

Jiwoon Lee

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EDUCATION

Kwangwoon University

Major in Computer Engineering, Bachelor of Science in Computer Engineering

Feb 2019 – Present

Seoul, Republic of Korea

- Opensource Spiking Neural Network Accelerator for FPGA
- Text-To-Speech using Melspectrogram and Generative Adversarial Network

Advisor: Prof. Cheolsoo Park

RESEARCH INTERESTS

Computational neuroscience, Signal processing, Information theory, Generative AI, Machine learning

EXPERIENCE

Student Researcher

BCML (Bio Computing and Machine Learning) Lab., Kwangwoon University

Advisor: Prof. Cheolsoo Park

Jan 2022 – Present

On-site – Seoul, Republic of Korea

- Signal to Spike Encoding Inspired by Neural Signaling
- Restoration and Interpolation method for Electrocardiogram using DDPM
- Multivariate Empirical Mode Decomposition
- Classification of arrhythmias via 1D-2D Transformation
- Detection of abnormal walking using Machine Learning

Research Intern

Qualcomm Institute, University of California, San Diego

Advisor: Prof. Seokheon Cho

Jul 2022 – Aug 2022

On-site – San Diego, California, United States

- Analysis of disease classification model using LIME (Local Interpretable Model-agnostic Explanation) method
- Classification of breast tumors using Support Vector Machine

Squad Leader, Sergeant

Capital Defense Command, Republic of Korea Army

Jun 2020 – Dec 2021

- Fire Direction Center (FDC)

HONORS AND AWARDS

Software Competence Excellence Scholarship, Kwangwoon University, 2019, 2022, 2023

Best Paper Award, 2022 IEEE ICCE-Asia 2022, IEEE, 2022

Excellence Award in Ministry of National Defense Start-Up Challenge, Republic of Korea Ministry of National Defense, 2021

Academic Excellence Scholarship, Kwangwoon University, 2019

Grand Prize in Chambit Design Semester Performance Presentation, Kwangwoon University, 2019

Microsoft Azure Prize in The 1st Welcome to the maker world, Microsoft Korea, 2017

PUBLICATIONS

- H. Yu†, S. Baek†, J. Lee†, I. Sohn, B. Hwang*, C. Park* (2023). "Deep Neural Network-based Empirical Mode Decomposition for Motor Imagery EEG Classification", *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, Under review. (†Co-first author. * Corresponding author.)

CERTIFICATIONS

- Introduction to Statistical Methods with MATLAB, MATLAB, Feb 2023
- Qualcomm Institute Artificial Intelligence (AI) Development Project, Qualcomm Institute, Aug 2022
- AI Framework Certificate(KNIME Certification: L1 Examination, KNIME, Aug 2022
- Principles of Supercomputer and Supercomputing, Korea Institute of Science and Technology Information, Nov 2016

COMMUNICATIONS

- J. Yang, J. Kim, J. Lee, H. Ryu, S. Yeo, P. Kim, Y. Kim, J. Lim, H. Yoon, C. Park, "Metaverse: Research Based Prediction Model of the Car Price in view of the Machine-learning Method", In *IEEE International Conference on Metaverse Computing* (IEEE MetaCom 2023), Jun 2023, Kyoto, Japan
- Y. Kang, J. Lee, C. Park, "Probabilistic Modeling for Multivariate Signal Restoration in PPG and ECG Using Denoising Diffusion", In *The Korean Society of Medical & Biological Engineering Spring Conference 2023*, May 2023, Daegu, Republic of Korea
- J. Lee, C. Park, "Denoising Diffusion Probabilistic Model based Time-Series ECG data Interpolation", In *The Korean Society of Medical & Biological Engineering Autumn Conference 2022*, Nov 2022, Incheon, Republic of Korea
- J. Lee, C. Park, "Restoration of Time-Series Medical Data with Diffusion Model", In *2022 IEEE International Conference on Consumer Electronics-Asia* (ICCE-Asia), Oct 2022, Yeosu, Republic of Korea
- S. Baek, S. Han, J. Lee, C. Park, "Arrhythmia Classification Using 1D-2D Conversion", In *u-Healthcare 2019*, Dec 2019, Seoul, Republic of Korea

PATENTS

- KOR 10-2022-0189990, J. Lee, G. Yang, and C. Park, "Restoration method for corrupted Time-series medical data based on Probabilistic model", Dec 2022
- KOR 10-2016-0045279, J. Lee, "AR navigation service using the Indoor Positioning System and Beacon", Apr 2016

ORGANIZATIONS

Organizer, Google Developer Student Clubs Kwangwoon University	Sep 2023 – Present
Student member, IEEE, Seoul Section	Sep 2022 – Present
Member, IEEE Consumer Technology Society	Sep 2022 – Present