Yurim Jeon

Ph.D. in Electrical and Computer Engineering

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Research Interests

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

Education

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

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
2024 IEEE International Conference on Robotics and Automation

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) pp. 7511–7517. IEEE, 2022
Presented in IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Oct. 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) pp. 81–87. IEEE, 2021

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

Automatic 3D Object Label Generation with Advanced Bounding-box Refinement (Submitted to CASE 2024)
Jeon, Yurim and Seung-Woo Seo

Work Experience

Postdoctoral Researcher *Mar 2023 - Present*
Seoul National University

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

Deep Learning Engineer *Mar 2022 - Nov 2022*
Thordrive

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

Project

Development of perception system for unmanned vehicles in off-road scenarios
Government Project, Seoul National University *Jan 2022 - Feb 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.

Development of an automatic label generation system for a large-scale object detection dataset
Thordrive *Feb 2022 - Nov 2022*

- 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%.

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

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

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