

MINJUNG KIM

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RESEARCH INTERESTS

My research interests are in the field of **3D Place Recognition** and **Visual Localization**, especially about (i) understanding the scene from images and point clouds, (ii) dealing with 2D-3D cross-modalities, and (iii) utilizing high-level semantic information for place recognition.

EDUCATION

Seoul National University Integrated M.S./Ph.D. Student in Computer Science and Engineering; (GPA: 4.03/4.3) Vision and Learning lab, advised by Prof. Gunhee Kim.	Seoul, Korea <i>Mar. 2018 – Current</i>
Sogang University B.S. in Computer Science and Engineering; (GPA: 3.58/4.3), Magna Cum Laude Advised by Prof. Hyukjun Lee.	Seoul, Korea <i>Mar. 2014 – Feb. 2018</i>

PUBLICATIONS

EP2P-Loc: End-to-End 3D Point to 2D Pixel Localization for Large-Scale Visual Localization <u>Minjung Kim</u> , Junseo Koo, Gunhee Kim	(submitted)
Indoor/Outdoor Transition Recognition Based on Door Detection Seohyun Jeon, <u>Minjung Kim</u> , Seunghwan Park, Jaeyoung Lee	UR 2022
Drop-Bottleneck: Learning Discrete Compressed Representation for Noise-Robust Exploration Jaekyeom Kim, <u>Minjung Kim</u> , Dongyeon Woo, Gunhee Kim	ICLR 2021
Logo Detection and Recognition Algorithm using YOLO-v3 Model <u>Minjung Kim</u> , Sungen Kim, Gunhee Kim	CICS 2020
Memorization Precedes Generation: Learning Unsupervised GANs with Memory Networks Youngjin Kim, <u>Minjung Kim</u> , Gunhee Kim	ICLR 2018
Machine Learning for Determining Duplicate Question <u>Minjung Kim</u> , Yeongjoon Park, Hyungsuk Lim, Jihoon Yang	KSC 2017
Sketch based Face Image Generation with Text Mapping <u>Minjung Kim</u> , Hyungsuk Lim, Yeongjoon Park, Yeseul Joo, MyoungWan Koo	KSC 2017

PROJECTS

DeepGuider GitHub	<i>Apr. 2019 – Current</i>
<ul style="list-style-type: none">• DeepGuider Project is a research project funded by national government.• This project aims to develop a navigation guidance system that enables robots to navigate in urban environment without the need of pre-mapping of the environment.• I contribute to finding clues to locate autonomous robots by detecting and recognizing points of interests (POIs) in images of a scene.• This includes detecting and recognizing text including Korean, English and numbers in scenes, recognizing landmarks, recognizing doors for indoor-outdoor transition, and devising training methods that are robust to environmental changes.	

PRIDE: 3D Place Recognition In Dynamic Environment | [GitHub](#)

Mar. 2022 – Current

- In this work, we first contribute a new dataset named PRIDE (3D Place Recognition In Dynamic Environment), using Lyft Level 5 and KITTI datasets, as a more realistic and challenging benchmark for 3D place recognition.
- We also propose a PRIDE-Net architecture with a new loss that focuses on extracting discriminative global descriptors with capturing global context using spatial information and being robust to such dynamic environments using an auxiliary task to reduce the influence of dynamic objects.
- The code will be released after acceptance.

FCAT: Fully Convolutional Network with Self-Attention for Point Cloud based Place Recognition | [GitHub](#)

Dec. 2020 – Feb. 2022

- We construct a novel network named FCAT (Fully Convolutional network with a self-Attention unit) that can generate a discriminative and context-aware global descriptor for place recognition from the 3D point cloud.
- It features with a novel sparse fully convolutional network architecture with sparse tensors for extracting informative local geometric features computed in a single pass.
- It also involves a self-attention module for 3D point cloud to encode local context information between local descriptors.
- The code will be released after acceptance.

Bayesian Deep Learning course | [Lecture](#)

Feb. 2018 – Jul. 2018

- To understand deep learning papers, we explain the basic concepts of probability and Bayesian, and introduce papers related to Bayesian neural networks.
- This lecture can be taken through *edwith* of Naver Connect.

Sketch based Face Image Generation with Text Mapping | [GitHub](#)

Sep. 2017 – Feb. 2018

- A typical sketch might have been uncomfortable when a person or program was used to map a person's features in detail.
- This process is limited not only because it is very complex and requires technicians, but also because it creates a feeling of incompatibility with real people.
- This program, named Metamon, makes a picture of a person's face by entering the image of the border sketch of the person's face and the text information that shows the characteristics of the face.

Arduino & Raspberry Pi & Internet of Things (IoT) Tutorial | [Project page](#)

Dec. 2016 – Mar. 2017

- I create tutorial pages with Youtube videos and code for beginners in Arduino kit and Raspberry Pi development.
- I introduce the concept of the Internet of Things (IoT) and work on a mini-project using *ThingSpeak*™.

Sogang Navigation and Introduction (SNI) | [Github](#)

Mar. 2015 – Jul. 2015

- We develop a navigation system that introduces the internal facilities of each building and displays the shortest route and time from building to building using the Floyd-Washall algorithm.
- To build data for the development, we measured the time taken by walking directly on each path.

EXPERIENCES**2022-3 SK hynix ML Engineer course**

Teaching Assistant

Seoul National University

Nov. 2022 – Dec. 2022

KDB-SNU AI course

Teaching Assistant

Seoul National University

Apr. 2022 – May. 2022

LG AI core human resource training course

Teaching Assistant

Seoul National University

Feb. 2022

IoT · Artificial Intelligence · Big Data (IAB) course

Teaching Assistant

Seoul National University

Sep. 2018 – Jun. 2019

Bayesian Deep Learning course

Publisher

Naver Connect

Feb. 2018 – Jul. 2018

Vision and Learning Laboratory*Research Intern*

Seoul National University

*Jul. 2017 – Feb. 2018***Biointelligence Laboratory***Research Intern*

Seoul National University

*Sep. 2016 – Feb. 2017***Arduino & Raspberry Pi Kit Developer***Development Intern*

MakeWith (Startup)

*Dec. 2016 – Jan. 2017***AWARDS & SCHOLARSHIPS**

Animal Datathon KoreaPredicting joint coordinates of a cow for pose estimation; **2nd place**

Animal Tech Korea

*Jul. 2021***Samsung Humantech Paper Award**Signal Processing section; **Silver prize**

Samsung Electronics

*Feb. 2021***KSC 2017 Paper Award**

The undergraduate/junior thesis contest award

Korean Institute of Information Scientists and Engineers

*Feb. 2018***Magna Cum Laude Honor**

Academic Honors

Sogang University

*Feb. 2018***Academic Excellence Scholarship**

Academic Honors

Sogang University

*Jul. 2017 – Feb. 2018***Windows 10 IoT Core & Microsoft Azure for Microsoft IoT Solution Competition**Implementing Internet of Things (IoT) projects with Windows 10 IoT Core and Microsoft Azure; **10th place**

Microsoft

*Apr. 2017***SKILLS**

Programming: Python, C, C++**Frameworks:** Pytorch, TensorFlow/Keras**Tools:** Git, VSCode, Vim, Docker, Slurm**Others:** Arduino, Raspberry Pi**PROFESSIONAL ACTIVITIES**

Reviewer of international conferences

- IEEE/CVF International Conference on Computer Vision (ICCV) 2023
- IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2023
- Asian Conference on Computer Vision (ACCV) 2022
- International Conference on Learning Representations (ICLR) 2022, 2023
- Neural Information Processing Systems (NeurIPS) 2021, 2022, 2023

Technical Coaching

- 2022-3 SK hynix ML Engineer Technical Coaching