-road missions of unmanned robots.
- Optimized a perception system to operate on a low-end onboard computer of the robot.

## **Research on human-level driving intelligence for autonomous driving of unmanned vehicles**

*Government Project, Seoul National University*

*Mar 2020 - Feb 2021*

- Designed a selective perception system for autonomous driving, inspired by human recognition.
- Developed a neural layer using an attention mechanism as part of the selective perception system.
- Developed a neural network to generate high-resolution depth data from low-cost laser sensor data.

## **Development of real-time object detection module using LiDAR sensor**

*Industry-Academia Cooperation Project, Seoul National University*

*Jan 2020 - Jun 2020*

- **Project leader**

- Developed a deep learning object detection module using LiDAR sensor for urban autonomous driving.
- Achieved strict criteria for accuracy and runtime in the context of urban driving scenarios.

## **Technical Skills and Interests**

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### **Language**

**English** (Professional proficiency), **Korean** (Native proficiency)

### **Developer Tools**

Python (PyTorch, Tensorflow, etc.), C/C++ (ROS), Linux (Ubuntu), Git