Heejun Yoon

Post-Master Researcher at KIST (Korea Institute of Science and Technology)
heejunyoon@kist.re.kr | linkedin.com/in/heejun-yoon | heejunyoon.github.io

Education

Ewha Womans University — Seoul, Republic of Korea
M.S. in Electronics and Electrical Engineering — *Mar 2023 – Aug 2024*

- Advisor: Prof. Jeongtae Kim
- GPA: 4.0/4.0
- Coursework: Deep Learning, Signal Processing, Big Data, CPS (All A+)

Ewha Womans University — Seoul, Republic of Korea
B.S. in Electronics and Electrical Engineering, Magna Cum Laude — *Mar 2019 – Feb 2023*

- Minor: Mathematics
- Major & Minor GPA: 3.79/4.0 (4.3 scale: 3.90/4.3)
- Mathematics GPA: 3.97/4.0 (Linear Algebra, Calculus, Analysis, etc.)

Research Experience

Korea Institute of Science and Technology (KIST) — Seoul, Republic of Korea
Post-Master Researcher (Advisor: Dr. Soomin Kim) — *Jan 2025 – Present*

- Center for Artificial Intelligence Research
- Engaging in research on multi-view Vision-Language Models (VLMs) to enhance scene understanding.

Ewha Womans University — Seoul, Republic of Korea
Graduate Research Assistant, DSPL (Advisor: Prof. Jeongtae Kim) — *Mar 2023 – Jul 2024*

- Led the development of an inspection system for semiconductor products using machine vision techniques.

Ewha Womans University — Seoul, Republic of Korea
Undergraduate Research Assistant, DSPL (Advisor: Prof. Jeongtae Kim) — *Jul 2020 – Feb 2023*

- Worked on radar signal processing and deep learning projects such as people counting and motion recognition.

Publications & Theses

[1] H. Yoon, "A Combined Twin and Single Network for Fast and Robust Inspection of IC Substrates," *M.S. Thesis*, Ewha Womans University, 2024.

[2] H. Yoon*, D. Yeom*, S. Lee*, and K. Lee, "Personal Mobility Safe Driving System with Knowledge Distillation," *2023 IEEE 20th International Conference on Ubiquitous Robots (UR)*, 2023. (*Equal contribution)

[3] H. Yoon, J. Park, and J. Kim, "Action Recognition using 3D Point Cloud from Frequency Modulated Continuous Wave Radar Signals," *2023 Image Processing and Image Understanding (IPIU)*, 2023.

[4] H. Yoon*, D. Yeom*, S. Lee*, and K. Lee, "2-input Deep Learning based Multi-tasking Safe Driving," *Fall Annual Conference of The Institute of Electronics and Information Engineers (IEIE)*, 2022. (*Equal contribution)

Selected Projects

Integrating Robot Navigation and Task Planning for Embodied Agents | *KIST* Sep 2025 – Present

- Advisor: Dr. Soomin Kim
- Developing an integrated framework for robot navigation and task planning to execute complex commands.
- Implementing cognitive maps for spatial representation, aiming to extend applicability to **unstructured indoor/outdoor environments**.
- **Key Tech**: Embodied AI, RL, LLMs, Cognitive Maps, Omnigibson

Multi-view Vision-Language Model for Enhanced Scene Understanding | *KIST* Jan 2025 – Sep 2025

- Advisor: Dr. Soomin Kim
- Developed a multi-view spatial understanding strategy enabling accurate contextual reasoning.
- Exploring potential applications in **large-scale aerial/satellite imagery analysis** for environmental monitoring.
- **Key Tech**: VLM, LLM, Multi-modal learning, 3D embedding

Deep Learning-Based Semiconductor Product Inspection | *Ewha W. Univ.* Jan 2023 – Jun 2024

- Advisor: Prof. Jeongtae Kim (M.S. Thesis)
- Developed a lightweight twin network-based defect detection system for IC substrates, designed to be robust against mis-registration and characteristic differences.
- **Key Technologies:** Siamese Network, Change Detection, Attention, Knowledge Distillation, Vision Transformer

Personal Mobility Safe Driving Monitoring System | *Ewha W. Univ.* Jul 2022 – Feb 2023

- Advisor: Prof. Kahyun Lee
- Developed a deep learning-based safety system for personal mobility devices; submitted 1 international and 1 domestic conference paper.
- Responsible for overall training of models, Jetson Nano embedding, and application of knowledge distillation.
- **Key Technologies:** Transfer Learning, Knowledge Distillation, Image Processing, Hardware Embedding

3D Beamforming-Based Estimation of Breathing and Heart Rates | *Ewha W. Univ.* Sep 2022 – Nov 2022

- Investigated an approach for estimating breathing and heartbeat rates utilizing 3D beamforming-based FMCW radar signals.
- Demonstrated superior performance compared to conventional 2D beamforming methods.

YouTube Q&A Clustering (AI-JAM Korea 2020 Gold Medal) 2020

- Developed a clustering model utilizing NLP techniques to automatically cluster question comments.
- Role: Constructing the overall algorithm including web scraping, tokenization, and final presentation.

Honors & Awards

Kwanjeong Scholarship | Kwanjung Educational Foundation Mar 2023 – Aug 2024
($18,000 awarded)

BK21 Overseas Training Scholarship | BK21 Plus, Ewha Womans Univ. Jun 2023

Full-tuition Scholarship (Merit-based) | Ewha Womans Univ. Mar 2021 – Feb 2023

Grand Prize, Undergraduate Thesis Competition | IEIE 2022

Gold Prize, Engineering Capstone Design Contest | Ewha Womans Univ. 2022

Dean's List | Ewha Womans Univ. Mar 2019 – Dec 2022

Engineering Leadership Scholarship | Ewha Womans Univ. 2020

Gold Medal, AI-JAM Korea 2020 Competition 2020

Teaching & Leadership Experience

Teaching Assistant Ewha Womans Univ.
Digital Signal Processing (Fall 2023), Calculus (Fall 2019, 2020; Spring 2020, 2021), Introductory Creative Convergence Basic Design (Fall 2020)

Ewha Electronics Innovation (Academic Club) Ewha Womans Univ.
President (2021), Member (2019-2022)

Major Mentoring Ewha Womans Univ.
Head Mentor, Department of Electrical Engineering *2021, 2022*

Skills

Deep Learning: PyTorch, HuggingFace Transformers, WandB
Robotics & Simulation: ROS/ROS2, OmniGibson, Isaac Sim
Programming: Python, C++, MATLAB, Linux (Shell Scripting), Docker, Git
Languages: Korean (Native), English (Advanced, TOEFL MBS 108: R29, L29, S23, W27)