

Kyungwon Kim

PH.D. CANDIDATE

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Summary

Currently studying the field of medical image processing, in particular, I'm striving to overcome the limitations of technology by applying artificial intelligence technology. It is expected to be of great help in diagnosis in an actual medical environment.

Education

Ph.D Candidate in Electrical and Electronic Engineering

Seoul, S.Korea

YONSEI UNIVERSITY

Mar. 2019 – Aug. 2026 (Expected)

- Medical Artificial Intelligence Laboratory (MAI-Lab)
- Got a Brain Korea 21 Plus Outstanding Student Fellow Scholarship of Korea Research Foundation

B.S. in Electrical and Electronic Engineering

Seoul, S.Korea

YONSEI UNIVERSITY

Mar. 2012 – Feb. 2019

- Got a National Scholarship for Science & Engineering of Korea Student Aid Foundation

Research Areas

Multi-modal Cancer Prognosis Prediction

MEDICAL

- Survival prediction for lung cancer patients using CT images, pathological images, and clinical data.
- Prognosis prediction for multiple cancer types using pathological images and genomic data under missing-modality settings.

Segmentation and Classification in X-ray and CT Image

MEDICAL

- Methods for automatic detection of anatomical or pathological regions in radiological images and disease classification based on image features.

Self-supervised Denoising Low-dosed X-ray Image

MEDICAL

- Deep learning-based methods for denoising low-dose X-ray images to approximate high-dose image quality without paired supervision.

Clinical Report Generation from 3D CT

MEDICAL

- Large Language Model (LLM)-based approaches for generating clinical reports, including findings and impressions, from 3D CT images.

Deep-Learning-based Fourier Ptychographic Microscopy (FPM)

OPTICS

- Techniques for reconstructing high-resolution optical images with a large field of view from multiple low-resolution images acquired under physical constraints.

Publications

MUST: Modality-Specific Representation-Aware Transformer for Diffusion-Enhanced Survival Prediction with Missing Modality

CVPR

KYUNGWON KIM, AND DOSIK HWANG

Jun. 2026, Denver CO, United States

- H-Index 450

LLM-guided Multi-modal Multiple Instance Learning for 5-year Overall Survival Prediction of Lung Cancer

MICCAI

KYUNGWON KIM, YONGMOON LEE, DOOHYUN PARK, TAEJOON EO, DAEMYUNG YOUN, HYESANG LEE, AND DOSIK HWANG

Oct. 2024, Marrakesh, Morocco

- FWC1 5.09

M3F: Multi-Field-of-View Feature Fusion Network for Aortic Vessel Tree Segmentation in CT Angiography

MICCAI

YUNSU BYEON, HYESEONG KIM, KYUNGWON KIM, DOOHYUN PARK, EUJJOON CHOI, AND DOSIK HWANG

Oct. 2023, Vancouver, Canada

- MICCAI Challenge on Segmentation of the Aorta

Deep residual network with data consistency for subsampled Fourier Ptychographic Microscopy

HYEONGYU KIM, **KYUNGWON KIM**, KYUNGCHUL LEE, TAEJOON EO, AND SEUNGAH LEE, DOSIK HWANG

SPIE Photonics West

Jan. 2022, San Francisco, United States

Are Two MR Images Enough to Generate the Third One Accurately? - Clinically Feasible Fat Suppression of Lumbar Spine MRI from T1w and T2w Images Only

SEWON KIM, HANBYOL JANG, **KYUNGWON KIM**, HYEON GYU KIM, YOUNG HAN LEE, SUNGJUN KIM, AND DOSIK HWANG

ISMRM & SMRT

Aug. 2020, Virtual

Patents

- 2026 **Method and Apparatus for Multimodal Data Analysis Supporting Missing Modalities Using Algebraic Representation Decomposition and Diffusion-Based Reconstruction**, Application, KR 10-2026-0075495 *S. Korea*
- 2022 **Method, Device and Recording Medium for Obtaining Parameter Data on an Object**, Application, KR 10-2022-0039082 *S. Korea*

Research Experience

Segmentation of Oral Cancer and Lymph Node Metastasis from Head CT

FINANCE ALL SOLUTIONS CO.

- as a Project Manager
- Developing deep learning-based methods to segment primary oral cancer lesions and metastatic lymph nodes from head CT scans collected from multiple institutions.

Seoul, S.Korea

Nov. 2025 - PRESENT

Detection and Segmentation of Osteomyelitis of the Jaw from 3D Dental CT

FINANCE ALL SOLUTIONS CO.

- as a Project Manager
- Aiming to classify the presence of osteomyelitis and identify its precise location using 3D oral CT scans collected from six institutions.

Seoul, S.Korea

Jul. 2024 - Jun. 2025

Landmark Detection in Craniofacial 3D CT Data of Congenital Anomalies

FINANCE ALL SOLUTIONS CO.

- as a Project Manager
- Detection of 45 Landmarks in 3D Craniofacial CT Data for Identifying Congenital Anomalies

Seoul, S.Korea

Jul. 2024 - Jun. 2025

Report Generation from 3D CT using LLM

MILA x PROBE MEDICAL

- Participated in the 'Seoul AI Hub x Mila - Partnership' as a researcher affiliated with Probe Medical.
- Development of a clinical report generating LLM from 3D CT.

Montréal, Canada

Jun. 2024 - Sep. 2024

Prognosis Prediction of Lung Cancer via multi-modality

YONSEI UNIVERSITY x PROBE MEDICAL

- Government-funded AI Dataset Construction Project (NIA)
- Development of a 5-year overall survival prediction model using 3D CT, pathological image, and clinical data.

Seoul, S.Korea

Sep. 2023 - Oct. 2024

Deep-learning-based Fourier Ptychographic Microscopy

YONSEI UNIVERSITY

- Collaboration with OISL(Optical Imaging Systems Laboratory), Yonsei University

Seoul, S.Korea

Sep. 2020 - Jan. 2022

Denoising in X-ray image

RAYENCE INC.

- Development of a deep learning model that denoises and enhances the image quality of low dose X-ray image which helps patients to expose lower X-ray.

Seoul, S.Korea

Jun. 2021 - Dec. 2022

Disease classification and segmentation for Pediatric Chest X-ray

FINANCE ALL SOLUTIONS CO.

- Development of a deep learning model that classifies the specific diseases and the finds the location of lesions in pediatric chest X-ray image. Establishment of chest X-ray image dataset of pediatric subjects.

Seoul, S.Korea

Jul. 2021 - Dec. 2021

Auto Bone Segmentation in Cervical/Thoracic/Lateral Spinal Image

RAYENCE INC.

- Development of an algorithm that automatically finds the spine in C/T/L spine x-ray images and calculates the curvature of the spine

Seoul, S.Korea

Sep. 2019 - Sep. 2020

Object Area Detection in X-ray Image

RAYENCE INC.

Seoul, S.Korea

Sep. 2019 - Mar. 2020

- Development of a deep learning model that automatically extracts only the object area, not the background, from medical x-ray images
- Mounted on the product

Navigation Implant

OSSTEM IMPLANT Co.

Seoul, S.Korea

Jan. 2019 - Jun. 2020

- Development of an algorithm to find the optimal implant location using tooth scan data consisting of 3D stl files

Collimator Area Detection in X-ray Image

RAYENCE INC.

Seoul, S.Korea

Sep. 2018 - Mar. 2019

- Since the collimator used to minimize the exposure radiation dose is unnecessary information in the x-ray image, an algorithm that automatically removes the corresponding area was developed.
- Mounted on the product

Teaching Experience

Advanced Topics in Biomedical Engineering

TEACHING ASSISTANT (DELIVERED LECTURES)

Seoul, S.Korea

Mar. 2026 - Jun. 2026

- pf. Dosik Hwang, Department of Electrical and Electronic Engineering, Yonsei University

Deep Learning Lab

TEACHING ASSISTANT (DELIVERED LECTURES)

Seoul, S.Korea

Mar. 2022 - Jun. 2022

- pf. Dosik Hwang, Department of Electrical and Electronic Engineering, Yonsei University

Introductory Digital Labs

TEACHING ASSISTANT

Seoul, S.Korea

Sep. 2021 - Dec. 2021

- pf. Dosik Hwang, Department of Electrical and Electronic Engineering, Yonsei University

Biomedical Engineering Experiments

TEACHING ASSISTANT (DELIVERED LECTURES)

Seoul, S.Korea

Sep. 2020 - Dec. 2020

- pf. Dosik Hwang, Department of Electrical and Electronic Engineering, Yonsei University

Digital Signal Processing

TEACHING ASSISTANT

Seoul, S.Korea

Mar. 2020 - Jun. 2020

- pf. Dosik Hwang, Department of Electrical and Electronic Engineering, Yonsei University

Biomedical Engineering Experiments

TEACHING ASSISTANT (DELIVERED LECTURES)

Seoul, S.Korea

Sep. 2019 - Dec. 2019

- pf. Dosik Hwang, Department of Electrical and Electronic Engineering, Yonsei University

Awards

2024 **Challenge Award**, 2024 Yonsei Medical Center Big Data Challenge

S.Korea

2023 **3rd Rank**, MICCAI 2023 Grand Challenge SEG.A. Segmentation of the Aortic Vessel Tree

Vancouver, Canada

Scholarship

2020 **고등교육혁신팀사회혁신활동장학금**, Yonsei University

S.Korea

2020 **Graduate Student Research Assistant Scholarship**, Yonsei University

S.Korea

2020 **Teaching Assistant Scholarship**, 2nd semester, Yonsei University

S.Korea

2020 **Teaching Assistant Scholarship**, 1st semester, Yonsei University

S.Korea

2019 **Teaching Assistant Scholarship**, 2nd semester, Yonsei University

S.Korea

2019 **Research Assistant Scholarship**, 2nd semester, Yonsei University

S.Korea

2019 **Research Assistant Scholarship**, 1st semester, Yonsei University

S.Korea

2019-

PRESENT

(every **Brain Korea 21 Plus Scholarship**, Korea Research Foundation

S.Korea

month)

2012 **National Scholarship for Science and Engineering**, Korea Student Aid Foundation

S.Korea