

# Woongjib Choi

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## RESEARCH INTERESTS

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

## EDUCATION

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**Yonsei University** Mar. 2024 – Feb. 2026 (Expected)  
*M.S. in Electrical and Electronic Engineering (Advisor: Prof. Hong-Goo Kang)* Seoul, South Korea

- Thesis: *A Multi-Rate Audio Super-Resolution Framework Using Flow Matching Without Neural Vocoders*

**Yonsei University** Mar. 2018 – Feb. 2024  
*B.S. in Electrical and Electronic Engineering* Seoul, South Korea

- GPA: 3.83 / 4.3
- Two-year gap due to mandatory military service (Apr. 2020 – Oct. 2021)

## RESEARCH EXPERIENCE

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**Graduate Researcher** Mar. 2024 – Present  
*DSPAI Lab, Yonsei University (Advisor: Prof. Hong-Goo Kang)* Seoul, South Korea

- Conducting research on neural audio codecs, audio super-resolution, and generative models.
- **ETRI-Yonsei Joint Research Project** (Mar. 2024 – Dec. 2025)
  - \* Developed DNN-based post-processing modules for legacy audio codecs.
  - \* **Project leader** (final 6 months), managing presentations and inter-institutional communications.
  - \* Resulted in 1 international conference paper, 1 domestic paper, and 1 patent application.

**Undergraduate Research Intern** Jun. 2023 – Jan. 2024  
*SRIP Lab, Yonsei University (Supervisor: Prof. Moon Gi Kang)* Seoul, South Korea

- Implemented image processing algorithms: white balancing, denoising, demosaicing, and super-resolution.
- Completed undergraduate thesis surveying deep learning-based single-image super-resolution methods.

## TEACHING EXPERIENCE

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**Teaching Assistant** Mar. 2024 – Jun. 2025  
*Department of Electrical and Electronic Engineering, Yonsei University* Seoul, South Korea

- **EEE2111: Analog Electronics Lab** (Spring 2025)
- **EEE2060: Signals and Systems** (Fall 2024)
- **EEE4610: Capstone Design** (Fall 2024)
  - \* Advised project on unified speech enhancement bridging personalized and unconditional models.
- **EEE4420: Digital Signal Processing** (Spring 2024)

## PUBLICATIONS

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### International Conferences

- [1] **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.
- [2] **Woongjib Choi**, Byeong Hyeon Kim, Hyungseob Lim, Inseon Jang, and Hong-Goo Kang, "Neural Spectral Band Generation for Audio Coding." in *INTERSPEECH*, 2025.
- [3] 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." *Preprint*, 2025.

## Domestic Conferences

- [1] Jaehun Shin, **Woongjib Choi**, Byeong Hyeon Kim, Inseon Jang, and Hong-Goo Kang, "DNN-based Speech Codec Enhancement Utilizing Conditional Flow Matching." in *Proceedings of the Korean Institute of Broadcast and Media Engineers (KIBME) Conference*, 2025.
- [2] **Woongjib Choi**, Byeong Hyeon Kim, and Hong-Goo Kang, "Non-Blind Speech Bandwidth Extension Using Pre-Trained Self-Supervised Features." in *Proceedings of the Institute of Electronics and Information Engineers (IEIE) Conference*, 2024.

## PROJECTS

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- Context-Aware Time-Scale Modification (TSM) with LLM Guidance** Dec. 2024
- Final project for the *Speech Signal Processing* course (EEE5340).
  - Developed a TSM system that combines the traditional SOLA algorithm with an LLM to selectively control speech speed in important frames.
- LAUD: Large Language Model as a Universal ASR Decoder** Jun. 2024
- Final project for the *Speech Interface* course (EEE7341).
  - Developed a multilingual ASR framework that utilizes a speech foundation model with the Roman alphabet as a universal intermediate representation.
- A Technical Overview of Deep Learning Based Single-Image Super-Resolution Methods** Dec. 2023
- Undergraduate Thesis (EEE4610).
  - Investigated and compared three major categories on single-image super-resolution: external learning-based (e.g., SRGAN), internal learning-based (e.g., ZSSR), and Transformer-based approaches (e.g., SwinIR).

## AWARDS & HONORS

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- Dean's List** Spring 2023  
*Yonsei University* Seoul, South Korea
- Awarded for high academic achievement, ranking within the top 3% of the college.
- Academic Excellence Scholarship** 2023  
*Yonsei University* Seoul, South Korea
- Recipient for both the Spring 2023 and Fall 2023 semesters based on academic excellence.

## SKILLS

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- Programming Languages:** Python, MATLAB, C/C++, Verilog
- Frameworks & Libraries:** PyTorch, torchaudio, NumPy, SciPy, Librosa
- Tools:** Linux Shell, Git, Arduino, Xilinx Vitis/Vivado
- Languages:** Korean (native), English (TOEFL 104)

## EXTRACURRICULAR ACTIVITIES

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- Editor-in-Chief** Mar. 2022 – Jun. 2023  
*Humans of Yonsei (Student Storytelling and Interview Organization)* Seoul, South Korea
- Sergeant, Republic of Korea Army** Apr. 2020 – Oct. 2021  
*Repair Parts and Tool Supply Specialist (Mandatory Military Service)* Pocheon, South Korea
- Freshman Class Representative** Mar. 2018 – Sep. 2018  
*Department of Electrical & Electronic Engineering, Yonsei University* Seoul, South Korea