Jongseok Kim

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Profile

- Research Assistant in Information System Lab, Chungbuk National University.
- Focusing on multimodal learning, lightweight signal processing, and explainable AI for complex-valued data.

Education

2023/03 – 2025/02 M.S. in Computer Science
Chungbuk National University South Korea
- **Outstanding Graduate Researcher Award**

2017/03 – 2023/02 B.S. in Computer Science
Chungbuk National University South Korea
- **Military Service : Republic of Korea Army (2018/07 – 2020/03)**

Work

2025/03 – Present Research Assistant
Information System Lab Cheongju-si, South Korea
- **Multimodal Learning**
- **Signal Processing**

2021/03 – 2021/12 Software Developer
Planit Co.,LTD. Cheongju-si, South Korea
- **Medical Imaging Software Development**

Research Experience

2022/03 – Present Ultra Light Weight Machine Learning Technique based on 3D-Imagification of Heterogeneous Time Series Data for Convergence Services based on IoIT
National Research Foundation of Korea Republic of Korea
- **Role:** 3D Signal Processing Researcher

2022/03 – Present Development of 5G+ Intelligent Basestation Software Modem
Ministry of Science and ICT Republic of Korea
- **Role:** Lightweight Deep Learning & Signal Processing Researcher

2024/09 – Present Integrated Underwater Surveillance Research Center for Future Technology Adaptation
Ministry of National Defense Republic of Korea
- **Role:** Sensor Data Processing & Explainable AI Researcher

Awards & Honors

2025 Outstanding Graduate Researcher Award
Chungbuk National University Cheongju, South Korea

PUBLICATIONS

* Corresponding Author † Co-first Authors

Submitted Manuscripts

» (Title withheld due to double-blind policy.)
Jongseok Kim†, Byunghyuk Youn†, Ohyun Jo*
submitted to **IEEE Transactions on Industrial Informatics**, Under Review
Impact Factor: 9.9 (JCR Top 4.9%)

» Hybrid Feature Selection for Assessment of Oceanic Channel via Explainable AI
Jongseok Kim, Ho-Shin Cho, Ohyun Jo*
submitted to **Journal of Ocean Engineering and Science**, Major Revision
Impact Factor: 11.8 (JCR Top 2.0%)

International Conference and Journal Papers

» ComplexRep: Integrating Learned Representations to Enhance Complex-valued Data Transparency
Jongseok Kim, Woonggyu Min, Juyeop Kim, Ohyun Jo*
IEEE Internet of Things Journal, 2025 (SCIE), Accepted
Impact Factor: 8.9 (JCR Top 4.1%)

» Analysis on Underwater Channel by Using Shapley Additive Explanations
Jongseok Kim, Ho-Shin Cho, Ohyun Jo*
J-KICS, 2025 (SCOPUS)

» Denoising Method for Wireless Communication Signals Based on Convolutional AutoEncoder
Woonggyu Min, Jongseok Kim, Ohyun Jo*
ICAIIC 2025 (International Conference on Artificial Intelligence in Information and Communication)

» MuShAug: Boosting Sequence Signal Classification via Multishape Augmentation
Jongseok Kim, Ohyun Jo*
IEEE Internet of Things Journal, 2024 (SCIE)
Impact Factor: 10.6 (JCR Top 2.2%)

» IncepSeqNet: Advancing Signal Classification with Multi-Shape Augmentations (Student Abstract)
Jongseok Kim, Ohyun Jo*
AAAI 2024 (The 38th Annual AAAI Conference on Artificial Intelligence)
h5 index: 212

» Intelligent Index Classification Method Based on Machine Learning for Detection of Reference Signal in 5G Networks
Seungwoo Kang†, Taegyeom Lee†, Jongseok Kim, A-reum-saem Lee, Juyeop Kim, Ohyun Jo*
IEEE Access, 2023 (SCIE)

Domestic Conference and Journal Papers

» Performance Improvement for 5G DMRS Index Classification by Using Complex Neural Networks
Byunghyuk Youn, Jongseok Kim, Ohyun Jo*
APJCRI 2025

» Exploitation of Deep Learning for Detecting 5G Preamble Signal
AReumSaem Lee, Jongseok Kim, Byunghyuk Youn, Ohyun Jo*
APJCRI 2025

» Complex-Valued Neural Network for Enhancing 5G DMRS Index Classification
Byunghyuk Youn, Jongseok Kim, Juyeop Kim, Ohyun Jo*
KICS Winter Conference 2024

» Analysis for Optimizing Sequence Data Augmentation based on Phase Transformation
Jongseok Kim, Ohyun Jo*
APJCRI 2024

» Lightweight Data Processing Scheme based on Machine Learning for 5G DMRS Index Classification
Jongseok Kim, Seungwoo Kang, Ohyun Jo*
APJCRI 2023

» Enhancing Performance for 5G DMRS Signals Classification using Multi-channel based Imagification
Jongseok Kim, Seungwoo Kang, Juyeop Kim, Ohyun Jo*
KICS Summer Conference 2023

» 5G DMRS Data Imagification Method for Efficient Deep Learning-based Index Classification
Jongseok Kim, Seungwoo Kang, Taegyeom Lee, Juyeop Kim, Ohyun Jo*
The 3rd Korea Artificial Intelligence Conference 2022

Patents

» Method for Augmenting Time Series Signal Data for Deep Learning and Computing Device for Executing the Method (Application Number : KR10-2024-0071748)
Filed: 2024/05

Teaching Experience

2023/03 – 2024/12 Teaching Assistant
Chungbuk National University South Korea

» **Operating Systems (Spring 2023)**
» **Computer Networks (Spring 2024)**

IT Skills

C
Python
Tensorflow
Kera
Latex

Referee

Dr. Ohyun Jo Professor
School of Computer Science, Chungbuk National University
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Master's Thesis Advisor

Dr. Keon Myung Lee Professor
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Dr. Namil Kim Principal Researcher
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