Jaeha Yoon

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EDUCATION

Sejong University   **Gwangjin, S. Korea**

B.Eng. in Artificial Intelligence (Expected Feb. 2027)   **Mar. 2021 – Feb. 2027**

- Relevant Modules: Machine Learning, Deep Learning, Digital Signal Processing, Image Processing, Natural Language Processing, Computer Structure
- GPA: 4.36/4.5

RESEARCH EXPERIENCE

Pattern Recognition & Machine Learning Lab   **Sejong University**

Undergraduate Researcher, Advisor: Chang-Jae Chun   **Jan. 2024 – Present**

- Conducting research on improving accuracy prediction of protein–protein docking models using Explainable AI (XAI) and ensemble models
- First-author manuscript in preparation

Gachon X Sejong University Joint Academic Conference   **Gachon University**

Undergraduate Researcher, Advisor: Haemin Cho   **Jul. – Aug. 2025**

- Conducted independent research on Comparative Analysis of Music Embedding Quality under Different Segmentation and Aggregation Strategies
- Evaluated transformer-based and pooling-based aggregation strategies on the MARBLE benchmark using the MuQ embedding backbone, analyzing trade-offs between performance and efficiency
- Authored an undergraduate research paper on *Comparative Analysis of Music Embedding Quality under Different Segmentation and Aggregation Strategies*

Generative Artificial Intelligence Lab   **Sejong University**

Undergraduate Research Assistant, Advisor: Hyewon Jang   **Jul. – Aug. 2024**

- Participated in the NRF-funded project *"Research in STEM Education Policy in the Era of Post-Artificial Intelligence"*
- Assisted in experiments for the study *"Less is more: A multimodal exploration of how limited AI shapes team physics problem solving"*
- Conducted data collection and supported multimodal analysis (Gaze Estimation, Pose Detection) for collaboration research
- Analyzed participant interaction using computer vision techniques to study the impact of limited AI on team problem solving

PUBLICATIONS

- **Jaeha Yoon**, Nayeon Kim, Donghyuk Kim, and Chang-Jae Chun*, "A Multi-level Stacking Ensemble for Protein Structure Quality Prediction", *The Korean Institute of Communications and Information Sciences (KICS) Winter Conference*, 2026

- Shinhye Hwang, **Jaeha Yoon**, Chang-Jae Chun*, "Ensemble-Based Quality Assessment Model for Protein Docking Candidate Structures", *The Korean Institute of Communications and Information Sciences (KICS) Winter Conference*, 2026

- Donghyuk Kim, **Jaeha Yoon**, Chang-Jae Chun*, "Efficiency Analysis of LHS-Based Sampling Across Different Data Usage Ratios", *The Korean Institute of Communications and Information Sciences (KICS) Winter Conference*, 2026

PROJECTS

MUSEED: AI-Powered Music Discovery Platform   **Sejong University**
Python-based Deep Learning Course Project   **Sep. – Dec. 2025**
- Developed a lightweight playlist generation platform using Self-Supervised Learning (SimCLR) to fine-tune the MuQ backbone, achieving 57% parameter reduction while outperforming teacher models.
- Engineered an event-driven asynchronous architecture with FastAPI, Redis, and Celery, and implemented FAISS vector search to reduce retrieval latency to under 0.1 seconds.
- Designed a full-stack web service utilizing Next.js for user-uploaded audio analysis and social discovery features.

AI-based Dormitory Roommate Matching & Management Service   **Sejong University**
13th Sejong University SW·AI Hackathon (Silver Prize)   **Dec. 2025**
- Implemented a roommate matching system using text embedding similarity to analyze user preferences and lifestyle patterns.
- Developed an automated facility repair request feature utilizing computer vision to classify failure types and severity, outputting structured JSON data for automated processing.
- Engineered a duplicate report detection algorithm by analyzing image similarity and report content to streamline maintenance workflows.

KT Community Problem-Solving Project   **KT & Jongno-gu Office**
Project Developer   **Jul. – Aug. 2025**
- Developed the official notification chatbot for Jongno-gu Office to send alerts on public assemblies.
- Developed a pipeline to automatically extract traffic control information by crawling bus route data and leveraging a Large Language Model (LLM) for parsing
- Built a notification service API to provide real-time alerts on traffic disruptions

Smartwatch-based Cognitive Function Prediction System   **Sejong University**
Biomedical AI Course Project   **Mar. – May. 2025**

- Led end-to-end development of an AI system predicting cognitive function from smartwatch data, including data collection, preprocessing, feature engineering, and deep learning model design and execution

EXTRACURRICULAR ACTIVITIES

Artificial Intelligence and Big Data Course TA   **Sejong University**
Undergraduate Teaching Assistant   **Sep. – Dec. 2025**

- Facilitated Q&A sessions, evaluated assignments, and proctored exams to support student learning and course administration.

AI Malpyeong   **National Institute of Korean Language**
Everyday Conversation Summarization Competition   **Jul. – Aug. 2024**

- Fine-tuned LLM using QLoRA and few-shot prompt tuning to summarize daily conversations

ESCAPER (University Central Jiu-Jitsu Club)   **Sejong University**
President   **Sep. 2024 – Jan. 2026**

- Served as President of the Sejong University Jiu-Jitsu Club, organized joint training with Konkuk University, and established a partnership with Flame Stone Jiu-Jitsu

Republic of Korea Army – Transport Battalion   **Gangwon-do, S. Korea**
Driver, Sergeant   **Mar. 2022 – Sep. 2023**

- Completed an AI Education Program (hosted by Elice Inc.), including projects on sensor-based fault classification and time-series analysis of historical WWII data.

Student Council   **Sejong University**
Member of Planning Department   **Mar. – Jul. 2021**

- Contributed to establishing the foundation of the newly created AI Department Student Council
- Planned and organized student events and academic activities to strengthen the department community

HONORS & AWARDS

KT Digital Talent Scholarship   **Mar. 2025 – Present**

- Selected as a recipient for a competitive scholarship program supporting outstanding students in ICT and AI fields

Silver Prize, 13th Sejong University SW·AI Hackathon   Dec. 2025

KT Digital Talent Award – *"D-Injae's Pick"*   Aug. 2025

- Popular Choice for KT Community Problem-Solving Project

Bronze Prize, 2025 AI Challenge   Jun. 2025

- Sejong University

Academic Excellence Scholarship, First Semester 2025   Jun. 2025

- Ranked 3rd in Academic Standing
- Declined offer due to reception of another scholarship

Grand Prize, 2024 English Speaking & Presentation Contest   Dec. 2024

- Sejong University

Encouragement Award, 2024 College Academic Festival   Dec. 2024

- Sejong University, Software Convergence College, Planning Track

Bronze Prize, 2024 AI Challenge   Nov. 2024

- Sejong University

Academic Excellence Scholarship, First Semester 2024   Jun. 2024

- Ranked 3rd in Academic Standing

Encouragement Award, 10th Sejong University SW·AI Hackathon   Oct. 2021