

MINJUNG KIM

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RESEARCH INTERESTS

My research focuses on **Visual Localization** and **3D Dense Captioning** for enhanced 3D scene understanding, with particular interest in: (i) understanding complex scenes from images and point clouds, (ii) effectively handling multi-modalities, and (iii) achieving a comprehensive understanding of 3D scenes through natural language.

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; Outstanding Doctoral Thesis Award	Seoul, Korea Mar. 2018 – Feb. 2025
Sogang University B.S. in Computer Science and Engineering; (GPA: 3.58/4.3), Magna Cum Laude Advised by Prof. Hyukjun Lee	Seoul, Korea Mar. 2014 – Feb. 2018

PUBLICATIONS

Bi-directional Contextual Attention for 3D Dense Captioning <u>Minjung Kim</u> , Hyung Suk Lim, Soonyoung Lee, Bumsoo Kim*, Gunhee Kim*	ECCV 2024 Oral presentation
Rethinking the Role of Queries in 3D Dense Captioning <u>Minjung Kim</u> , Gunhee Kim	KCC 2024
See It All: Contextualized Late Aggregation for 3D Dense Captioning <u>Minjung Kim</u> , Hyung Suk Lim, Seung Hwan Kim, Soonyoung Lee, Bumsoo Kim*, Gunhee Kim*	ACL 2024 Findings
EP2P-Loc: End-to-End 3D Point to 2D Pixel Localization for Large-Scale Visual Localization <u>Minjung Kim</u> , Junseo Koo, Gunhee Kim	ICCV 2023
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> , Sungeun 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, Hyung Suk Lim, Jihoon Yang	KSC 2017
Sketch based Face Image Generation with Text Mapping <u>Minjung Kim</u> , Hyung Suk Lim, Yeongjoon Park, Yeseul Joo, Myoung Wan Koo	KSC 2017

DeepGuider | [GitHub](#)

Apr. 2019 – May. 2023

- The DeepGuider Project is a national government-funded research project focused on developing a navigation guidance system that enables robots to navigate urban environments without the need for pre-mapping.
- I contributed by identifying clues to help locate autonomous robots, detecting and recognizing points of interest (POIs) in scene images, including text, landmarks, and doors for indoor-outdoor transitions, while also developing robust training methods to adapt to environmental changes.

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

Mar. 2022 – Apr. 2023

- This work proposes a new dataset called PRIDE, which includes dynamic objects such as cars and pedestrians, for 3D place recognition in dynamic environments that are more realistic and challenging than current benchmarks.
- The proposed PRIDE-Net architecture with a new loss function focuses on extracting discriminative global descriptors and capturing global context using spatial information, while being robust to dynamic environments.
- Experiments on the PRIDE dataset and existing benchmarks show that our proposed method outperforms previous methods and that each proposed module effectively improves performance.
- 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.

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 also 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

Vision and Learning Lab <i>Postdoctoral Researcher</i>	Seoul National University <i>Feb. 2025 – Current</i>
Vision and Multimodal Lab <i>Research Intern</i>	LG AI Research <i>Jun. 2023 – May. 2024</i>
KDB-SNU AI course <i>Teaching Assistant</i>	Seoul National University <i>Apr. 2023</i>
2022-3 SK hynix ML Engineer course <i>Teaching Assistant</i>	Seoul National University <i>Nov. 2022 – Dec. 2022</i>
KDB-SNU AI course <i>Teaching Assistant</i>	Seoul National University <i>Apr. 2022 – May. 2022</i>
LG AI core human resource training course <i>Teaching Assistant</i>	Seoul National University <i>Feb. 2022</i>
IoT · Artificial Intelligence · Big Data (IAB) course <i>Teaching Assistant</i>	Seoul National University <i>Sep. 2018 – Jun. 2019</i>
Bayesian Deep Learning course <i>Publisher</i>	Naver Connect <i>Feb. 2018 – Jul. 2018</i>
Vision and Learning Laboratory <i>Research Intern</i>	Seoul National University <i>Jul. 2017 – Feb. 2018</i>
Biointelligence Laboratory <i>Research Intern</i>	Seoul National University <i>Sep. 2016 – Feb. 2017</i>
Arduino & Raspberry Pi Kit Developer <i>Development Intern</i>	MakeWith (Startup) <i>Dec. 2016 – Jan. 2017</i>

AWARDS & SCHOLARSHIPS

Outstanding Doctoral Thesis Award Academic Honors	Dept. of Computer Science and Engineering, Seoul National University <i>Feb. 2025</i>
YoulChon AI Star Fellowship	YoulChon Foundation, Nongshim Group <i>Sep. 2024</i>
Animal Datathon Korea Predicting joint coordinates of a cow for pose estimation; 2nd place	Animal Tech Korea <i>Jul. 2021</i>
Samsung Humantech Paper Award Signal Processing section; Silver prize	Samsung Electronics <i>Feb. 2021</i>
KSC 2017 Paper Award The Undergraduate/Junior Thesis Contest Award	Korean Institute of Information Scientists and Engineers <i>Feb. 2018</i>
Magna Cum Laude Honor Academic Honors	Sogang University <i>Feb. 2018</i>
Academic Excellence Scholarship Academic Honors	Sogang University <i>Jul. 2017 – Feb. 2018</i>
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 <i>Apr. 2017</i>

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

- European Conference on Computer Vision (ECCV) 2024
- IEEE/CVF International Conference on Computer Vision (ICCV) 2023, 2025
- IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2023, 2025
- Asian Conference on Computer Vision (ACCV) 2022
- International Conference on Learning Representations (ICLR) 2022, 2023
- Neural Information Processing Systems (NeurIPS) 2021, 2022, 2023, 2024

Reviewer of International Journals

- International Journal of Computer Vision (IJCV) 2024

Technical Coaching

- 2022-3 SK hynix ML Engineer Technical Coaching