

Curriculum Vitae

Sungho Lee

Personal Info

Affiliation Ph.D. candidate @ Music and Audio Research Group, Seoul National University.

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Research Interest Inverse problems; differentiable processing and generative models; audio post-production.

Publications

Journal Publications

- [J1] **Reverse Engineering of Music Mixing Graphs with Differentiable Processors and Iterative Pruning**
Sungho Lee, Marco A. Martínez-Ramírez, Wei-Hsiang Liao, Stefan Uhlich, Giorgio Fabbro, Kyogu Lee, and Yuki Mitsufuji
Journal of Audio Engineering Society (JAES), 2025 [jaes](#) [arXiv](#)
- [J2] **Differentiable Artificial Reverberation**
Sungho Lee, Hyeong-Seok Choi, and Kyogu Lee
IEEE/ACM Transactions on Audio, Speech, and Language Processing (TASLP), 2022 [demo](#) [arXiv](#)

Conference Papers

- [C1] **Rethinking Speech Representation Aggregation in Speech Enhancement: A Phonetic Mutual Information Perspective**
Seungu Han, Sungho Lee, and Kyogu Lee
IEEE ICASSP, 2026
- [C2] **Few-step Adversarial Schrödinger Bridge for Generative Speech Enhancement**
Seungu Han, Sungho Lee, Juheon Lee, and Kyogu Lee
Interspeech (Best student paper award nominee), 2025 [arXiv](#)
- [C3] **TokenSynth: A Token-based Neural Synthesizer for Instrument Cloning and Text-to-Instrument**
Kyungsu Kim, Junghyun Koo, Sungho Lee, Haesun Jeong, and Kyogu Lee
IEEE ICASSP, 2025 [demo](#) [arXiv](#) [code](#)
- [C4] **Searching for Music Mixing Graphs: A Pruning Approach**
Sungho Lee, Marco A. Martínez-Ramírez, Wei-Hsiang Liao, Stefan Uhlich, Giorgio Fabbro, Kyogu Lee, and Yuki Mitsufuji
DAFx (Best show & tell award), 2024 [demo](#) [arXiv](#) [code](#)
- [C5] **Emosical: An Emotion-Annotated Musical Theatre Dataset**
Hayoon Kim, Ahyeon Choi, Sungho Lee, Hyunjin Jung, and Kyogu Lee
EMNLP (Findings), 2024 [ACL](#) [code](#)
- [C6] **Yet Another Generative Model for Room Impulse Response Estimation**
Sungho Lee, Hyeong-Seok Choi, and Kyogu Lee
IEEE WASPAA, 2023 [demo](#) [arXiv](#)
- [C7] **Blind Estimation of Audio Processing Graph**
Sungho Lee, Jaehyun Park, Seungryeol Paik, and Kyogu Lee
IEEE ICASSP, 2023 [demo](#) [arXiv](#)

[C8] Exploiting Time-Frequency Conformers for Music Audio Enhancement

Yunkee Chae, Junghyun Koo, Sungho Lee, and Kyogu Lee

ACM Multimedia, 2023 [demo](#) [arXiv](#) [code](#)

[C9] Global HRTF Interpolation via Learned Affine Transformation of Hyper-Conditioned Features

Jin Woo Lee, Sungho Lee, and Kyogu Lee

IEEE ICASSP, 2023 [demo](#) [arXiv](#) [code](#)

Workshop & Demo Papers

[W1] **GRAFX: An Open-Source Library for Audio Processing Graphs in PyTorch**

Sungho Lee, Marco A. Martínez-Ramírez, Wei-Hsiang Liao, Stefan Uhlich, Giorgio Fabbro, Kyogu Lee, and Yuki Mitsufuji

DAFx (demo), 2024 [arXiv](#) [code](#) [documentation](#)

[W2] **Wavespace: A Highly Explorable Wavetable Generator**

Hazounne Lee, Kihong Kim, Sungho Lee, and Kyogu Lee

ISMIR LBD, 2024 [arXiv](#) [code \(model\)](#) [code \(vst\)](#)

[W3] **Beat-Aligned Spectrogram-to-Sequence Generation of Rhythm-Game Charts**

Jayeon Yi, Sungho Lee, and Kyogu Lee

ISMIR LBD, 2023 [demo](#) [arXiv](#) [code](#)

Patents

[P1] **Multi-modal Guitar Performance Transcription Apparatus and Method for the same**

Kyogu Lee, Sungho Lee, Chang-Bin Jeon, Jiwon Kim, Jongho Choi, Hayoon Kim, Yong-Ho Kim, and Jang-Woo Lee

2025 [doi](#)

Preprints & Under Review

[R1] **Differentiable Acoustic Radiance Transfer**

Sungho Lee, Matteo Scerbo, Seungu Han, Minjun Choi, Kyogu Lee, and Enzo De Sena

Under review, 2026 [arXiv](#)

[R2] **UNISE: Speech Enhancement via Noise-Invariant Learning for Improved Content Preservation**

Seungu Han, Sungho Lee, Eungbum Kim, Seaone Ok, and Kyogu Lee

Under review, 2026

[R3] **Actionable Pronunciation Feedback via Disentangled Speech Representations**

Hayoon Kim, Sungho Lee, and Kyogu Lee

Under review, 2026

[R4] **LipCoder: Voice-Enabled Coding Toolkit**

Hayoon Kim, Sungho Lee, Juwhi Kim, Bongwon Suh, and Kyogu Lee

Under review, 2025

[R5] **Solving Blind Non-linear Forward and Inverse Problem for Audio Applications**

Jaehyun Park, Sungho Lee, Hayoon Kim, and Kyogu Lee

Under review, 2025

Experiences

Education

1. Seoul National University, *Integrated M.Sc. & Ph.D.* Fall 2020 – Spring 2026 (expected)
Department of Intelligence and Information.
Advisor: Kyogu Lee kglee@snu.ac.kr
2. Pohang University of Science and Technology, *B.Sc.* Spring 2016 – Spring 2020
Department of Creative IT Engineering.

Industry

1. Meta Reality Labs. *Research intern.* Summer 2026
Intelligent mixing for multichannel audio.
2. Sony AI. *Research intern.* Summer 2023 & Spring 2026
Differentiable signal processing and representation learning. [J1], [C4], [W1]
3. Supertone. *Research intern.* Spring 2023
Impulse response estimation for audio post-production. [C6]
Product: Supertone Air (research, model training & product design). [page](#)

Funded Projects

1. Supertone. *Research lead.* 2024
Studio-quality speech enhancement. [C2]
2. MCST, Korean Gov. *Applicant.* 2022–2023
Deep learning methods for musical signal processing. [C7], [C8]
3. IITP, Korean Gov. *Applicant.* 2021–2023
Sound event detection and localization; room acoustics analysis. [J2]
4. Nexen Tire. *Research lead.* 2022
Analysis and learning of noise, vibration, and harshness (NVH) characteristics.
5. Stra. *Research lead.* 2022
Real-time audiovisual guitar tablature transcription. [P1]

Invited Talks

1. Music and AI Lab, National Taiwan University. October 7, 2024
Titled “Inverse Problems in Audio Post-production.”
2. Center for Digital Music (C4DM), Queen Mary University of London. November 16, 2023
Titled “Deep Learning Meets Audio Processing Graphs.”

Teaching

1. Data Science Program, Samsung. *Teaching Assistant.* 2021–2022
2. Machine Listening, Seoul National University. *Teaching Assistant.* 2021

Reviews

1. IEEE Transactions on Audio, Speech, and Language Processing (TASLPRO) 2025, 2026
2. EURASIP Journal on Audio, Speech, and Music Processing (JASM) 2025, 2026
3. Journal of Audio Engineering Society (JAES) 2025, 2026
4. IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2025, 2026
5. IEEE International Joint Conference on Neural Networks (IJCNN) 2025
6. IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA) 2025
7. ISCA Interspeech 2026