

# Woongjib Choi

✉ choi6563[at]mit.edu | 🎓 Google Scholar | 🔗 LinkedIn | 🐙 GitHub | 🏠 Homepage

## RESEARCH INTERESTS

---

Audio and Speech Signal Processing, Audio Compression, Digital Signal Processing, Generative Models

## EDUCATION

---

### Massachusetts Institute of Technology

*Ph.D. Student in Electrical Engineering and Computer Science*

Sep. 2026 –

Cambridge, MA, USA

- Advisor: **Prof. Paris Smaragdis**

### Yonsei University

*M.S. in Electrical and Electronic Engineering*

Mar. 2024 – Feb. 2026

Seoul, South Korea

- Advisor: **Prof. Hong-Goo Kang**
- GPA: 4.08 / 4.30

### Yonsei University

*B.S. in Electrical and Electronic Engineering*

Mar. 2018 – Feb. 2024

Seoul, South Korea

- Includes two-year mandatory military service (Apr. 2020 – Oct. 2021)
- GPA: 3.83 / 4.30

## RESEARCH EXPERIENCE

---

### Postgraduate Researcher

*DSPAI Lab, Yonsei University*

Mar. 2026 – May 2026

Seoul, South Korea

- Conducted research on **neural audio codecs**, **tokenization**, and **generative models** for audio.
- Collaborated with **Prof. Yongshik Lee** on vehicle state classification from unintentional electromagnetic emissions, including STFT-based signal analysis and DNN-based classification.

### Graduate Researcher

*DSPAI Lab, Yonsei University*

Mar. 2024 – Feb. 2026

Seoul, South Korea

- Developed **bandwidth extension** methods via **flow matching** and **self-supervised representations**.
- **ETRI-Yonsei Joint Research Project**: Led development of DNN-based post-processing for legacy audio codecs. Served as project leader in the final 6 months, resulting in 1 int'l conference paper, 1 domestic paper, and 1 patent.

### Undergraduate Research Intern

*SRIP Lab, Yonsei University (Supervised by Prof. Moon Gi Kang)*

Jun. 2023 – Jan. 2024

Seoul, South Korea

- Implemented classical and deep learning-based image processing algorithms including white balancing, denoising, demosaicing, and super-resolution.
- Undergraduate thesis: *A Technical Overview of Deep Learning-Based Single-Image Super-Resolution Methods*

## PUBLICATIONS

---

### Peer-Reviewed Publications

- [1] Sangmin Lee, Woojin Chung, **Woongjib Choi**, and Hong-Goo Kang, “MoLGE: Mixture of Language Group Experts for Efficient Scaling of Massively Multilingual Speech Recognition,” in *Conference on Language Modeling (COLM)*, 2026. [\[paper\]](#)
- [2] Sangmin Lee, Eekgyun Ahn, **Woongjib Choi**, and Hong-Goo Kang, “UR-BERT: Scaling Text Encoders for Massively Multilingual TTS Through Universal Romanization and Speech Token Prediction,” in *INTERSPEECH*, 2026. [\[paper\]](#)
- [3] **Woongjib Choi**, Sangmin Lee, Hyungseob Lim, and Hong-Goo Kang, “UniverSR: Unified and Versatile Audio Super-Resolution via Vocoder-Free Flow Matching,” in *ICASSP*, 2026. [\[paper\]](#) [\[demo\]](#) [\[code\]](#)

- [4] **Woongjib Choi**, Byeong Hyeon Kim, Hyungseob Lim, Inseon Jang, and Hong-Goo Kang, “Neural Spectral Band Generation for Audio Coding,” in *INTERSPEECH*, 2025. [paper]

## Preprints & Submissions

- [5] Sangmin Lee, **Woongjib Choi**, Jihyun Kim, and Hong-Goo Kang, “SAGE-LD: Towards Scalable and Generalizable End-to-End Language Diarization via Simulated Data Augmentation,” *arXiv preprint*, 2025. [paper]

## Domestic Publications

- [6] Jaehun Shin, **Woongjib Choi**, Byeong Hyeon Kim, Inseon Jang, and Hong-Goo Kang, “DNN-based Speech Codec Enhancement Utilizing Conditional Flow Matching,” in *Proc. KIBME Conf.*, 2025.
- [7] **Woongjib Choi**, Byeong Hyeon Kim, and Hong-Goo Kang, “Non-Blind Speech Bandwidth Extension Using Pre-Trained Self-Supervised Features,” in *Proc. IEIE Conf.*, 2024.

## PATENTS

|                                                                                                                            |                    |
|----------------------------------------------------------------------------------------------------------------------------|--------------------|
| Encoder and Decoder for Audio Coding Using Side Information Generated from Original Signal and Method of Operation Thereof | KR 10-2025-0096305 |
|----------------------------------------------------------------------------------------------------------------------------|--------------------|

## TEACHING EXPERIENCE

|                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| <b>Teaching Assistant</b>                                                                                                                                                                                                                                                                                                                                                                                                                        | Mar. 2024 – Jun. 2025 |
| <i>Department of Electrical and Electronic Engineering, Yonsei University</i>                                                                                                                                                                                                                                                                                                                                                                    | Seoul, South Korea    |
| <ul style="list-style-type: none"> <li>• <b>EEE2111: Analog Electronics Lab</b> (Spring 2025)</li> <li>• <b>EEE2060: Signals and Systems</b> (Fall 2024)</li> <li>• <b>EEE4610: Capstone Design</b> (Fall 2024) <ul style="list-style-type: none"> <li>* Advised project on unified speech enhancement bridging personalized and unconditional models.</li> </ul> </li> <li>• <b>EEE4420: Digital Signal Processing</b> (Spring 2024)</li> </ul> |                       |

## AWARDS & HONORS

|                                                            |                    |
|------------------------------------------------------------|--------------------|
| <b>Dean’s List</b> , Yonsei University (top 3% of college) | Spring 2023        |
| <b>Academic Excellence Scholarship</b> , Yonsei University | Spring & Fall 2023 |

## SKILLS

|                                                              |                                                                 |
|--------------------------------------------------------------|-----------------------------------------------------------------|
| <b>Programming:</b> Python, MATLAB, C/C++, Verilog           | • <b>Frameworks:</b> PyTorch, torchaudio, NumPy, SciPy, Librosa |
| <b>Tools:</b> Linux Shell, Git, Arduino, Xilinx Vitis/Vivado | • <b>Languages:</b> Korean (native), English (advanced)         |

## EXTRACURRICULAR ACTIVITIES

|                                                                                                    |                       |
|----------------------------------------------------------------------------------------------------|-----------------------|
| <b>Editor-in-Chief</b> , <i>Humans of Yonsei</i> (Student Storytelling and Interview Organization) | Mar. 2022 – Jun. 2023 |
| <b>Sergeant</b> , Republic of Korea Army (Repair Parts and Tool Supply Specialist)                 | Apr. 2020 – Oct. 2021 |
| <b>Freshman Class Representative</b> , Dept. of EEE, Yonsei University                             | Mar. 2018 – Sep. 2018 |