

# Jin Woo Lee

✉ [jinwlee@snu.ac.kr](mailto:jinwlee@snu.ac.kr) • [jin-woo-lee.github.io](https://github.com/jin-woo-lee) • [in jin-woo-lee-8867101b9](https://www.linkedin.com/in/jin-woo-lee-8867101b9)  
🐦 [szin94](#) • [jin-woo-lee](#) • Last updated on November 5, 2024

## Current Positions

**Research Scientist Intern, Meta, Reality Labs Research** Redmond, WA, 2024 – Present

## Education

**Ph.D. in Intelligence and Information, Seoul National University (SNU)** 2019 – 2024

Thesis: *Physical Modeling for String Instrument Sound Synthesis based on Finite-difference Scheme and Automatic Differentiation*

Advisor: [Kyogu Lee](#)

**B.Sc. in Mechanical Engineering, Pohang University of Science and Technology (POSTECH)** 2013 – 2019

Thesis: *Deep Learning Approach in Multi-scale Prediction of Turbulent Mixing-layer*

## Previous Positions

**Research Scientist Intern, Meta (with [Sebastian Prepelitã](#))** Redmond, WA, 2024

**Research Scientist Intern, Supertone (with [Hyeong-Seok Choi](#))** Seoul, KR, 2021,2023

**Research Intern, Music and Audio Research Group, SNU** 2019

**Research Intern, Robotics Lab, POSTECH** 2018

**Research Intern, Flow Physics & Engineering Lab, POSTECH** 2017

**Visiting Student, Korea National University of Arts** 2014

## Publications [Google Scholar] [h5-index: Engineering & Computer Sci. / AI / Acoustics & Sound ]

Selected publications are **highlighted**.

2024.....

1. *Differentiable Modal Synthesis for Physical Modeling of Planar String Sound and Motion Simulation*

**Jin Woo Lee**, Jaehyun Park, Min Jun Choi, and Kyogu Lee

NeurIPS 2024

2. *Inverse Nonlinearity Compensation of Hyperelastic Deformation in Dielectric Elastomer for Acoustic Actuation*

**Jin Woo Lee**, Gwangseok An, Jeong-Yun Sun, and Kyogu Lee

IEEE Access 2024

3. *String Sound Synthesizer on GPU-accelerated Finite Difference Scheme* [code]

**Jin Woo Lee**, Min Jun Choi, and Kyogu Lee

ICASSP 2024

2023.....

4. *AECSQI: Referenceless Acoustic Echo Cancellation Measures using Speech Quality and Intelligibility Improvement* [slides]

**Jin Woo Lee**, Hyeong-Seok Choi, and Kyogu Lee

WASPAA (Oral Presentation) 2023

5. [Neural Fourier Shift for Binaural Speech Rendering](#) [code]  
**Jin Woo Lee** and Kyogu Lee  
 ICASSP 2023
  6. [Global HRTF Interpolation via Learned Affine Transformation of Hyper-conditioned Features](#) [code]  
**Jin Woo Lee**, Sungho Lee, and Kyogu Lee  
 ICASSP 2023
- 2022 and earlier.....
7. [Representation Selective Self-distillation and wav2vec 2.0 Feature Exploration for Spoof-aware Speaker Verification](#) [slides]  
**Jin Woo Lee**, Eungbeom Kim, Junghyun Koo, and Kyogu Lee  
 Interspeech (Oral Presentation) 2022
  8. [Deep Learning Approach in Multi-scale Prediction of Turbulent Mixing-layer](#)  
**Jin Woo Lee**, Sangseung Lee, and Donghyun You  
 arXiv 2019

## Teaching

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Machine Listening (TA)	SNU M3309.002900
Physical Modeling and Numerical Sound Synthesis (Mentor)	SNU MARG-NSS

## Invited Talks

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1. [Physics-based Differentiable Sound Rendering and Machine Listening](#), University of Iowa, Dept. of Communication Sciences and Disorders Seminar (host: Inyong Choi) 2024
2. [Differentiable Physical Modeling for Sound Synthesis: From Design to Inverse Problems](#), Stanford CCRMA, DSP Seminar (host: Julius O. Smith) 2024
3. [Differentiable Modal Synthesis for Physical Modeling of Planar String Sound and Motion Simulation](#), Korea Advanced Institute of Science & Technology (KAIST), Music and Audio Computing Lab (host: Juhan Nam) 2024
4. [Towards Sound Synthesis using Physical Modeling and Differentiable Finite Difference Schemes](#), SANE Workshop, New York University (NYU) 2023
5. [Differentiable Finite Difference Schemes for Sound Synthesis](#), AIIS Workshop, Seoul National University 2023
6. [AECSQI: Referenceless Acoustic Echo Cancellation Measures using Speech Quality and Intelligibility Improvement](#), WASPAA Oral Presentation 2023
7. [NFS: Neural Fourier Shift for Binaural Speech Rendering](#), Music and Audio Workshop, Seoul National University 2023
8. [Sound Synthesis and Physical Modeling](#), MARG NSS Seminar, Seoul National University 2023
9. [Neural Fourier Shift for Binaural Speech Rendering](#), AIIS Workshop, Seoul National University 2022
10. [On the Hyperelastic Deformation of Dielectric Elastomer Actuator and its Acoustic Actuation](#), Pohang University of Science and Technology (POSTECH) 2022
11. [HRTF Simulation using Boundary Element Method and Neural Network-based Interpolation](#), Electronics and Telecommunications Research Institute (ETRI) 2022
12. [RSSD: Representation Selective Self-Distillation and wav2vec 2.0 Feature Exploration for Spoof-aware Speaker Verification](#), Interspeech Oral Presentation 2022
13. [Current Challenges in Head-related Transfer Function Simulation](#), Electronics and Telecommunications Research Institute (ETRI) 2021

## Academic Services

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Reviewing.....

International Conference on Learning Representations (ICLR)

International Speech Communication Association (ISCA) Interspeech

IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)