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. Jae Sung Lee, Bohyung Han) 2024.09-Present
As an informal research trainee, I did research about generative models.

Seoul National university (Prof. Jae Sung Lee) 2022.09-2022.08
As a research intern, I did research about federated learning.

KAIST (Prof. Jong Chule Ye) 2022.02-2022.05
As an informal research trainee, I proposed simple and effective method which can mitigate overfitting on training data to improve performance of kidney and cancer segmentation using CT data. In addition, I tried to denoise CT data using CycleGAN.

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)