Junmo Kwon, Ph.D.

Postdoctoral Research Fellow at Sungkyunkwan University
Medical Image Processing (MIP) Lab
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Research Interest

— Medical Image Computing   — Semantic Segmentation   — Self-supervised Learning   — Deep Learning

Education

Sungkyunkwan University   **Suwon, South Korea**
Ph.D. in Electronic and Electrical Engineering   *Mar. 2018 - Feb. 2024*
— Thesis: Multimodal Artificial Intelligence for Addressing Data Scarcity and Class Imbalance
— Overall GPA: 4.26/4.5

Sungkyunkwan University   **Suwon, South Korea**
B.Sc. in Electronic and Electrical Engineering   *Mar. 2013 - Feb. 2018*
— Overall GPA: 3.94/4.5
— Major GPA: 4.12/4.5

Professional Experience

MIP Lab, Sungkyunkwan University   **Suwon, South Korea**
Postdoctoral Research Fellow (Advisor: Prof. Hyunjin Park)   *Mar. 2024 - Present*

MIP Lab, Sungkyunkwan University   **Suwon, South Korea**
Research Assistant (Advisor: Prof. Hyunjin Park)   *Mar. 2018 - Feb. 2024*

Journal Publications (* denotes equal contribution)

[J10] Leveraging Segmentation-Guided Spatial Feature Embedding for Overall Survival Prediction in Glioblastoma with Multimodal Magnetic Resonance Imaging

Junmo Kwon, Jonghun Kim and Hyunjin Park

Computer Methods and Programs in Biomedicine (IF=4.949), Oct. 2024 [Link]

[J9] Waiting impulsivity in progressive supranuclear palsy-Richardson's syndrome

Jong Hyeon Ahn*, **Junmo Kwon***, Ji Hye Won, Kyoungseob Byeon, Jinyoung Youn, Hyunjin Park and Jin Whan Cho

Frontiers in Neuroscience (IF=3.203), Sep. 2023 [Link]

[J8] Extra-Basal Ganglia Brain Structures Are Related to Motor Reserve in Parkinson's Disease

Jinyoung Youn, Ji Hye Won, Mansu Kim, **Junmo Kwon**, Seung Hwan Moon, Minkyeong Kim, Jong Hyun Ahn, Jun Kyu Mun, Hyunjin Park and Jin Whan Cho

Journal of Parkinson's Disease (IF=3.988), Jan. 2023 [Link]

[J7] Tumor-Attentive Segmentation-Guided GAN for Synthesizing Breast Contrast-Enhanced MRI Without Contrast Agents

Eunjin Kim, Hwan-Ho Cho, **Junmo Kwon**, Young-Tack Oh, Eun Sook Ko and Hyunjin Park

IEEE Journal of Translational Engineering in Health and Medicine (IF=3.4), Nov. 2022 [Link]

[J6] Wearable EEG electronics for a Brain–AI Closed-Loop System to enhance autonomous machine decision-making

Joo Hwan Shin, **Junmo Kwon**, Jong Uk Kim, Hyewon Ryu, Jehyung Ok, Seok Joon Kwon, Hyunjin Park and Tae-il Kim

npj Flexible Electronics (IF=14.6, JCR 2.18%), May. 2022 [Link]

[J5] Disrupted stepwise functional brain organization in overweight individuals
Hyebin Lee, **Junmo Kwon**, Jong-eun Lee, Bo-yong Park and Hyunjin Park
Communications Biology (IF=6.548), Jan. 2022 [Link]

[J4] Radiomics-guided deep neural networks stratify lung adenocarcinoma prognosis from CT scans
Hwan-ho Cho, Ho Yun Lee, Eunjin Kim, Geewon Lee, Jonghoon Kim, **Junmo Kwon** and Hyunjin Park
Communications Biology (IF=6.268, JCR 8.60%), Nov. 2021 [Link]

[J3] A Cascaded Neural Network for Staging in Non-Small Cell Lung Cancer Using Pre-Treatment CT
Jieun Choi, Hwan-ho Cho, **Junmo Kwon**, Ho Yun Lee and Hyunjin Park
Diagnostics (IF=3.706), Jun. 2021 [Link]

[J2] Are radiomics features universally applicable to different organs?
Seung-Hak Lee, Hwan-ho Cho, **Junmo Kwon**, Ho Yun Lee and Hyunjin Park
Cancer Imaging (IF=3.909), Apr. 2021 [Link]

[J1] Machine learning-based automated classification of headache disorders using patient-reported questionnaires
Junmo Kwon, Hyebin Lee, Soohyun Cho, Chin-Sang Chung, Mi Ji Lee and Hyunjin Park
Scientific Reports (IF=3.998), Aug. 2020 [Link]

Conference Proceedings

[C6] Enhancing Cerebral Microbleed Segmentation with Pretrained UNETR++
Junmo Kwon, Sang Won Seo and Hyunjin Park
IEEE International Conference on Bioinformatics and Biomedicine (BIBM), Dec. 2024 [Link]

[C5] Anatomically-Guided Segmentation of Cerebral Microbleeds in T1-weighted and T2*-weighted MRI
Junmo Kwon, Sang Won Seo and Hyunjin Park
Medical Image Computing and Computer-Assisted Intervention (MICCAI), Oct. 2024 [Link]

[C4] Joint Learning of Segmentation and Overall Survival for Brain Tumor based on U-Net
Junmo Kwon and Hyunjin Park
IEEE 36th International Symposium on Computer Based Medical Systems (CBMS), Jun. 2023 [Link]

[C3] Region-of-interest Attentive Heteromodal Variational Encoder-Decoder for Segmentation with Missing Modalities
Seungwan Jeong, Hwanho Cho, **Junmo Kwon** and Hyunjin Park
16th Asian Conference on Computer Vision (ACCV), Dec. 2022 [Link]

[C2] Deep Network-Based Feature Selection for Imaging Genetics: Application to Identifying Biomarkers for Parkinson's Disease
Mansu Kim, Ji Hye Won, Jisu Hong, **Junmo Kwon**, Hyunjin Park and Li Shen
IEEE 17th International Symposium on Biomedical Imaging (ISBI), Apr. 2020 [Link]

[C1] Artificial Neural Network Inspired by Neuroimaging Connectivity: Application in Autism Spectrum Disorder
Kyoungseob Byeon, **Junmo Kwon**, Jisu Hong and Hyunjin Park
2020 IEEE International Conference on Big Data and Smart Computing (BigComp), Feb. 2020 [Link]

Teaching Experience

Basis and Practice in Programming (C Language) **Sungkyunkwan University**
Teaching Assistant (*Instructor: Prof. Hyunjin Park*) *Fall Semester, 2020*

Computer Vision, Samsung SDS **Sungkyunkwan University**
Teaching Assistant (*Instructor: Prof. Hyunjin Park*) *Jul. 2020*

Image Processing   **Sungkyunkwan University**
Teaching Assistant (*Instructor: Prof. Hyunjin Park*)   *Spring Semester, 2020*

Computer Vision, KB Financial Group   **Sungkyunkwan University**
Teaching Assistant (*Instructor: Prof. Hyunjin Park*)   *Oct. 2019 - Nov. 2019*

Engineering Mathematics I   **Sungkyunkwan University**
Teaching Assistant (*Instructor: Prof. Mitra Ghergherehchi*)   *Spring Semester, 2018*

Awards and Achievements

2022 Joint SMRA and MICCAI Grand Challenge Award   **SMRA & MICCAI**
Ranked the First Place in the COSMOS 2022 Grand Challenge [Link]   *2022*

Graduate Merit Scholarship   **Sungkyunkwan University**
Awarded during Graduate Studies   *2018 - 2020*

Academic Excellence Scholarship   **Sungkyunkwan University**
Achieved Excellent Grades in the Department of Electronic and Electrical Engineering   *2015 - 2017*

Dean's List Award   **Sungkyunkwan University**
Honored for High Academic Achievement   *2015 - 2016*

National Science and Technology Scholarship   **National Research Foundation of Korea**
Awarded during Undergraduate Studies   *2015*

Skills

Programming Languages
- C
- Python
- MATLAB

Frameworks
- PyTorch
- Docker
- FSL
- ANTs
- Keras
- MONAI
- FreeSurfer
- MRtrix3
- Tensorflow
- PBS/Torque
- AFNI
- SimpleITK

Other Experience

Department of Electrical and Computer Engineering, Sungkyunkwan University   **Suwon, South Korea**
Teaching Assistant   *Mar. 2018 - Feb. 2021*

MIP Lab, Sungkyunkwan University   **Suwon, South Korea**
Research Intern (*Advisor: Prof. Hyunjin Park*)   *Nov. 2017 - Feb. 2018*
- Research topic: Detection of lung nodules in CT images