Seongwon Lee

Ph.D Student, Yonsei University
50, Yonsei-ro, 3rd Eng. building, Room C607, Seodaemun-gu, Seoul 03722, Republic of Korea
(+82) 10-4312-0061 | won4113@yonsei.ac.kr | sungonce | sungonce

Personal Information

Birth 3rd Aug, 1993, in Republic of Korea
Language Korean (Native), English (Fluent)

Research Interest

Various Topics about Computer Vision

- Image Retrieval
- Image/ Video Understanding
- Unsupervised and Self-supervised Learning
- Video Object Segmentation
- Domain Adaptation / Generalization

and Mobile Robotics

- Loop Closure Detection
- Place Recognition
- SLAM(Simultaneous Localization And Mapping)
- Visual / LiDAR Odometry
- and other SLAM-related topics

Experience

Yonsei University *Seoul, Korea*
Research Assistant @ CILAB *Sep 2016 - Current*
Participation in several research projects

Yonsei University *Seoul, Korea*
Teaching Assistant *Sep 2016 - Aug 2018*

- Machine Learning
- Data Structure and Algorithms
- Control System
- Robot Control System

Education

Yonsei University *Seoul, Korea*
Ph.D Student Department of Electrical and Electronic Engineering *Sep 2016 - Current*

- ***Advisor:*** *Prof. Euntai Kim*

Yonsei University *Seoul, Korea*
B.S. Department of Electrical and Electronic Engineering *March 2012 - Aug 2016*

- ***Advisor:*** *Prof. Sanghoon Lee*

Publications

International Conferences

Correlation Verification for Image Retrieval
Seongwon Lee, Hongje Seong, Suhyeon Lee, and Euntai Kim
2022 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2022), New Orleans, United States, June, 2022. **(Oral Presentation)**

WildNet: Learning Domain Generalized Semantic Segmentation from the Wild
Suhyeon Lee, Hongje Seong, Seongwon Lee, and Euntai Kim
2022 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR 2022), New Orleans, United States, June, 2022.

Hierarchical Memory Matching Network for Video Object Segmentation
Hongje Seong, Seoung Wug Oh, Joon-Young Lee, Seongwon Lee, Suhyeon Lee, and Euntai Kim
International Conference on Computer Vision (ICCV 2021), Montreal, Canada, October, 2021.

Loop Closure Detection in Crowded Place
Seongwon Lee, HyungGi Jo, Hongje Seong, and Euntai Kim
2021 IEEE Region 10 Symposium (TENSYMP 2021), Jeju, Korea, August, 2021.

A Hybrid SLAM in Complicated Indoor Environments for Mobile Robot on Low-Cost Platform
Hae Min Cho, Seongwon Lee, and Euntai Kim
18th International Conference on Ubiquitous Robots (UR 2021), Gangneung, Korea, July, 2021.

Visual Loop Closure Detection over Illumination Change
Seongwon Lee, HyungGi Jo, Hae Min Cho, and Euntai Kim
16th International Conference on Ubiquitous Robots (UR 2019), Jeju, Korea, June, 2019.

Odometry Estimation via CNN Using Sparse LiDAR Data
Hae Min Cho, HyungGi Jo, Seongwon Lee, and Euntai Kim
16th International Conference on Ubiquitous Robots (UR 2019), Jeju, Korea, June, 2019.

Large Scale Representation of Volumetric Fusion using ICP
HyungGi Jo, Hae Min Cho, Seongwon Lee, and Euntai Kim
18th International Conference on Control, Automation and Systems (ICCAS 2018), GangWon, Korea, October, 2018.

Robust Visual Loop Closure Detection with Repetitive Features
Seongwon Lee, HyungGi Jo, Hae Min Cho, and Euntai Kim
15th International Conference on Ubiquitous Robots (UR 2018), Hawaii, United States, June, 2018.

Robust 6-DOF Localization Using Sensor Fusion System in Indoor-Outdoor Environments
HyungGi Jo, Hae Min Cho, Seongwon Lee, and Euntai Kim
15th International Conference on Ubiquitous Robots (UR 2018), Hawaii, United States, June, 2018.

Empty Area Search on Occupancy Grid Map for Mobile Robot Navigation
Seongwon Lee, HyungGi Jo, Hae Min Cho, and Euntai Kim
18th International Symposium on Advanced Intelligent Systems (ISIS 2017), Daegu, Korea, October, 2017.

Multi-Resolution Point Cloud Generation Based on Heterogeneous Sensor Fusion System
HyungGi Jo, Hae Min Cho, Seongwon Lee, and Euntai Kim
2017 14th International Conference on Ubiquitous Robots and Ambient Intelligence (URAI 2017), Jeju, Korea, June, 2017.

Domestic Journal

A Deep Convolutional Neural Network Based 6-DOF Relocalization with Sensor Fusion System
HyungGi Jo, Hae Min Cho, Seongwon Lee, and Euntai Kim
Journal of Korea Robtics Society, vol. 14, no. 2, pp. 87-93, May, 2019.

Domestic Conferences

Multitask Transformer Network를 이용한 비 정제 동영상에서의 행동/장소 영역간 상관관계의 시각화
성홍제, 이영조, 이성원, 안종현, 김은태
제 32회 영상처리 및 이해에 관한 워크샵 (IPIU 2020), 제주, 2월, 2020.

SLAM 모듈을 위한 레이저 스캐너 센서 불필요 데이터 제거
장원제, 조해민, 이성원, 우수한, 김은태
제 31회 영상처리 및 이해에 관한 워크샵 (IPIU 2019), 제주, 2월, 2019.

저가형 센서 모듈을 이용한 모바일 로봇의 3차원 위치인식
조형기, 조해민, 이성원, 김동엽, 김은태
제 14회 한국로봇종합학술대회 (KRoC 2019), 평창, 1월, 2019.

YOLOv2 객체 검출 성능 향상을 위한 네트워크 구조 개선
우수한, 이상윤, 현준혁, 이수현, 이성원, 백정현, 홍성준, 김은태
제13회 한국로봇종합학술대회 (KRoC 2018), 횡성, 1월, 2018.

Time-of-Flight(TOF) 센서를 이용한 실시간 3차원 형상 재구성
조해민, 조형기, 이성원, 김은태
제 27회 통신정보 합동학술대회 (JCCI 2017), 부산, 4월, 2017.

딥 러닝을 이용한 강인하고 빠른 교통 표지판 검출 및 분류
이성원, 현준혁, 이수현, 조형기, 조해민, 김은태
제12회 한국로봇종합학술대회 (KRoC 2017), 평창, 2월, 2017.

단계별 이미지 특징점 매칭 기법에 기반한 SLAM 및 3차원 환경 재구성 알고리즘
조해민, 조형기, 이성원, 김은태
한국지능시스템학회 2016년도 추계학술대회, 서울, 10월, 2016.

Projects

Development of Deep Learning-Based Image Retrieval Technology using ToF Depth Sensor
LG Electronics
May 2021 - Dec 2021

Development of Front-Down SLAM Technology Based on ToF Depth Sensor
LG Electronics
Apr 2020 - Feb 2021

Development of Depth Map Generation Technology using Continuous Stereo Images
Hyundai AutoEver
Apr 2019 - Dec 2019

Development of Integration Module Technology for Localization and Autonomous Driving Control Based on Multi-modal Sensor for Wheel Drive Service Robot
Ministry of Trade, Industry and Energy (MOTIE)
Oct 2017 - Feb 2019

Development of Robot Autonomous Driving Technology using Laser Scanner
Hitachi-LG Data Storage
Oct 2016 - Oct 2017

Development of Robot Intelligence Technology for Mobility with Learning Capability toward Robust and Seamless Indoor and Outdoor Autonomous Navigation
Ministry of Trade, Industry and Energy (MOTIE)
May 2016 - Apr 2020

Patents

격자지도 생성 장치 및 방법
김은태, 조형기, 조해민, 이성원
Korea - Application No. 10-2017-0171099
Korea - Registration No. 10-2095842

Skills

Languages Python, C, C++, MATLAB
Frameworks Pytorch, TensorFlow, ROS