Suhan Woo

Ph.D candidate, Yonsei University, Korea

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Education

Yonsei University (Advisor: Prof. Euntai Kim) — Seoul,Korea
Ph.D. in Electronic and Electrical Engineering — Sept 2017 – Present

Yonsei University — Seoul,Korea
B.S. in Electronic and Electrical Engineering — 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

A^{2}LC: 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 July 2022

Suhan Woo, Sungjin Jo, Minho Cho, Junhyuk Hyun, Euntai Kim

Proc. of the 19th International Conference on Ubiquitous Robots (UR 2022), Jeju, Korea

Multi-Modal Object Detection with Grid-Attention for YOLOv3 July 2021

Jangyoon Kim, ***Suhan Woo***, Euntai Kim

Proc. of the 18th International Conference on Ubiquitous Robots (UR 2021), Gangneung, Korea

3D-DEEP: 3-Dimensional Deep-Learning Based on Elevation Patterns for Road Scene Interpretation Oct 2020

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

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Scene Recognition via Object-to-Scene Class Conversion: End-to-End Training July 2019

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

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Weakly Supervised Temporal Localization in Video Scene Recognition Oct 2018

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

New Feature-level Video Classification via Temporal Attention Model Oct 2018

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

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Preprints

BridgeTA: Bridging the Representation Gap in Knowledge Distillation via Teacher Assistant for Bird's Eye View Map Segmentation Aug 2025

Beomjun Kim, ***Suhan Woo***, Sejong Heo, Euntai Kim

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HypeVPR: Exploring Hyperbolic Space for Perspective to Equirectangular Visual Place Recognition Jun 2025

Suhan Woo, Seongwon Lee, Jinwoo Jang, Euntai Kim

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Environmental Change Detection: Toward a Practical Task of Scene Change Detection Jun 2025

Kyusik Cho, ***Suhan Woo***, Hongje Seong, Euntai Kim

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Projects

Development of Cooperate Mapping, Environment Recognition and Autonomous Driving Technology for Multi Mobile Robots Operating in Large-scale Indoor Workspace Apr 1, 2023 - Present

- Funded by Korea Evaluation Institute Of Industrial Technology
- Development of BEV semantic segmentation technology for efficient operation of multirobots.

Development of 3D indoor map service May 1, 2022 - Sep 30, 2022

- Funded by LG Electronics, Korea
- Development of 3D indoor mapping technology using semantic information.

Development of artificial intelligence robot autonomous navigation technology for agile movement in crowded space Apr 1, 2019 - Dec 31, 2022

- 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)

Scene parsing and static local map generation using RGBD image in outdoor environment Mar 18, 2019 - Oct 31, 2019

- Funded by LG Electronics, Korea
- Development of real-time semantic segmentation algorithm using RGB and RGBD sensors

Development of robust detection and tracking system for accident prevention in autonomous vehicle Mar 1, 2019 - Feb 28, 2022

- Funded by National Research Foundation of Korea
- Corner case data augmentation algorithm research for robust object detection

Development of real-time object recognition technology based on deep learning for autonomous vehicles Aug 1, 2017 - Dec 31, 2020

- Funded by National Research Foundation of Korea
- Deep learning algorithm research using video data

Development of real-time object recognition technology based on deep learning for autonomous vehicles Aug 1, 2017 - Sept 30, 2018

- Funded by Hyundai MNSoft, Korea
- Development of real-time traffic signs, traffic lights, and lane detection algorithms in driving vehicles

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