

# Jongseok Kim

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Homepage : <https://kor-jskim.github.io>

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## Education

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**M.S. in Computer Science**, Chungbuk National University, Korea Mar 2023 – Feb 2025  
Outstanding Graduate Researcher Award

**B.S. in Computer Science**, Chungbuk National University, Korea Mar 2017 – Feb 2023  
Military Service : Republic of Korea Army (Jul 2018 – Mar 2020)

## Research Interests

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Self-supervised Learning, Model Compression, Data Augmentation, Explainable AI (XAI), Intelligent Systems, Signal Processing

## Work Experience

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**Research Assistant** : Multimodal Learning and Signal Processing Mar 2025 – Present  
Information Systems Lab, Chungbuk National University, Republic of Korea

**Software Developer** : Medical Imaging Software Development Mar 2021 – Dec 2021  
Planit Co., Ltd., Cheongju, Republic of Korea

## Research Experience

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**Ultra Light Weight Machine Learning Technique based on 3D-Imagification of Heterogeneous Time Series Data for Convergence Services based on Internet of Intelligent Things** Mar 2022 – Present

- **Role**: 3D Signal Processing Researcher
- **Research Grant** : National Research Foundation of Korea, Republic of Korea

**Development of 5G+ Intelligent Basestation Software Modem** Mar 2022 – Present

- **Role**: Lightweight Deep Learning & Signal Processing Researcher
- **Research Grant** : Ministry of Science and ICT, Republic of Korea

**Integrated Underwater Surveillance Research Center for Future Technology Adaptation** Sep 2024 – Present

- **Role**: Sensor Data Processing & Explainable AI Researcher
- **Research Grant** : Ministry of National Defense, Republic of Korea

## Awards & Honors

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

## Publications

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\* Corresponding Author    † Co-first Authors

### Submitted Manuscripts

2. (Title withheld due to double-blind policy.)  
Jongseok Kim<sup>†</sup>, Byunghyuk Youn<sup>†</sup>, Ohyun Jo<sup>\*</sup>  
submitted to **IEEE Transactions on Industrial Informatics**, Under Review  
**Impact Factor : 9.9 (JCR Top 4.9%)**
1. Hybrid Feature Selection for Assessment of Oceanic Channel via Explainable AI  
Jongseok Kim, Ho-Shin Cho, Ohyun Jo<sup>\*</sup>  
submitted to **Journal of Ocean Engineering and Science**, Major Revision  
**Impact Factor : 11.8 (JCR Top 2.0%)**

### International Conference and Journal Papers

6. ComplexRep: Integrating Learned Representations to Enhance Complex-valued Data Transparency  
Jongseok Kim, Woonggyu Min, Juyeop Kim, Ohyun Jo<sup>\*</sup>  
**IEEE Internet of Things Journal 2025**, (SCIE), Accepted  
**Impact Factor : 8.9 (JCR Top 4.1%)**
5. Analysis on Underwater Channel by Using Shapley Additive Explanations  
Jongseok Kim, Ho-Shin Cho, Ohyun Jo<sup>\*</sup>  
**J-KICS 2025**, (SCOPUS)
4. Denoising Method for Wireless Communication Signals Based on Convolutional AutoEncoder  
Woonggyu Min, Jongseok Kim, Ohyun Jo<sup>\*</sup>  
**ICAIIC 2025**, (International Conference on Artificial Intelligence in Information and Communication)
3. MuShAug: Boosting Sequence Signal Classification via Multishape Augmentation  
Jongseok Kim, Ohyun Jo<sup>\*</sup>  
**IEEE Internet of Things Journal 2024**, (SCIE)  
**Impact Factor : 10.6 (JCR Top 2.2%)**
2. IncepSeqNet: Advancing Signal Classification with Multi-Shape Augmentations (Student Abstract)  
Jongseok Kim, Ohyun Jo<sup>\*</sup>  
**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<sup>†</sup>, Taegyeom Lee<sup>†</sup>, Jongseok Kim, A-reum-saem Lee, Juyeop Kim, Ohyun Jo<sup>\*</sup>  
**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 Artificial Intelligence Conference 2022**

## Patents

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### 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: May 2024

## Teaching Experience

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**Teaching Assistant**, Chungbuk National University, Korea

Mar 2023 – Dec 2024

- Operating Systems (Spring 2023)

- Computer Networks (Spring 2024)

## References

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**Prof. Ohyun Jo** (ohyunjo@chungbuk.ac.kr), Chungbuk National University

- Master's Thesis Advisor

**Prof. Keon Myung Lee** (kmlee@cbnu.ac.kr), Chungbuk National University

- Bachelor's Thesis Advisor

**Dr. Namil Kim** (namilk@etri.re.kr), ETRI (Electronics and Telecommunications Research Institute)

- Principal Researcher, Project Advisor