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Sunyoung Jung

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Biography

I am a Third-year Ph.D. student at Yonsei University, advised by **Prof. Seong Jae Hwang**, in the **Medical Imaging and Computer Vision (MICV)**. My doctoral research explores the capabilities of **generative models** within the domain of computer vision. I am actively working on problems in **video and image generation, motion transfer in video generation, and diffusion models**.

Education

Ph.D. in Artificial Intelligence — Seoul, South Korea
Yonsei University — *Mar 2025 – Present*
Advisor: Seong Jae Hwang

M.S. in Electrical and Electronic Engineering — Seoul, South Korea
Yonsei University — *Mar 2023 – Feb 2025*
Advisor: Dong-Hyun Kim

B.S. in Biotechnology — Seoul, South Korea
Yonsei University — *Mar 2021 – Feb 2023*

B.S. in Biomedical Engineering — Wonju, South Korea
Yonsei University — *Mar 2019 – Feb 2023*
Advisor: : Sejung Yang

Publications (* Equal Contribution)

Conference Paper

1. AQUA: Aligned Query Fusion for Reference-Unbiased and Temporally Consistent Video Motion Transfer

Sunyoung Jung*, Jiwoo Park*, Yeonkyung Lee, Tae Eun Choi, and Seong Jae Hwang
Under Review

2. Interpreting vision transformers via residual replacement model

Jinyeong Kim*, Junhyeok Kim*, Yumin Shim, Joohyeok Kim, **Sunyoung Jung**, Seong Jae Hwang
NeurIPS 2025

3. TESLA: Test-time Reference-free Through-plane Super-resolution for Multi-contrast Brain MRI

Yoonseok Choi, **Sunyoung Jung**, Mohammed A. Al-masni, Ming-Hsuan Yang, and Dong-Hyun Kim
MICCAI 2025*, *Oral presentation, Top 2.2%

4. Attention-guided deep learning model focusing on myelination for predicting brain age using multi contrast MRI

Changmin Ryu, **Sunyoung Jung**, Na-Young Shin, and Dong-Hyun Kim
ISMRM 2025*, *Oral presentation

5. Improving subcortical segmentation in brain MRI using knowledge distillation to enhance robustness against motion artifacts

Sunyoung Jung, Yoonseok Choi, Mohammed A. Al-masni, Minyoung Jung, and Dong-Hyun Kim
ISMRM 2025

6. SUPREM: A Super-Resolution Network for Through-Plane Structure Enhancement Using Disentangled Representation Learning in Multi-Contrast MRI

Yoonseok Choi, **Sunyoung Jung**, Mohammed A. Al-masni, Daniel Kim, and Dong-Hyun Kim
ISMRM 2025

7. Improving subcortical segmentation in brain MRI using knowledge distillation to enhance robustness against motion artifacts

Changmin Ryu, **Sunyoung Jung**, Yoonseok Choi, and Dong-Hyun Kim
ICMRI 2025*, *Best Trainee Scientific Awards Poster Presentation(Gold)

8. Deformation-Aware Segmentation Network Robust to Motion Artifacts for Brain Tissue Segmentation using Disentanglement Learning

Sunyoung Jung, Yoonseok Choi, Mohammed A. Al-masni, Minyoung Jung, and Dong-Hyun Kim
MICCAI 2024

9. Brain Tissue Segmentation Robust to motion artifacts using Deformation-Aware Network

Sunyoung Jung, Yoonseok Choi, Mohammed A. Al-masni, and Dong-Hyun Kim
ISMRM 2024*, *Oral presentation

10. Investigation of electrical conductivity changes during functional activity of the brain via phase-based MR-EPT: Preliminary observation

Kyu-Jin Jung, Chuanjiang Cui, Jae-Hun Lee, Jun-Hyeong Kim, Kyoung-Jin Park, SooHyoung Lee, **Sunyoung Jung**, Dong-Hyun Kim
ISMRM 2023*, *Oral presentation

11. 3D Lesion Generation Model considering Anatomic Localization to Improve Object Detection in Limited Lacune Data

Daniel Kim, Jae-Hun Lee, Mohammed A. Al-masni, Jun-ho Kim, Yoonseok Choi, Eun-Gyu Ha, **Sunyoung Jung**, Dong-Hyun Kim
ISMRM 2023

Journal Paper

1. Motion Artifact-Informed Brain Tissue Segmentation Network via Disentanglement Learning

Sunyoung Jung, Yoonseok Choi, Mohammed Al-masni, Min-Young Jung, Dong-Hyun Kim
Medical Image Analysis (MedIA), Under Review, 2025, impact factor 11.8

2. Test-time Reference-free Through-plane Super-resolution Network for Multi-contrast Brain MRI via Disentangled Representations

Yoonseok Choi, **Sunyoung Jung**, Gayoon Choi, Mohammed A. Al-masni, Kyu-Jin Jung, Wei-Ting Chen, Ming-Hsuan Yang, and Dong-Hyun Kim
Medical Image Analysis (MedIA), Under Review, 2025, impact factor 11.8

3. Unsupervised learning for motion correction and assessment in brain magnetic resonance imaging using severity-based regularized cycle consistency.

Seuk Kim*, Mohammed A. Al-masni*, Seul Lee, **Sunyoung Jung**, Kyu-Jin Jung, Chuanjiang Cui, Sung-Min Gho, Young Hun Choi, and Dong-Hyun Kim
Engineering Applications of Artificial Intelligence, 2025 impact factor 8.0

Experience

Medical Imaging Artificial Intelligence Lab (MILab) - Intern — Seoul, South Korea
Yonsei University (Advisor: Dong-Hyun Kim) — Aug 2022 – Feb 2023

Human Brain Function Laboratory - Intern — Seoul, South Korea
Seoul National University (Advisor: Chun Kee Chung) — Jun 2021 – Sep 2021

Awards and Honors

1. ISMRM 2024 stipend, Korean Society of Magnetic Resonance in Medicine, Korea, 2024

2. Academic Achievement Award, Yonsei University, Korea, 2019

Academic Activities

Conference Reviewer

*The IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**)* *2026*