Taeyoung **Kim**

Robotics · SLAM Engineer

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"Nothing ventured, nothing gained."

Summary

This is Taeyoung Kim, who wants to become robotics SLAM engineer. My research interests are Sensor fusion and SLAM. I like to take on challenging tasks and I like to grow up with my colleagues around me. That's why I record and share what I did on my Github or Technical Blog. I'm also interested in contributing open-source projects.

Research Interests

SLAM	LiDAR SLAM, LiDAR-inertial SLAM, Visual SLAM, Visual-inertial SLAM
Sensor fusion	Combination of Camera, LiDAR, or IMU sensor
Computer Vision	Object Detection, Segmentation, Depth Estimation, 3D reconstruction

Education

Yonsei University @CILAB

Seoul, S.Korea

M.S. in Vehicle Convergence Engineering (Advisor : Prof. Euntai Kim)

Mar. 2022 - Feb. 2024 (Expected)

- Join the mobile robot team
- Research on LiDAR-inertial odometry

Kwang Woon University

Seoul, S.Korea

B.S. in School of Robotics

Mar. 2016 - Feb. 2022

- **Total GPA** : 4.10 / 4.50, **Major GPA** : 4.41 / 4.50
- **Club**: BARAM (Robotics Academic Group) - [2020 Staff] , DAISY (English Conversation Club) - [2019 Spring President]

Work Experience

Computer Vision Lab @Korea Univ

Seoul, S.Korea

Undergraduate Lab Intern (Advisor : Prof. Sangpil Kim)

Mar. 2021 - Jul. 2021

- Research on Computer Vision using an Event camera
- Event data processing using ESIM

KIST(Korea Institute of Science and Technology)

Seoul, S.Korea

Student Intern (Advisor : Dr. Kanggeon Kim)

Sep. 2020 - Feb. 2021

- Research on Monocular Depth Estimation
- Participated in KIST disinfect robot (AI Disinfection Robot) project - **[Video]**

Image Process System Lab @Kwang Woon Univ

Seoul, S.Korea

Undergraduate Lab Intern (Advisor : Prof. Donggyu Sim)

May. 2020 - Aug. 2020

- Research on Image Processing based on Deep learning
- Participated in seminars related to Deep Learning and Image Processing

Projects

Development of Core Technology for Mobile Manipulator for 5G Edge-based Transportation and Manipulation

Ministry of Science and ICT

Participant

Apr. 2022 - Feb. 2024

- Development LiDAR-inertial odometry algorithm for Mobile Manipulator

LiDAR-inertial SLAM algorithm robust to 6-DOF rotation changes

Hyundai Robotics LAB

Participant

May. 2022 - Feb.2023

- Development LiDAR-inertial odometry algorithm for 6-DOF roataion changes

Publication

International Journal

2021.11 **"Standard for the Quantification of a Sterilization Effect Using an Artificial Intelligence Disinfection Robot",** Heeju Hong, Wonkook Shin, Jieun Oh, Sunwoo Lee, Taeyoung Kim , Woosub Lee, Jongsuk Choi, Seungbeum Suh and Kanggeon Kim, Sensors 21, no. 23: 7776. **https://doi.org/10.3390/s21237776** — *Sensors*

International Conference

2021.7 **"Dense Monocular SLAM applied Depth Estimation",** Taeyoung Kim, Omer Faruk Ince, JongBeom Baek, Jun-Sik Kim, KangGeon Kim, - **[Paper]**, **[Video]** — *UR 2021 (Work in progress)*

Domestic Conference

2021.5 **"Recognition of disinfection targets and generation of semantic map for disinfection robot",** TaeHwan Kim, Taeyoung Kim, GiJae Lee, KangGeon Kim, - **[Paper]** — *KROS 2021*

Honors & Awards

Awards

2020.11 **Dean's List,** for Academic Excellence — *KwangWoon Univ.*

2020.9 **5th Place on B-track,** Korea Health Datathon 2020 — *NAVER CLOUD PLATFORM*

2019.10 **Dean's List,** for Academic Excellence — *KwangWoon Univ.*

Honors

2022-1 **Full tuition Scholarship,** for the students who have been based on Recruitment Conditions on Hyundai Motors Group — *Hyundai NGV*

2021-2 **National Science and Engineering Undergraudate Scholarship ,** for the students who have been recommended by the university (Full tuition Scholarship) — *Korea Student Aid Foundation*

2021-1

2020-2 **National Science and Engineering Undergraudate Scholarship ,** for the students who have been recommended by the university (Full tuition Scholarship) — *Korea Student Aid Foundation*

2020-1

2019-2 **Full tuition Scholarship,** for Top seat last semester — *KwangWoon Univ.*

Skills

Programming C++ / C, Python, JAVA, Matlab
Framework Pytorch, Tensorflow, Keras
DevOps Git, Docker, ROS2 / ROS
Languages Korean, English

Extracurricular Activity

Technical Blogs

Github blog

Writers — *May. 2020 - Present*

- You can easily access the blog using **[this link]**.
- Writing some posts about lecture summary, paper review, some tips for developments.
- To share what I have studied with others and to remember it longer.

2021 Open Source Contribution Academy

Ministry of Science and ICT

Mentee — *Aug. 2021 - Nov. 2021*

- I am in the process of translating a Pytorch tutorial into Korean that I want to contribute to the spread of PyTorch.
- Using Github, I developed the ability to collaborate and contribute to open source.
- The open source repository I've contributed can be found **[here]**.

CLOVA AI RUSH 2021

NAVER AI Lab, NAVER CLOVA

Participant — *May. 2021 - Jun.2021*

- Only 150 students are allowed to participate in this project.
- I developed my own deep learning model related to multi-label classification.
- I ranked 30th on Project 1-3.

2021 Spring Capstone Design

KwangWoon Univ.

Project

Mar. 2021 - Jun.2021

- I made a wireless charging electric vehicle charging robot.
- I designed the control input algorithm, trained deep learning model, and developed the ROS package.
- The source code related to this project is on my **[Github repository]**.

Monocular Depth Estimation with ORB-SLAM2

BARAM (Robotics Academic Group)

Personal Toy Project

Sep. 2020 - Nov. 2020

- I was curious about the performance of the recent depth estimation model.
- I used **'Monocular Depth Estimation with Transfer Learning pretrained MobileNetV2'** model and applied to ORB-SLAM2 also compared with ORB-SLAM2(Monocular mode), ORB-SLAM2(RGB-D mode)
- The source code related to this toy project is on my **[Github repository]**.

Runner Alarm System based on Deep Learning

BARAM (Robotics Academic Group)

Personal Toy Project

Apr. 2020 - Jun. 2020

- I wanted to distinguish between walking children and running children with an object detection model.
- When children are running for an amount of time, a beep sounds.
- The source code related to this toy project is on my **[Github repository]**.