

# MINJUNG KIM

✉ minjung.kim@vision.snu.ac.kr | 🎓 Google scholar | 🔗 LinkedIn | 🐙 GitHub | 🏠 minnjung.github.io  
📍 317, Bldg 138, 1 Gwanak-ro, Gwanak-gu, Seoul, Korea

## RESEARCH INTERESTS

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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

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<b>Seoul National University</b> 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 Mar. 2018 – Current
<b>Sogang University</b> 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

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<b>Bi-directional Contextual Attention for 3D Dense Captioning</b> <u>Minjung Kim</u> , Hyung Suk Lim, Soonyoung Lee, Bumsoo Kim*, Gunhee Kim*	ECCV 2024 Oral presentation
<b>Rethinking the Role of Queries in 3D Dense Captioning</b> <u>Minjung Kim</u> , Gunhee Kim	KCC 2024
<b>See It All: Contextualized Late Aggregation for 3D Dense Captioning</b> <u>Minjung Kim</u> , Hyung Suk Lim, Seung Hwan Kim, Soonyoung Lee, Bumsoo Kim*, Gunhee Kim*	ACL 2024 Findings
<b>EP2P-Loc: End-to-End 3D Point to 2D Pixel Localization for Large-Scale Visual Localization</b> <u>Minjung Kim</u> , Junseo Koo, Gunhee Kim	ICCV 2023
<b>Indoor/Outdoor Transition Recognition Based on Door Detection</b> Seohyun Jeon, <u>Minjung Kim</u> , Seunghwan Park, Jaeyoung Lee	UR 2022
<b>Drop-Bottleneck: Learning Discrete Compressed Representation for Noise-Robust Exploration</b> Jaekyeom Kim, <u>Minjung Kim</u> , Dongyeon Woo, Gunhee Kim	ICLR 2021
<b>Logo Detection and Recognition Algorithm using YOLO-v3 Model</b> <u>Minjung Kim</u> , Sungeun Kim, Gunhee Kim	CICS 2020
<b>Memorization Precedes Generation: Learning Unsupervised GANs with Memory Networks</b> Youngjin Kim, <u>Minjung Kim</u> , Gunhee Kim	ICLR 2018
<b>Machine Learning for Determining Duplicate Question</b> <u>Minjung Kim</u> , Yeongjoon Park, Hyungsuk Lim, Jihoon Yang	KSC 2017
<b>Sketch based Face Image Generation with Text Mapping</b> <u>Minjung Kim</u> , Hyungsuk Lim, Yeongjoon Park, Yeseul Joo, MyoungWan 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

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

## AWARDS & SCHOLARSHIPS

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<b>YoulChon AI Star</b> Fellowship	YoulChon Foundation (Nongshim Group) <i>Sep. 2024</i>
<b>Animal Datathon Korea</b> Predicting joint coordinates of a cow for pose estimation; <b>2nd place</b>	Animal Tech Korea <i>Jul. 2021</i>
<b>Samsung Humantech Paper Award</b> Signal Processing section; <b>Silver prize</b>	Samsung Electronics <i>Feb. 2021</i>
<b>KSC 2017 Paper Award</b> The undergraduate/junior thesis contest award	Korean Institute of Information Scientists and Engineers <i>Feb. 2018</i>
<b>Magna Cum Laude Honor</b> Academic Honors	Sogang University <i>Feb. 2018</i>
<b>Academic Excellence Scholarship</b> Academic Honors	Sogang University <i>Jul. 2017 – Feb. 2018</i>
<b>Windows 10 IoT Core &amp; Microsoft Azure for Microsoft IoT Solution Competition</b> Implementing Internet of Things (IoT) projects with Windows 10 IoT Core and Microsoft Azure; <b>10th place</b>	Microsoft <i>Apr. 2017</i>

## SKILLS

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**Programming:** Python, C, C++

**Frameworks:** Pytorch, TensorFlow/Keras

**Tools:** Git, VSCode, Vim, Docker, Slurm

**Others:** Arduino, Raspberry Pi

## PROFESSIONAL ACTIVITIES

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### Reviewer of International Conferences

- European Conference on Computer Vision (ECCV) 2024
- 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, 2024

### Reviewer of International Journals

- International Journal of Computer Vision (IJCV) 2024

### Technical Coaching

- 2022-3 SK hynix ML Engineer Technical Coaching