Jongseok Kim

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Homepage : https://kor-jskim.github.io
Google Scholar : Scholar Profile

Education

M.S. in Computer Science, Chungbuk National University, Korea 2023.03 – 2025.02
Thesis : Learning Framework for Enhancing Complex-Valued Sequence Data Processing via Multi-Shape Augmentation

B.S. in Computer Science, Chungbuk National University, Korea 2017.03 – 2023.02

Research Interests

Model Compression, Data Augmentation, Explainable AI (XAI), Intelligent IoT Systems

Publications

* Corresponding Author † Co-first Authors

Submitted Manuscripts

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

2. 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**, Under Review
   IF : 11.7, Top 2.0%

1. (Title withheld due to double-blind spqpolicy.)
   Jongseok Kim, Woonggyu Min, Byunghyuk Youn, Ohyun Jo*
   submitted to **ACM SIGGRAPH-ASIA**, Under Review

International Conference and Journal Papers

6. 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)
   IF : 8.9, Top 4.1%

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

4. 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)

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

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

1. 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

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

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

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

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

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

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

1. 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 Artificail Intelligence Conference 2022

Patents

Filed 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

Projects

Ultra Light Weight Machine Learning Technique based on 3D-Imagification of Heterogeneous Time Series Data for Convergence Services based on Internet of Intelligent Things

2022.03 – Present

Role: Researcher
Research Grant : National Research Foundation of Korea, Republic of Korea
- Designed a 3D imagification framework and developed ultra-lightweight ML models optimized for IoIT edge environments.

Development of 5G+ Intelligent Basestation Software Modem

2022.03 – Present

Role: Researcher
Research Grant : Ministry of Science and ICT, Republic of Korea
- Implemented signal-to-image conversion models and developed lightweight learning models for resource-constrained 5G+ basestation systems.

Integrated Underwater Surveillance Research Center for Future Technology Adaptation

2024.09 – Present

Role: Researcher
Research Grant : Ministry of National Defense, Republic of Korea
- Applied explainable AI and feature selection techniques to enhance next-generation underwater surveillance systems.

Awards & Honors

- **Outstanding Graduate Researcher Award**
  (Chungbuk National University, 2025)

Teaching Experience

Teaching Assistant, Chungbuk National University, Korea 2023.03 – 2024.12
- Operating Systems (Spring 2023)
- Computer Networks (Spring 2024)

Technical Skills

Languages: Python (Proficient), C (Intermediate)
Tools: Keras, TensorFlow, Git