

Suhan Woo

Ph.D candidate, Yonsei University, Korea

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Education

Yonsei University (Advisor: [Prof. Euntai Kim](#))
Ph.D. in Electronic and Electrical Engineering

Seoul, Korea
Sept 2017 – Present

Yonsei University
B.S. in Electronic and Electrical Engineering

Seoul, Korea
Mar 2013 – Aug 2017

Publications

International Journal

Real-time RGB-D Semantic Segmentation With Scale-invariant Depth Encoding and Noise-robust Fusion

Dec 2025

Suhan Woo, Junhyuk Hyun, Suhyeon Lee, Euntai Kim

International Journal of Control, Automation, and Systems, vol. 23, no. 12, pp. 3649-3661 (IF: 2.9 in JCR 2024)

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Location-Aware Transformer Network for Bird's Eye View Semantic Segmentation

Sep 2025

Suhan Woo, Minseong Park, Youngjo Lee, Seongwon Lee, Euntai Kim

IEEE Transactions on Intelligent Vehicles, vol. 10, no. 9, pp. 4467–4478 (IF: 14.3 in JCR 2024)

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Street Floor Segmentation for a Wheeled Mobile Robot

Dec 2022

Junhyuk Hyun, **Suhan Woo**, Euntai Kim

IEEE Access, vol. 10, pp. 127601-127609 (IF: 3.5 in JCR 2021)

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International Conference

A²LC: Active and Automated Label Correction for Semantic Segmentation

Jan 2026

Youjin Jeon*, Kyusik Cho*, **Suhan Woo**, Euntai Kim (* Equal contribution)

AAAI Conference on Artificial Intelligence (AAAI-26) (Acceptance Rate: 17.6%)

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Real-time RGB-D semantic segmentation via efficient depth encoding and fusion

Nov 2025

Suhan Woo, Junhyuk Hyun, Suhyeon Lee, Euntai Kim

Proc. of 25th International Conference on Control, Automation, and Systems (ICCAS 2025), pp. 22-23,

Decomposition of Neural Discrete Representations for Large-Scale 3D Mapping

Sep 2024

Minseong Park, **Suhan Woo**, Euntai Kim

Proc. of the European Conference on Computer Vision (ECCV 2024), Milano, Italy

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|---|-----------|
| Tilted Image Problem in Outdoor Semantic Segmentation Suhan Woo , Sungjin Jo, Minho Cho, Junhyuk Hyun, Euntai Kim Proc. of the 19th International Conference on Ubiquitous Robots (UR 2022), Jeju, Korea | July 2022 |
| Multi-Modal Object Detection with Grid-Attention for YOLOv3 Jangyoon Kim, Suhan Woo , Euntai Kim Proc. of the 18th International Conference on Ubiquitous Robots (UR 2021), Gangneung, Korea | July 2021 |
| 3D-DEEP: 3-Dimensional Deep-Learning Based on Elevation Patterns for Road Scene Interpretation A. H. Saz, Suhan Woo , H. C. Schez, I. P. Alonso, Euntai Kim, D. F. Llorca, M. A. Sotelo Proc. of the IEEE Intelligent Vehicle Symposium (IV 2020), Las Vegas, United States Page | Oct 2020 |
| Scene Recognition via Object-to-Scene Class Conversion: End-to-End Training Hongje Seong, Junhyuk Hyun, Hyunbae Chang, Suhyeon Lee, Suhan Woo , Euntai Kim Proc. of The International Joint Conference on Neural Networks (IJCNN 2019), Budapest, Hungary Page | July 2019 |
| Weakly Supervised Temporal Localization in Video Scene Recognition Junhyuk Hyun, Hongje Seong, Suhyeon Lee, Suhan Woo , Euntai Kim Proc. of the 18th International Conference on Control, Automation and Systems (ICCAS 2018), Gangwon, Korea | Oct 2018 |
| New Feature-level Video Classification via Temporal Attention Model Hongje Seong, Junhyuk Hyun, Suhyeon Lee, Suhan Woo , Hyunbae Chang, Euntai Kim The 1st Workshop and Challenge on Comprehensive Video Understanding in the Wild (CoView'18, ACM MM Workshop), Seoul, Korea Page | Oct 2018 |

Projects

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| Development of Cooperate Mapping, Environment Recognition and Autonomous Driving Technology for Multi Mobile Robots Operating in Large-scale Indoor Workspace <ul style="list-style-type: none"> Funded by Korea Evaluation Institute Of Industrial Technology Development of BEV semantic segmentation technology for efficient operation of multirobots. | Apr 1, 2023 - Present |
| Development of 3D indoor map service <ul style="list-style-type: none"> Funded by LG Electronics, Korea Development of 3D indoor mapping technology using semantic information. | May 1, 2022 - Sep 30, 2022 |
| Development of artificial intelligence robot autonomous navigation technology for agile movement in crowded space <ul style="list-style-type: none"> Funded by Ministry of Trade, Industry and Energy, Korea Development of real-time traversability estimation technology based on semantic segmentation in various environments (season, day and night) | Apr 1, 2019 - Dec 31, 2022 |

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| Scene parsing and static local map generation using RGBD image in outdoor environment <ul style="list-style-type: none"> • Funded by LG Electronics, Korea • Development of real-time semantic segmentation algorithm using RGB and RGBD sensors | Mar 18, 2019 - Oct 31, 2019 |
| Development of robust detection and tracking system for accident prevention in autonomous vehicle <ul style="list-style-type: none"> • Funded by National Research Foundation of Korea • Corner case data augmentation algorithm research for robust object detection | Mar 1, 2019 - Feb 28, 2022 |
| Development of real-time object recognition technology based on deep learning for autonomous vehicles <ul style="list-style-type: none"> • Funded by National Research Foundation of Korea • Deep learning algorithm research using video data | Aug 1, 2017 - Dec 31, 2020 |
| Development of real-time object recognition technology based on deep learning for autonomous vehicles <ul style="list-style-type: none"> • Funded by Hyundai MNSoft, Korea • Development of real-time traffic signs, traffic lights, and lane detection algorithms in driving vehicles | Aug 1, 2017 - Sept 30, 2018 |

Patents

Method and Apparatus for Place Recognition Using Hierarchical Feature Representation in Hyperbolic Space

Euntai Kim, and **Suhan Woo**

Korea - Application No. 10-2025-0066776

Apparatus for Recognizing a Place based on Artificial Neural Network and Learning Method thereof

Euntai Kim, Hongje Seong, Junhyuk Hyun, Suhyeon Lee, **Suhan Woo**, and Hyunbae Chang

Korea - Application No. 10-2019-0041544

Korea - Registration No. 10-2211842

International (PCT) - Application No. PCT/KR2020/001018

Apparatus and Method for Detecting Object based on Heterogeneous Sensor

Euntai Kim, Junhyuk Hyun, Suhyeon Lee, **Suhan Woo**, and Hongje Seong

Korea - Application No. 10-2018-0055179

Korea - Registration No. 10-2138681

Method and Apparatus for Generating Scene Situation Information of Video Using Differentiation of Image Feature and Supervised Learning

Euntai Kim, Junhyuk Hyun, Suhyeon Lee, **Suhan Woo**, and Hongje Seong

Korea - Application No. 10-2018-0049520

Korea - Registration No. 10-2120453

Technologies

Languages: C, Python, Matlab