Jaeyeon Kim

+82(10) 5536-6760 https://jaeyeonkim99.github.io jaeyeonkim99@snu.ac.kr

Education

Seoul National University, College of Liberal Studies **Mar. 2018 – Aug. 2024**

B.S. in Computer Science and Engineering and B.A. in Philosophy *GPA:* 4.11/4.30

2-year absence to fulfill military duty (Apr. 2022 - *Mar.* 2024*)*

Korean Minjok Leadership Academy **Mar. 2015 – Feb. 2018**

Work Experience

Vision and Learning Lab, Seoul National University **Mar. 2024 – Present**

Research Intern, Advised by Professor Gunhee Kim *Seoul, South Korea*

- Explored audio-visual learning, especially video-to-audio generation and audio spatialization.

MAUM AI Inc. (Previously MindsLab Inc.) **Apr. 2022 – Present**

AI Scientist (Apr. 2022 – Jun. 2023), Senior AI Scientist (Jul. 2023 – Jun. 2024), *Seongnam, South Korea*

On Leave (Jul. 2024 – Present)

- Alternative military service as industrial technical personnel (Apr. 2022 - Mar. 2024).
- Developed and maintained automatic speech recognition systems for both Korean and English.
- Led research projects within the audio team, regarding text-to-speech, automatic speech recognition, and other audio-related tasks.

Music and Audio Research Group, Seoul National University **Jul. 2021 – Mar. 2022**

Research Intern, Advised by Professor Kyogu Lee *Gwanggyo, South Korea*

- Explored self-supervised speech representations, visually-grounded language learning, and spoken language understanding.

Publications

[1] **Jaeyeon Kim**, Heeseung Yun, Gunhee Kim. "ViSAGe: Video-to-Spatial Audio Generation", *in ICLR*, 2025 [Link] [Demo]

[2] **Jaeyeon Kim**, Minjeong Jeon, Jaeyoon Jung, Sang Hoon Woo, Jinjoo Lee, "EnCLAP++: Analyzing the EnCLAP Framework for Optimizing Automated Audio Captioning Performance", *in DCASE2024 Workshop*, 2024 [Arxiv][Proc.]

[3] **Jaeyeon Kim**, Jaeyoon Jung, Sang Hoon Woo, Minjeong Jeon, Jinjoo Lee, "Expanding on EnCLAP with Auxiliary Retrieval Model for Automated Audio Captioning ", *DCASE2024 Challenge Technical Report (Ranked 2nd in Task 6 Automated Audio Captioning)*, 2024 [Arxiv][Link]

[4] **Jaeyeon Kim**, Injune Hwang, Kyogu Lee, "Learning Semantic Information from Raw Audio Signal Using Both Contextual and Phonetic Representations", *in ICASSP (oral),* 2024 [Arxiv][Proc.]

[5] **Jaeyeon Kim**, Jaeyoon Jung, Jinjoo Lee, Sang Hoon Woo, "EnCLAP: Combining Neural Audio Codec and Audio-Text Joint Embedding for Automated Audio Captioning", *in ICASSP,* 2024 [Arxiv][Proc.][Github][Demo]

[6] Junhyeok Lee, Wonbin Jung, Hyunjae Cho, **Jaeyeon Kim**, Jaehwan Kim, "PITS: Variational Pitch Inference Without Fundamental Frequency for End-to-End Pitch-Controllable TTS", *ICML Workshop on SPIGM*, 2023 [Arxiv][Link][Github]

Scholarships and Awards

Summa Cum Laude **Aug. 2024**

College of Liberal Studies, Seoul National University

Best Thesis Award **Aug. 2024**

Department of Computer Science and Engineering, Seoul National University

With paper "EnCLAP: Utilizing Both Sequence-Level Representations and Time Step-Level Representations for Automated Audio Captioning"

DCASE2024 Challenge 2nd Place **Jun. 2024**

In Task 6 Automated Audio Captioning

Bronze Award in College of Liberal Studies Academic Conference **Nov. 2021**
College of Liberal Studies, Seoul National University
With paper "Situated Intelligence and Practical Knowledge of Artificial Intelligence"

Scholarship of 100 years of Humanities **Mar. 2018 – Feb. 2022**
Korea Student Aid Foundation
4-year full-tuition scholarship with living expense support

Talent Award of Korea **Dec. 2017**
Minister of Education
To 50 outstanding high-school students nationwide recognized as future leaders across diverse fields.

Projects

Audio Question Answering **Nov. 2024 – Present**
Participating as a coordinator of DCASE2025 Audio Question Answering task. [Link]
Developing a new question-answering benchmark to test large audio language models (with Dr. Huck Yang from Nvidia).

SNU School Rule Chatbot [Github] **Mar. 2024 – Jun. 2024**
Led the development of RAG-based chatbot for school policy guidance, in collaboration with Danbee AI Inc.
Conducted as part of the Creative Integrated Design2 class (Spring 2024).

- Designed and implemented RAG chatbot using Milvus, BGE-M3, Llama-3 based LLM, and 4-bit quantization.
- Engineered backend functionalities using Django, ngrok, and Flask.
- Achieved 92% test set accuracy—a 75% improvement over the model without RAG—while reducing memory usage by 65% and increasing inference speed by 75% compared to the initial implementation.

Automatic Speech Recognition Based on Conformer Transducer **Apr. 2022 – Feb. 2024**
Led the development of new Korean and English automatic speech recognition systems at MAUM AI Inc.
Key responsibilities and achievements include:

- Implemented modeling and training codes, and scalable serving system based on gRPC
- Developed streaming recognition API using voice activity detection and asyncio.
- Progressively improved encoder architectures and decoding algorithms based on latest research findings.
- Curated Korean datasets and conducted thorough training for real-world deployment.
- Applied the developed system to challenging non-speech signal recognition task with unrefined textual transcription.
- Achieved 40% relative improvements of character error rate compared to the previous system.
- Achieved 50% and 75% reduction in inference speed and memory consumption compared to the initial version.
- Currently serving 4+ sites and steadily increasing.

Additional Information

Language. Korean-Native, English-Fluent (TOEFL: 108)
Philosophy. I am interested in engaging in philosophical discussions on AI and deriving insights for AI research from philosophical perspectives. My focus lies particularly within the domains of philosophy of mind, philosophy of language, and Kantian ethics. You can explore my works on philosophical discussions through the following link: [Link] (They are in Korean except the title).
Volunteer Work. I am passionate about contributing to the community through meaningful and impactful activities. During my undergraduate years, I dedicated to a high school mentoring program, guiding and supporting students in their academic and personal growth. Additionally, I actively participated in SNU Habitat, a volunteer organization under Habitat for Humanity, for 3.5 years. Through this organization, I engaged in various volunteer activities including repairing homes for elderly individuals living alone, crafting furniture for community welfare centers, and building houses for those without permanent housing.
Leadership. I served as the Vice Chair of the Legislative Council at the Korean Minjok Leadership Academy (Mar. 2016 – Aug. 2016) and as the Vice President of Class Raon in the College of Liberal Studies (Dec. 2018 – Nov. 2019). Additionally, I was a member of the Executive Committee for SNU Habitat (Sep. 2022 – Aug. 2023), where I contributed to managing and coordinating volunteer activities.