Junghwa Kang

EDUCATION

Hankuk University of Foreign Studies, Sep.2022 – Present
Ph.D. in Department of Biomedical Engineering (2022.9 ~ ing) HUFSAIM lab
Advisor: **Prof. Yoonho Nam**

Hankuk University of Foreign Studies, Sep.2020 – Aug.2022
M.S. in Department of Biomedical Engineering (2020.9 ~ 2022.9) HUFSAIM lab
Advisor: ***Prof. Yoonho Nam***
Thesis: "Development of a Deep Learning Model for Automatic Assessment of Motion Artifact in MRI"

Hankuk University of Foreign Studies, Mar.2016 – Aug.2020
B.S. in Department of Computer & Electronic Systems Engineering
& Department of Biomedical Engineering

PUBLICATION

- Park, G. E., Kim, S. H., Nam, Y., **Kang, J.**, Park, M., & Kang, B. J. (2024). 3D Breast Cancer Segmentation in DCE-MRI Using Deep Learning with Weak Annotation. Journal of Magnetic Resonance Imaging.
- Kim, H., Jang, J., **Kang, J.**, Jang, S., Nam, Y., Choi, Y., ... & Kim, B. S. (2022). Clinical implications of focal mineral deposition in the globus pallidus on CT and quantitative susceptibility mapping of MRI. Korean Journal of Radiology, 23(7), 742.
- Nam, Y., Choi, Y., **Kang, J.**, Seo, M., Heo, S. J., & Lee, M. K. (2022). Diagnosis of nasal bone fractures on plain radiographs via convolutional neural networks. Scientific Reports, 12(1), 21510.
- Kim, W., Shin, H. G., Lee, H., Park, D., **Kang, J.**, Nam, Y., ... & Jang, J. (2022). χ-Separation Imaging for Diagnosis of Multiple Sclerosis versus Neuromyelitis Optica Spectrum Disorder. Radiology, 220941.
- **Kang, J.**, & Nam, Y. (2022). Applications of Artificial Intelligence in MR Image Acquisition and Reconstruction. Journal of the Korean Society of Radiology, 83(6), 1229-1239.
- Lee, J. H., **Kang, J.**, Oh, S. H., & Ye, D. H. (2022). Multi-Domain Neumann Network with Sensitivity Maps for Parallel MRI Reconstruction. Sensors, 22(10), 3943.
- **Kang, J.**, Kim, H., Kim, E., Kim, E., Lee, H., Shin, N. Y., & Nam, Y. (2021**).** Convolutional Neural Network-Based Automatic Segmentation of Substantia Nigra on Nigrosome and Neuromelanin Sensitive MR Images. Investigative Magnetic Resonance Imaging, *25*(3), 156-163.
- Nam, Y., Park, G. E., **Kang, J.**, & Kim, S. H. (2020). Fully Automatic Assessment of Background Parenchymal Enhancement on Breast MRI Using Machine-Learning Models. Journal of Magnetic Resonance Imaging.

CONFERENCE ABSTRACTS (International)

- **J Kang** et al., Prediction of breast cancer recurrence based on automatically extracted quantitative MR features. ISMRM, 2025, Oral Presentation
- **J Kang** et al. Automatic Lateral Ventricle and Choroid Plexus Segmentation Method in Infant Brain MR Images. ISMRM, 2025, Digital Poster
- J Kang et al., A Comparative Analysis of Choroid Plexus Segmentation Methods in Infant MRI: Freesurfer, GMM, and Deep Learning-based Approaches, ICMRI 2024, Digital poster
- **J Kang** et al., Enhancement of PVS analysis via T1w-based PVS segmentation: Comparison with T2-weighted Based method. OHBM 2024, Traditional Poster
- **J Kang** et al., Improved PVS Segmentation Using T1-Weighted Image: Comparison with T2-Weighted Image-Based Segmentation. ISMRM, 2024, Digital Poster
- **J Kang** et al., Quantitative Analysis Of MRI-Visible Perivascular Spaces in Schizophrenia. ISMRM 2024, Digital Poster
- **J Kang** et al., Improved PVS segmentation using T1-weighted image: Comparison with T2-weighted image-based segmentation. ICMRI, 2023
- **J Kang** et al., New Multiple Sclerosis Lesion Segmentation in Longitudinal FLAIR MR Images using Subtraction Image. ISMRM, 2023, Digital Poster
- **J Kang** et al. Investigation of nonuniform bias field in quantitative analysis of neuromelanin-sensitive MR imaging. ISMRM, 2023, Digital Poster
- **J Kang** et al., Bias field correction in MRI with hampel noise denoising diffusion probabilistic model. MIDL 2023, Digital Poster

- **J Kang** et al., Automatic Detection of New Multiple Sclerosis Lesions in Longitudinal MRI using Multi-stage 3D patch-wise Deep Learning Algorithm. ICMRI, 2022
- **J Kang** et al., Assessment and Improvement of the Quality of Fat Saturation in Breast MRI using Deep-learning with synthetic data. ISMRM, 2022, Oral Presentation #0149
- **J Kang** et al. A Multi-Stage 3D Patch-wise Deep Learning Algorithm for Detection of New Multiple Sclerosis Lesions in Longitudinal MRI. ISMRM, 2022, Power Pitch
- **J Kang** et al., Automatic Assessment of the Quality of Fat Saturation in Breast MRI. ICMRI, 2021, EP-BR-03
- **J Kang** et al., Fully Automatic Assessment of Motion Artifacts on the Substantia Nigra Imaging Protocol. ICMRI, 2021, EP-AD-10
- **J Kang** et al. Automatic assessment of motion artifact on Nigrosome 1 visualization protocol using CNN-LSTM. ISMRM, 2021, #3020, (Digital Poster)
- **J Kang** et al, CNN-based BPE Classification of Unbalanced Breast MR Dataset using Online Meta-learning Algorithm. ICMRI, 2020, PP-AD-09
- S Jang, **J Kang** et al, Automatic Segmentation of Subcortical Brain Structures from Single-echo SWI Data using CNN. ICMRI, 2020, PP-AD-10
- H Kim, **J Kang** et al, Deep learning based automatic localization of substantia nigra region for quantitative analysis of neuromelanin and nigrosome imaging. ICMRI, 2019, SS02-06
- **J Kang** et al, Automatic 3D segmentation of breast and fibroglandular tissue in breast MR images using 3D convolutional neural network. ICMRI, 2019, PP04-10

CHALLENGE AND AWARDS

- 2025 ISMRM - Magna Cum Laude Award
- 2024 MICCAI Enlarged Perivascular Spaces Segmentation challenge 3rd Place
- 2024 ISMRM, Imaging Neurofluids Study group TRAINEE AWARD 2nd Place Award
- MICCAI 2021 MSSEG2 challenge participation. Presentation / ShortPaper
  - Short paper: Segmentation of New Multiple Sclerosis Lesions in Longitudinal MRI Analysis Using a Multi-Stage 3D Patch-wise Deep Learning Algorithm
- MOAI 2020 Body morphometry AI segmentation challenge
  Final ranking: 1st Place PPT / GitHub
- Healthcare AI Learning Platform (HeLP) Challenge 2019
  Task: Traumatic lesion classification and detection
  Final ranking: 1st Place PPT / Presentation / GitHub

WORK EXPERIENCES & INTERSHIP TRAINING

- Department of Radiology, Severance Hospital, Yonsei University College of Medicine, Seoul, South Korea — Dec.2023- *Present*
  Advisor: *Na-Young Shin, Sung Soo Ahn*
- HufsAim Lab in Hankuk University of Foreign Studies — Feb.2020-Aug.2020
  Advisor: ***Yoonho Nam***
- Department of Radiology, Seoul St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Seoul, South Korea
  & Department of Radiology, Eunpyeong St. Mary's Hospital, The Catholic University of Korea, Seoul, South Korea — Dec.2018-Feb.2020
  Advisor: ***Yoonho Nam***
- Seoul National University Internship, Quantitative Susceptibility Mapping — Aug.2018
  Advisor: ***Jongho Lee***