# EunjuSHIN

Integrated M.S.–Ph.D. in Artificial Intelligence at Ajou University

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## Research Interest

I am interested in research that defines what limits a model and resolves that limitation through analysis and experiment. My expertise lies in improving efficiency through architecture compression, and in grounding vision-language-action models in speech. My work runs along two directions:

**Efficient LLMs**

- Mixture-of-Experts architectures
- Quantization

**Application: Sound**

- Speech-conditioned VLA policies

## Education

**Integrated M.S.–Ph.D.** in Artificial Intelligence — *Ajou University, Suwon, Korea*, *Sep. 2024 - Present*
- Advisor: Prof. Jongbin Ryu

**B.S.** in Business Intelligence — *Ajou University, Suwon, Korea*, *Mar. 2020 - Aug. 2024*
- GPA: 4.34/4.5 - Ranked 2nd in the Dept. of Business Intelligence

## Research Experience

**MMAI Lab, Ajou University** — *Jan 2024 - Present*

Student Researcher

- Efficient finetuning: quantized-LoRA finetuning [S.1].
- Model compression: MoE quantization [C.1], and slimmable networks [S.2].
- AI applications: Speech-VLA.

## Patents and Publications

*=Equal contribution, C=Conference, J=Journal, P=Patent, S=In Submission, T=Thesis

**[C.1]** **EunJu Shin**, Jongbin Ryu. Colla-Q: Toward Collaborative Experts in MoE Quantization via Minimax Precision Balancing. *Conference on Empirical Methods in Natural Language Processing (EMNLP)*. (2026)

**[S.1]** **EunJu Shin***, Hankyul Kang*, Jongbin Ryu. Don't Overlook the Learning Trajectory of the LoRA Adapter on Quantized LLMs. *Under review*. (2026)

**[S.2]** Hankyul Kang, **EunJu Shin**, and Jongbin Ryu. Pluggable Decoder for Slimmable Neural Networks. *Under review*. (2025)

**[S.3]** **EunJu Shin***, Hankyul Kang*, Jongbin Ryu. Music Reactive Video Generation: Highlighted Chromagram and Its Evaluation Metric. *Under review*.

## Awards and Honors

**Encouragement Award**, Undergraduate Self-Directed Research Program · Ajou University — *Jun. 2024*
- Audio-to-video generation — multi-modal model conditioned on music audio; extended into [S.3].

**2nd Place**, Generative AI Idea Competition · Ajou University — *Jun. 2024*
- User-interaction-driven montage generation.

**3rd Place**, Ajou Data Hackathon · Ajou University — *Mar. 2024*
- Crime-type classification AI — multi-class classification of incident reports.

**Finalist**, 2024 Prometheus AI Hackathon — *Jan. 2024*
- Personalized talking-character generation with DualStyleGAN.

**Top 9%**, Data Analysis and Predictive Modeling AI Competition — *Nov. – Dec. 2023*
- Traffic accident risk prediction.

**1st Place**, AI Camp — all four mini-projects and the final project · Ministry of Employment & Labor — *Sep. 2023 – Feb. 2024*
- DualStyleGAN talking-head emoticon generation web app.

**Finalist**, AI Service Idea Competition for Better Financial Life · Shinhan AI — *May 2023*
- SAR, a REIT investment platform for retirement planning — AI price-movement prediction from market, accounting, and news-sentiment data, with an analytics dashboard.

**Excellence Award**, Household Waste Data and AI Idea Hackathon · Gyeonggi Daejin Technopark *Feb. 2021*

- Transfer-learning-based waste object detection — material sorting integrated into a smart-factory line, with a household collection and incentive scheme.

## Teaching & Mentoring

**SWeat, Coding Education Volunteer Club, Ajou University** *Suwon, Korea · 101 hrs*

Student Mentor *Mar. 2021 – Jan. 2023*

- Designed and taught introductory programming curricula for elementary and high school students across five outreach programs.
- Selected mentor, “Software Play” SW education program, NAVER Connect Foundation.

## Technical Skills

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| **Languages** | Python, C/C++, CUDA |
| **Frameworks** | PyTorch, HuggingFace, DeepSpeed |
| **Spoken** | Korean (native); English (fluent) |

## Reference

**Ajou Univ.** (Ph.D. advisor) Prof. Jongbin Ryu, Associate Professor, jongbinryu@gmail.com