

Dayoung Kang

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EDUCATION

DGIST (Daegu Gyeongbuk Institute of Science and Technology)

Feb. 2025 – Feb. 2027 (expected)

Master of Science

Daegu, Korea

- **Major:** Department of Electrical Engineering and Computer Science
- **Advisor:** Prof. Jinhyun So (CORE-AI Lab)
- **Coursework:** Random Variables and Random Processes, Linear Systems, Computer Vision, Mathematics for Machine Learning, Convex Optimization, Program Analysis, Federated Learning
- **Cumulative GPA:** 3.57/4.30 (21 credits)
- **Research Interests:** Knowledge Distillation, Multimodal Learning, Agentic AI

Jeonbuk National University

Mar. 2021 – Feb. 2025

Bachelor of Engineering

Jeonju, Korea

- **Double Majors:** Department of Smart Farm, Division of Computer Science and Engineering
- **Microdegree:** Digital Agriculture AI
- **Cumulative GPA:** 4.14/4.50 (157 credits), **Major GPA:** 4.22/4.50 (102 credits)
- **Research Experience:**
 - * Medical AI & Computational Science Lab (8 months): Studied rotator cuff segmentation from ultrasound images
 - * Smart Digital Agriculture Lab (9 months): Modeled and analyzed crop yields for paprika and wheat using tabular growth data
- **Honors:** President's Award (2024)

SKILLS

Programming Languages : Python, HTML/CSS

Tools : PyTorch, Transformers, Hugging Face, LangChain, Docker, HPC, Linux, Git, GitHub, AWS, Azure

Languages: Korean (Native), English (Working Proficiency)

PUBLICATIONS

D.Kang, JW.Kim, J.Park, K.Lee, JW.Choi, and J.So. "AROMMA: Unifying Olfactory Embeddings for Single Molecules and Mixtures", in *2026 International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, May 2026.

RESEARCH EXPERIENCE

Gesture Recognition Interface for Hyper-Immersive Extended Reality

Dec. 2025 – Current

Samsung Science & Technology Foundation

- Leading the **optimization of a CNN-LSTM-based hand pose estimation model** that extracts temporal and cross-channel features from sEMG signals and autoregressively predicts 20 hand joint angles using previous pose estimates.
- Identified substantial temporal inconsistencies in joint angle predictions, even for identical hand poses, and developing a **prior-guided correction framework** that **leverages finger flexion/extension classification** to correct erroneous joint angle predictions.

National Research Foundation

- Led the end-to-end research and development of **AROMMA**, a unified olfactory **representation-learning** framework jointly trained on approximately 5K single molecules and 60K molecular pairs, culminating in a **first-author paper presented at ICASSP 2026**.
- Adapted SPMM, a **chemical foundation model** pretrained on 50M molecular structures, using **LoRA**-based parameter-efficient fine-tuning and **knowledge distillation** from POM to transfer perceptual odor knowledge into robust molecular representations.
- Designed a **permutation-invariant** mixture encoder combining self-attention to capture **asymmetric molecular interactions** and learnable-query cross-attention to produce mixture-level representations across a unified space of 152 odor descriptors.
- Introduced a **label-aware pseudo-labeling and retraining strategy** that supplemented BP with 78 previously unannotated fine-grained odor labels, calibrating label-specific thresholds using their empirical prevalence in GS-LF; achieved **state-of-the-art** results with 3.2% and 19.1% AUROC improvements on single-molecule and binary-mixture benchmarks.

SELECTED AWARDS

Grand Prize (1st Place), Entrepreneurship Award

2024

San José State University

USA

- Proposed RENNIS (Robot+Tennis), an personal tennis coaching robot

Excellence Award (2nd Place), K-Health Medical AI Hackathon-Track01

2024

Korea Smart Healthcare Association

Korea

- Developed a deep learning-based breast mass segmentation model for mammography images
- Code: <https://github.com/riverallzero/maithon>

Special Award in Service Category, ChatGPT Microsoft AzureThon

2023

AI Factory

Korea

- Developed a chatbot that extracts contact information from business card images and automatically converts it into digital contact files
- Integrated **OpenAI**, **Microsoft Azure**, and **Telegram** APIs to support
- Code: <https://github.com/riverallzero/azurethon>