

YEONGHYEON PARK

Research Engineer, SK Planet Co., Ltd., Korea

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RESEARCH INTERESTS

- Anomaly Detection
- Signal Processing
- Computer Vision
- Vision-Language Models

EDUCATION

Ph.D. in of Electrical and Computer Engineering Feb.2022 - Feb.2025

Sungkyunkwan University

GPA: 4.17/4.5

- Dissertation: Effective Anomaly Detection Towards Edge Computing by Leveraging Pre-trained Attention Mechanisms

- Advisor: Prof. Juneho Yi

M.S. in of Computer and Electronic Systems Engineering Mar.2018 - Feb.2020

Hankuk University of Foreign Studies

GPA: 4.43/4.5

- Thesis: Performance Enhancement Method for Electrocardiogram Analysis

- Advisor: Prof. Il Dong Yun

B.S. in of Digital Information Engineering Feb.2012 - Feb.2018

Hankuk University of Foreign Studies

GPA: 4.21/4.5

- Thesis: Implementation of a Real-Time Blink Recognition System using CNN

- Advisor: Prof. Il Dong Yun

EXPERIENCE

Research Engineer

Sep. 2019 - Present

SK Planet Co., Ltd., Korea

- Expanding expertise from research and development of anomaly detection systems to the value-added services utilizing generative AIs including vision-language models
- Recognized as “**Key Talent**” for 3 consecutive years 2021, 2022, and 2023
- Developed AI-powered telecom value added services (VAS) Dec.2024 - Present
 - AI COLORING: User context-aware reasoning and personalized ringback tone generation
 - AI Sorisam: Context-aware automatic speech answering and voicemail summarization
 - AI Moment: Automated text-to-video short promotional content creation for SOHO
- Developed wafer imaging system using line-scan cameras (w/ SK Hynix) Nov.2023 - Oct.2024

- Wafer image scanning during transport from EFEM to the chamber by robot arm
- Reconstruction of distorted wafer image by estimating the robot arm’s trajectory
- Classifying wafer types for metadata mapping
- Implementation of aging-clock prediction model (w/ Bertis) Feb.2024 - Jan.2025
 - Develop an aging clock prediction model using the ComputAgeBench dataset
 - Achieved a correlation coefficient of 0.964 between chronological and predicted age
- Researched anomaly detection techniques to develop smart factory systems Apr.2020 - Dec.2024
 - Film defect classification system (w/ SKC)
 - Anomaly detection and prediction in die casting process (w/ KODACO)
 - Hyperspectral imaging-based serum anomaly detection (w/ SK Discovery)
- Spearheaded developing audio-based road anomaly detection system Apr.2020 - Apr.2022
 - Accelerating training and inference speed by developing compact neural network structures
 - Designing and collecting tire friction sounds under various road conditions (w/ Hankook Tire)
 - Promotional videos: [Short version](#), [Full version](#)
- Anomaly detection detection in low-cost particulate matter sensors Sep.2019 - Apr.2020

Research Assistant

Oct. 2021 - Jan. 2025

Sungkyunkwan University, Korea

- Initiated research before official Ph.D. enrollment (Oct.2021 - Jan.2022)
- Developed pre-trained attention mechanism-based anomaly detection
- Proposed a self-supervised learning strategy using deterministic masking
- Studied solar panel anomaly detection for efficient edge computing

Research Assistant

Sep. 2017 - Aug. 2019

Hankuk University of Foreign Studies, Korea

- Participated in research before official M.S. enrollment (Sep.2017 - Feb.2018)
- Researched biosignal analysis, medical image processing, and anomaly detection
- Developed an ECG-based cardiac disease diagnosis model (w/ SNUBH)
- Studied time-series anomaly detection for rapid model training
- Conducted tissue segmentation on neuroimages for medical applications

Research Intern

Jan. 2017 - Feb. 2017

StoryAnt Inc., Korea

- Developed an intelligent archive system for historical document classification

HONORS AND AWARDS

- Key Talent Award** 2021, 2022, and 2023
SK Planet Co., Ltd.
- Recognized as an exceptional team member in annual evaluations.
- Excellence Award in Manufacturing Data Analysis Competition** Nov.2023
Korea AI Manufacturing Platform (KAMP)
- Best Conference Paper Award** Dec.2021
IEEE International Conference on Architecture, Construction, Environment and Hydraulics
- Graduate Scholarship** 2018 - 2020
Department of Computer and Electronic Systems Engineering, Hankuk University of Foreign Studies
- Full-tuition scholarship
- Excellence Undergraduate Thesis Award** Nov.2017
Department of Digital Information Engineering, Hankuk University of Foreign Studies
- Academic Excellence Scholarship** 2013-2017
Department of Digital Information Engineering, Hankuk University of Foreign Studies
- Full-tuition scholarship (Spring.2016, Fall.2016, and Spring.2017), Half-tuition scholarship (Spring.2013)

PUBLICATIONS

Journals

- [J8] **YeongHyeon Park**, Sungho Kang, Myung Jin Kim, Yeonho Lee, Hyeong Seok Kim, and Juneho Yi “[Visual Defect Obfuscation Based Self-Supervised Anomaly Detection](#)”, *Scientific Reports*, Aug.2024
- [J7] **YeongHyeon Park**, Myung Jin Kim, Uju Gim, and Juneho Yi “[Boost-up Efficiency of Defective Solar Panel Detection with Pre-trained Attention Recycling](#)”, *IEEE Transactions on Industry Applications*, Mar.2023
- [J6] **YeongHyeon Park** and JongHee Jung “[Efficient Non-Compression Auto-Encoder for Driving Noise-Based Road Surface Anomaly Detection](#)”, *IEEJ Transactions on Electrical and Electronic Engineering*, Jul.2022
- [J5] **YeongHyeon Park**, Won Seok Park, and Yeong Beom Kim “[Anomaly detection in particulate matter sensor using hypothesis pruning generative adversarial network](#)”, *ETRI Journal*, Dec.2020
- [J4] **YeongHyeon Park**, Il Dong Yun, and Si-Hyuck Kang, “[The CNN-based Coronary Occlusion Site Localization with Effective Preprocessing Method](#)”, *IEEJ Transactions on Electrical and Electronic Engineering*, Vol.15, no.10, pp.1549-1551, Aug.2020
- [J3] **YeongHyeon Park**, Il Dong Yun, and Si-Hyuck Kang, “[Preprocessing Method for Performance](#)

Enhancement in CNN-based STEMI Detection from 12-lead ECG”, *IEEE Access*, Vol.7, pp.99964-99977, Jul.2019

[J2] **YeongHyeon Park** and Il Dong Yun, “Arrhythmia detection in electrocardiogram based on recurrent neural network encoder–decoder with Lyapunov exponent”, *IEEJ Transactions on Electrical and Electronic Engineering*, Vol.14, no.8, pp. 1273-1274, May.2019

[J1] **YeongHyeon Park** and Il Dong Yun, “Fast Adaptive RNN Encoder-Decoder for Anomaly Detection in SMD Assembly Machine”, *Sensors*, Vol.18, no.10, pp.3573, Oct.2018

Conferences

[C12] **YeongHyeon Park**, Myung Jin Kim, Hyeong Seok Kim “Contrastive Language Prompting to Ease False Positives in Medical Anomaly Detection.”, *IEEE International Symposium on Biomedical Imaging (ISBI) 2025 (Accepted)*

[C11] **YeongHyeon Park***, Sungho Kang*, Myung Jin Kim, Yeonho Lee, and Juneho Yi “Exploiting Connection-Switching U-Net for Enhancing Surface Anomaly Detection”, *IEEE International Conference on Electrical, Control and Instrumentation engineering (ICECIE) 2024* (* Equal contribution)

[C10] **YeongHyeon Park**, Sungho Kang, Myung Jin Kim, Hyeonho Jeong, Hyunkyu Park, Hyeong Seok Kim, and Juneho Yi “Neural Network Training Strategy to Enhance Anomaly Detection Performance: A Perspective on Reconstruction Loss Amplification.”, *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2024*

[C9] Hanbyul Lee*, **YeongHyeon Park***, and Juneho Yi “Enhancing Defective Solar Panel Detection with Attention-guided Statistical Features using Pre-trained Neural Networks”, *IEEE International Conference on Big Data and Smart Computing (BigComp) 2024* (* Equal contribution)

[C8] **YeongHyeon Park**, Uju Gim, and Myung Jin Kim “Edge Storage Management Recipe with Zero-Shot Data Compression for Road Anomaly Detection”, *IEEE International Conference on Information and Communication Technology Convergence (ICTC) 2023*

[C7] Sungho Kang, Hyunkyu Park, **YeongHyeon Park**, Yeonho Lee, Hanbyul Lee, Seho Bae, and Juneho Yi “Exploiting Monocular Depth Estimation for Style Harmonization in Landscape Painting.”, *IEEE International Conference on Knowledge Innovation and Invention (ICKII) 2023*

[C6] Hyunkyu Park, Sungho Kang, **YeongHyeon Park**, Yeonho Lee, Hanbyul Lee, Seho Bae, and Juneho Yi “Edge Storage Management Recipe with Zero-Shot Data Compression for Road Anomaly Detection”, *IEEE International Conference on Knowledge Innovation and Invention (ICKII) 2023*

[C5] **YeongHyeon Park**, Myoung Jin Kim, Won Seok Park, and Juneho Yi “Recycling for Recycling: RoI Cropping by Recycling a Pre-trained Attention Mechanism for Accurate Classification of

Recyclables”, *IEEE International Conference on Smart Information Systems and Technologies (SIST) 2023*

[C4] **YeongHyeon Park**, Myoung Jin Kim, and Won Seok Park “Frequency of Interest-based Noise Attenuation Method to Improve Anomaly Detection Performance”, *IEEE International Conference on Big Data and Smart Computing (BigComp) 2023*

[C3] **YeongHyeon Park**, Myoung Jin Kim, and Uju Gim “Attention! Is Recycling Artificial Neural Network Effective for Maintaining Renewable Energy Efficiency?”, *IEEE Texas Power and Energy Conference (TPEC) 2022*

[C2] **YeongHyeon Park** and JongHee Jung “Non-Compression Auto-Encoder for Detecting Road Surface Abnormality via Vehicle Driving Noise”, *IEEE International Conference on Architecture, Construction, Environment and Hydraulics (ICACEH) 2021*

[C1] **YeongHyeon Park** and Myoung Jin Kim “Design of Cost-Effective Auto-Encoder for Electric Motor Anomaly Detection in Resource Constrained Edge Device”, *IEEE Eurasia Conference on IOT, Communication and Engineering (ECICE) 2021*

PROFESSIONAL ACTIVITIES

Editorial Board

- *Computers and Electrical Engineering, Elsevier* Feb.2025 -

Journal Reviewer

- *International Journal of Computational Intelligence Systems* Dec.2024 -
- *Multimedia Systems* Dec.2024 -
- *Discover Artificial Intelligence* Oct.2024 -
- *IEEE Transactions on Circuits and Systems for Video Technology (T-CSVT)* Sep.2024 -
- *IEEE Signal Processing Letters* Aug.2024 -
- *Journal of Nondestructive Evaluation* Mar.2024 -
- *Electronics Letters* Jan.2024 -
- *Signal, Image and Video Processing* Jan.2024 -
- *Scientific Reports* Sep.2023 -
- *The Journal of Supercomputing* Aug.2023 -
- *IEEE Access* Jun.2021 -

Conference Reviewer

- *IEEE International Joint Conference on Neural Networks (IJCNN)* 2025
- *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)* 2025
- *IEEE International Conference on Big Data and Smart Computing (BigComp)* 2025

CERTIFICATIONS

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|---|----------|
| NVIDIA DLI Instructor Certificate [link] <i>NVIDIA</i> | Apr.2022 |
| NVIDIA University Ambassador Certificate [link] <i>NVIDIA</i> | Apr.2022 |
| Big Data Analysis Engineer <i>Korea Data Agency</i> | Jul.2021 |
| NVIDIA DLI Certificate - Applications of AI for Anomaly Detection [link] <i>NVIDIA</i> | May.2021 |
| Advanced Data Analytics Semi-Professional <i>Korea Data Agency</i> | Nov.2020 |
| Deep Learning Specialization (including 5 course certifications) [link] <i>Coursera</i> | Mar.2020 |