Haengbok Chung

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Education

MS **Seoul National University** 2022.09 - 2024.08
Interdisciplinary Program of Artificial Intelligence (Prof. Jae Sung Lee)

GPA: 3.68/4.3

Coursework: Advanced Computer Vision Seminor (A+), Advanced Deep Learning (A), Medical Image Processing (A-), Artificial Neural Networks (A-), Engineering Research Ethics and Writing Skills (A+) ect

BS **Ewha Womans University** 2017.03 - 2022.08
Computer Science (Prof. Hieonn Kim and Dongbo Min)

GPA: 3.94/4.3

Coursework: Capstone Design Project A/B (B+/A+), Computer Algorithms (A+), Data Structures (A+), Linear Algebra I (A+), Probability and Statistics (A+), Medical Image Processing (A), Software Engineering (A+) ect

Publications

One-Shot Customizable Motion Editing with Motion Prior(-ing) 2025

Haengbok Chung Bohyung Han
I analyzed factors that degrading motion editing qualities. Based on that I leveraged 4D motion prior to improve MotionEditor for more customizable and high-quality motion editing.

Multimodal Large Language Model in Nuclear Medicine (-ing) 2025

Haengbok Chung Jae Sung Lee
I proposed idea of all-in-one framework to handle various tasks such as image generation, denoising, reconstruction, diagnosis in a single MLLM. In addition, to leverage information of 2D data to describe 3D data with CNN-Transformer hybrid architecture. I constructed dataset by scrapping papers in the PubMed and open datasets and fine-tuning LLaVA-NeXT with new loss function.

Boosting Saliency Differentiation: A New Framework for Simultaneously Enhancing Interpretability and Performance of AI-Driven Diagnostics (-ing) 2025

Haengbok Chung, Sang Yoon Bae, Gawon Lee, Jonghae Park, Jiook Cha, Jae Sung Lee
As a team leader, I proposed a new metric to evaluate interpretability in the medical image classification. In addition, I introduced CNN architecture modification, training schedule, several loss functions to simultaneously improve interpretability and performance. I also set up the experiments, and wrote the paper.

Multi-level Analyzation of Imbalance to Resolve Non-IID-Ness in Federated Learning 2025

Neurocomputing
Haengbok Chung, Jae Sung Lee
I defined imbalance in the federated learning in three-levels. To overcome these imbalances, I proposed new loss function to optimize local training. In addition, I introduced reweighting method of clients' models based on their data skewness. I proved its convergence bound. I set up the experiments and wrote the paper.

Federated Influencer Learning for Secure and Efficient Collaborative Learning in Realistic Medical Database 2024

Scientific Reports
Haengbok Chung, Jae Sung Lee
I proposed new collaborative learning paradigm which overcomes the limitations of federated learning. I verified the effectiveness of this method on classification, segmentation tasks using five different datasets. I set up the experiments and wrote the whole paper.

A Study on the Impact of Relieving the Imbalance in Data Distribution Between Classes Using PGGAN Synthetic Medical X-ray Data On X-ray Disease Diagnostic Classification Accuracy 2021

Journal of Korean Institute of Information Technology, *Accepted*

Haengbok Chung, SaeYoun Choi, Hieonn Kim

As a team leader, I proposed this research and methodologies. Using PGGAN, I augmented medical chest X-ray data to relieve class imbalance which is an important problem in the medical domain. I set up the experiments and wrote the paper.

AI-based X-ray Diagnostic System Implementation to Shorten the Diagnosis Process of Emergency Patients Suspected of Lung Disease 2021

Journal of Korean Institute of Information Technology, *Accepted*

Haengbok Chung, SaeYoun Choi, Hieonn Kim

As a team leader, I designed a computer-aided diagnosis system using chest X-ray data. I implemented this system on the web-page. I also propose an idea which makes initial diagnosis of patients in the ambulance using portable X-ray and our CAD for the fast treatment. I set up the experiments and wrote the paper.

International Presentations

Robust and Secure Multi-center Head and Neck Cancer Segmentation 2024

Society of Nuclear Medicine & Molecular Imaging (SNMMI), *Poster*

Haengbok Chung, Jae Sung Lee

I compared the performance of several federated learning algorithms and verifies the effectiveness of federated influencer learning in cancer segmentation with only PET data.

Domestic Presentations

Precision-Guided Data Extraction: Paving the Way for Highly Specialized Nuclear Medicine MLLM 2024

Korean Society of Nuclear Medicine

Joo Hyun Lee, **Haengbok Chung**, Jae Sung Lee

Sharper Insights: Distinctive Saliency Mapping for Enhanced Medical Diagnostics 2024

Korean Society of Imaging Informatics in Medicine

Haengbok Chung, Sang Yoon Bae, Gawon Lee, Jonghae Park, Jiook Cha, Jae Sung Lee

TrustCAD: End-to-end Framework for Reliable and Powerful Computer-Aided Diagnosis (CAD) 2024

Institute of Radiation Medicine in Seoul National University

Haengbok Chung, Sang Yoon Bae, Gawon Lee, Jonghae Park, Jiook Cha, Jae Sung Lee

Multi-level Analyzation of Class Imbalance to Resolve Non-IID-ness In Federated Learning 2023

Korea Society of Artificail Intelligence in Medicine

Haengbok Chung,Jae Sung Lee

Influencer Learning: Knowledge Distillation Based Approach Evolved from Federated Learning 2023

Korean Society of Imaging Informatics in Medicine

Haengbok Chung,Jae Sung Lee

FedBalance: Rethinking Non-IID-Ness 2023

KIEEE NPSS Seoul Chapter

Haengbok Chung,Jae Sung Lee

The Analysis of Applicability of FL Algorithms in X-ray Data to Diagnose 14 Lung Diseases 2022

Korea Society of Artificail Intelligence in Medicine

Haengbok Chung,Jae Sung Lee

Work Experiences

Seoul National university (Prof. Bohyung Han) 2024.09-Present

As a post master's researcher, I did research about diffusion models.

KAIST (Prof. Jong Chule Ye) 2022.02-2022.05

I proposed simple and effective method which can mitigate overfitting on training data to improve perfor-

mance of kidney and cancer segmentation using CT data. In addition, I tried to denoise CT data using Cycle-GAN.

AIBIM (start-up) 2019.01-2019.10
I Developed add-in automatic architectural design program for Revit (Skill: C#).

Awards

Outstanding poster award (excellence prize) , Korean Society of Imaging Informatics in Medicine, 2024

Outstanding poster award (excellence prize) , Institute of Radiation Medicine in Seoul National University, 2024

Outstanding oral presentation award (excellence prize) , Korea Society of Artificail Intelligence in Medicine, 2023

Outstanding research award , IEEE NPSS Seoul Chapter, 2023

Outstanding poster award (participation prize), Korea Society of Artificail Intelligence in Medicine, 2022

Top prize, Capston Design Project in Ewha, 2021

Grand prize, Start-up Competition in Ewha Womans University, 2021

Outstanding paper award (bronze), Journal of Korean Institute of Information Technology, 2021

Leadership

Teaching Assistant , Medical Physics, Seoul National University, 2024

Teaching Assistant (temporal) , Seminar on the Science of Innovation, Seoul National University, 2024

Teaching Assistant , Software Leadership Seminar, Ewha Womans University, 2020

Chairman , BanU (abandoned animal volunteer clup), Ewha Womans University

Teaching Assistant , Chapel, Ewha Womans University

Skills and Languages

Programming: Python, TensorFlow, PyTorch, C, C#, C++, Java, Django, HTML, JAVA Script
Languages: Korean (Native), English (TOEFL: 97, My Best Score: 103)