

# Woojin Chung | M.S. Student in Korea

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## Summary

I earned my B.S. and am now pursuing an M.S. in Biomedical Engineering at Hankuk University of Foreign Studies under the supervision of Professor Nam. During my studies, I have been working on applying artificial intelligence to medical imaging analysis, including digital pathology, MR Imaging, and CTA. Currently, my research focuses on two primary fields. The first is using multiple foundation models in digital pathology to enhance dataset generalization. The second is predicting dynamic changes in contrast-enhanced imaging using deep learning-based image synthesis, particularly in DCE-MRI and multiphase CTA. As shown in my curriculum vitae, I am committed to continuing my growth as a versatile researcher, skilled in programming, research, and academic writing.

## Research Interests

Deep Learning	Generative Models, Foundation Models, Explainable AI
Computational Pathology	Lymph Node Metastasis, Whole-Slide Image
MR Imaging	Breast Cancer, Dynamic Contrast-Enhanced MRI
CT Angiography	Acute Ischemic Stroke, Multiphase CTA

## Education

Mar 2024 – Present	<b>M.S. in Biomedical Engineering</b> , Hankuk University of Foreign Studies. Advisor: <a href="#">Yoonho Nam</a> GPA: 4.5/4.5
Mar 2017 – Feb 2024	<b>B.S. in Biomedical Engineering</b> , Hankuk University of Foreign Studies. GPA: 3.9/4.5 Thesis topic: <i>Explored implicit neural representation architectures for effective image compression in whole-slide images</i>

## Publications

### Journal Articles



- 1 **W. Chung**, J. Jang, and Y. Nam, "Quantitative susceptibility mapping of oxygen metabolism: A feasibility study utilizing a large-scale clinical dataset," *Investigative Magnetic Resonance Imaging*, vol. 27, no. 4, pp. 221–225, 2023. [DOI: https://doi.org/10.13104/imri.2023.0013](https://doi.org/10.13104/imri.2023.0013).

### Conference Proceedings




- 1 **W. Chung**, Y. Park, and Y. Nam, "Autoencoder-based feature transformation with multiple foundation models in computational pathology," in *International Workshop on Foundation Models for General Medical AI*, Springer, 2024, pp. 40–49. [DOI: https://doi.org/10.1007/978-3-031-73471-7\\_5](https://doi.org/10.1007/978-3-031-73471-7_5).

## Conference Presentations

### International



- 2025  **ISMRM Oral Presentation (expected)**  
*Title: Predicting Delayed Phase Contrast-Enhanced MR Images from Early Phase Contrast-Enhanced MR Images Using Deep Learning-Based Iterative Network*
- 2024  **MICCAI Workshop MedAGI Poster Presentation**  
*Title: AutoEncoder-Based Feature Transformation with Multiple Foundation Models in Computational Pathology*

### Domestic


- 2024  **ICMRI Poster Presentation**  
*Title: Deep Learning-Based Dynamic Information Embedding for Synthesizing Arbitrary Time-Point Contrast-Enhanced Inner Ear MR Images*
- 2023  **ICMRI Poster Presentation**  
*Title: Automatic Optimization of Multi-Loss Weights for MR Image Synthesis Using Coefficient of Variation Analysis*
- 2022  **ICMRI Poster Presentation**  
*Title: Automatic Segmentation and Assessment Method for QSM-Based Oxygen Metabolism Analysis in the Superior Sagittal Sinus*

## Research Projects


### Seoul St. Mary's Hospital (Seoul, Korea)

- Mar 2022 – Dec 2022  Analyzed oxygen metabolism in QSM images using a deep learning-based segmentation model, focusing on its relationship with the presence of APOE4 in patients with cognitive impairment.
- Mar 2024 – Present  Developing a deep learning model to synthesize multi-phase delayed contrast-enhanced breast MR images from early-phase inputs, enabling dynamic enhancement prediction.


### Busan Paik Hospital (Busan, Korea)

- Aug 2023 – Aug 2024  Developed a generative adversarial network (GAN)-based model to synthesize virtual 1-hour delayed contrast-enhanced MR images of the inner ear from early contrast-enhanced scans.




### CHA Bundang Medical Center (Seongnam, Korea)

- Jan 2023 – Present  Predicting lymph node metastasis in early gastric cancer using a patch-based deep learning model on whole-slide images across datasets with different distributions, leveraging information from multiple foundation models to improve generalization.

### Ajou University Hospital (Suwon, Korea)

- Mar 2024 – Present  Developing a deep learning-based technique to quantify and visualize collateral status in acute ischemic stroke using multiphase CT angiography.

## Honors and Awards





- 2025  **ISMRM Annual Meeting & Exhibition Educational Stipend**
- 2022  **Best Award, AI Idea Festival**  
*Organized by Hankuk University of Foreign Studies AI Education Institute*
- 2022  **3rd Place, Burn Diagnosis AI Challenge**  
*Organized by Seoul National University R&DB Foundation*

## Teaching Experiences

### Programming Instructor

- Mar 2022 – Dec 2022  Coding Class at Pungsaeng High School, a science-focused school in Korea
- Feb 2022 – Feb 2022  Shell & Shell Editors session of the HUFS Missing Semester at Hankuk University of Foreign Studies, Korea

### Teaching Assistant





- Fall 2024  Linear Algebra
- Spring 2024  Biomedical Artificial Intelligence
- Fall 2023  Medical Image Processing & Laboratory
- Spring 2023  Biomedical Artificial Intelligence

## Miscellaneous Experience





### Academic Activities

- 2025  Program committee for IJCNN Special Session: Foundation Models in Medicine



### Club Activities

- 2023  Programming Mentor at LIKELION, Student-Run Club of Programming
- 2022  Organizer of MISSION24 Hackathon
- 2022  Programming Mentor at LIKELION, Student-Run Club of Programming
- 2021  Mentee at LIKELION, Student-Run Club of Programming

### Software Development

- 2025  **PASCAL (Ongoing):** A viewer software that supports medical imaging file formats such as DICOM and NIfTI, designed to easily integrate deep learning-based AI projects.  Github: <https://github.com/goglxych97/PASCAL.git>
- 2024  **PathoPatch:** A software tool designed to facilitate easy annotation of patches extracted from whole-slide images.  Github: <https://github.com/goglxych97/PathoPatch.git>

## References

-  **Yoonho Nam**, Assistant Professor, Biomedical Engineering. **Hankuk University of Foreign Studies**, [yoohnonam@hufs.ac.kr](mailto:yoohnonam@hufs.ac.kr)
-  **Jin Wook Choi**, Professor, Department of Radiology. **Ajou University School of Medicine**, [radjwchoi@gmail.com](mailto:radjwchoi@gmail.com)