

RESEARCH INTEREST

Machine learning and **generative artificial intelligence** for **room acoustics** simulation, such as *blind RIR estimation*, *generative acoustic matching*, and *fast hybrid neural-simulation RIR generation*. **Data scarcity techniques** such as learning from *noisy and weakly-labeled data* and bridging the gap between *acoustic simulation to real data*. Analysis and extraction of **spatial auditory information** from *single and multichannel audio* for downstream tasks.

EDUCATION

University of Illinois at Urbana-Champaign (UIUC)

Aug 2024 - 2029 (Expected)

Ph.D. Candidate in Computer Science, concentration in AI

Advisors: Prof. [Minje Kim](#), Prof. [Paris Smaragdis](#)

Aalto University - Espoo, Finland

May 2024

M.S. in Acoustics and Audio Technology, Honors – GPA: 4.84/5.0

Thesis Title – “Deep Room Impulse Response Completion”

Advisors: Prof. Sebastian J. Schlecht, Prof. Vesa Välimäki, Dr. Georg Götz

Massachusetts Institute of Technology

May 2020

B.S. in Architecture and Planning – GPA: 4.7/5.0

RESEARCH & WORK EXPERIENCE

Shure Inc.

May - Aug 2026

Digital Signal Processing Intern with the Signal Processing and Applied Research team

- Triaged failure modes of a spatial source separation algorithm (SSSA) for a large, conferencing microphone array.
- Developed a deep-learning room geometry estimator using room impulse response (RIR) inputs.
- Developed a speech quality estimator for the SSSA given room acoustics and room-device-source spatial information.
- Hosts: Dr. Mark Syordenko, Dr. Wenyu Jin

Mitsubishi Electric Research Laboratories (MERL)

Nov 2025 - Apr 2026

Research Intern with the Speech and Audio team

- Investigated a latent-domain approach for the task of RIR interpolation, i.e. to predict an RIR at a queried location given a few enrollment RIRs from that same room.
- Notably, explored non-learning kernel regression methods and light-weight attention-pooling in a VAE’s latent space.
- Hosts: Dr. Yoshiki Masuyama, Dr. Gordon Wichern, Dr. Jonathan Le Roux

Adobe Inc.

May - Dec 2025

Research Intern with the Speech AI group

- Developed a diffusion transformer-based blind RIR generation system from reverberant speech only.
- Adapted and fine-tuned the diffusion transformer for a text-to-RIR generation system.
- Hosts: Dr. Jiaqi Su, Dr. Zeyu Jin

UIUC Audio Lab

Aug 2024 - Present

Graduate Research Assistant

- Building spatial audio models for analysis, understanding, and generation.
- Currently focusing on the development of foundational spatial audio tokens from multi-channel audio.

- Developed generative models for data augmentation to generate high-quality RIRs for downstream tasks and organized a generative AI challenge.

Aalto Acoustics Lab

Apr 2023 - Feb 2024

Master's Thesis Researcher

- Developed an encoder-decoder deep neural network to predict room impulse responses from direct and early reflections. The goal is to reduce the RIR simulation time required for real-time applications.
- Achieved a more light-weight and better performing decoder for the RIR synthesis from a baseline decoder. Trained models on 50k+ RIRs using Aalto's Triton computing cluster.
- Tested new model against unseen measured and simulated RIRs.

Aani Oy

Apr - Aug 2024

Researcher

- Developed a deep learning based blind reverberation estimation system.
- Developed a pytorch deep learning framework for designing and testing new blind reverberation systems.
- Supervisors: Dr. Raimundo Gonzalez-Diaz, Prof. Archontis Politis

Bose Corporation

Jun - Aug 2023

Acoustic Test Engineering Intern

- Optimized MVDR beamforming parameters and acoustic test parameters for noise rejection.
- Developed an MVDR MATLAB library for denoising multichannel recordings from variable microphone arrays.
- Designed a listening test for the HEAD Acoustics BHS II Headset to determine the recording and playback environments that best perceptually capture the desired signal.
- Supervisors: Dr. Eric Mitchell, Gerry Mariona

PUBLICATIONS

- J. Lin**, S. Bhati, A. Ratnarajah, M. Athi, W. Kim, and M. Kim, "Reference-invariant training for neural array-generic DOA estimation," *submitted to ICASSP 2027 (under review)*. [\[link\]](#)
- J. Lin**, Y. Masuyama, C. Boeddeker, J. Richter, G. Wichern, M. Kim, and J. Le Roux, "Few-Shot Room Impulse Response Interpolation in Latent Domains," *2026 19th International Workshop on Acoustic Signal Enhancement (IWAENC)*, Sep. 2026. [\[link\]](#)
- J. Lin**, J. Su, N. Anand, Z. Jin, M. Kim, P. Smaragdis, "Gencho: Room Impulse Response Generation from Reverberant Speech and Text via Diffusion Transformers," *2025 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, May. 2026 [\[link\]](#)
- J. Lin** et al., "Generative Data Augmentation Challenge: Synthesis of Room Acoustics for Speaker Distance Estimation," *2025 IEEE International Conference on Acoustics, Speech, and Signal Processing Workshops (ICASSPW)*, pp. 1–5, Apr. 2025 [\[link\]](#)
- J. Lin**, G. Götz, and S. J. Schlecht, "Deep room impulse response completion", *EURASIP Journal on Audio, Speech, and Music Processing*, vol. 2025, no. 1, p. 20, 2025. [\[link\]](#)
- K. Tahiroğlu, S. Wang, E. M. Tampu, & **J. Lin**. "Deep Learning with Audio: An Explorative Syllabus for Music Composition and Production," in *International Conference on AI and Musical Creativity*, 2023. [\[link\]](#)

HONORS, AWARDS, AND LEADERSHIP

- **Community of Urbana-Champaign Cooperative Housing Co-President**: elected position running a non-profit housing cooperative in Urbana-Champaign, IL. November 2025 - Present
- **Finland Scholarship at Aalto University**: fully funded MS tuition and award. August 2022 - May 2024