

Dabin Kim

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Profile

An ML/DL researcher focused on music generation, editing, and representation learning. My work explores how learned representations can expand both what can be edited in music and how flexibly those edits can be controlled. I build models that connect musical structure, timbre, and expressive intent, and extend these capabilities through grounded relationships with text, image, and video. My goal is to develop controllable music AI systems that are technically rigorous, perceptually meaningful, and useful in creative workflows.

Affiliation: Music and Audio Computing (MAC) Lab, KAIST

Research Interests: controllable audio generation, music generation and editing, musical representation learning



Education

Korea Advanced Institute of Science and Technology (KAIST) , Daejeon <i>Ph.D. in Music and Audio Computing (MAC) Lab</i>	Mar 2026 – Present
Korea Advanced Institute of Science and Technology (KAIST) , Daejeon <i>M.S. in Music and Audio Computing (MAC) Lab</i>	Aug 2023 – Aug 2025
Sogang University , Seoul <i>B.S. in Art & Technology (Double Major: Big Data Science)</i>	Feb 2017 – Feb 2023

Experience

Sony Computer Science Laboratories (Sony CSL) <i>Assistant Researcher</i>	Jul 2025 – Oct 2025
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Publications

AdaTT: Text-Guided Instrument Timbre Transfer with Target-Adaptive Structural Control

Dabin Kim, Junwon Lee, Juhan Nam – *27th Annual Conference of the International Speech Communication Association (INTERSPEECH)*, 2026

[\[Paper Link\]](#) [\[Demo Link\]](#)

- Proposed a target-adaptive control framework for timbre transfer that preserves score-level content while improving target timbral fidelity.
- Introduced a semi-automatic data pipeline for learning instrument-specific expressive transformations across diverse source–target scenarios.

DDSP-Based Neural Vehicle Sound Synthesis from Driving Signals

Minsuk Choi, **Dabin Kim**, Daehun Song, Juhan Nam – *6th AES International Conference on Automotive Audio*, 2026

[\[Demo Link\]](#)

- Proposed a real-time neural vehicle sound synthesis framework based on Differentiable Digital Signal Processing (DDSP).

Video-Foley: Two-Stage Video-To-Sound Generation via Temporal Event Condition for Foley Sound

Junwon Lee, Jaekwon Im, **Dabin Kim**, Juhan Nam – *IEEE/ACM Transactions on Audio, Speech, and Language Processing (TASLP)*, 2025

[\[Paper Link\]](#) [\[Demo Link\]](#) [\[Code Link\]](#)

- Contributed to video-conditioned intensity modeling and qualitative evaluation for temporally synchronized Foley generation.

Pitch-ControlNet: Continuous Pitch Control for Monophonic Instrument Sound Generation

*Dabin Kim**, Junwon Lee*, Minseo Kim*, Juhan Nam (**equal contribution*) – *Late-Breaking/Demo (LBD)*, 25th International Society for Music Information Retrieval Conference (ISMIR), 2024

[\[Paper Link\]](#)

- Proposed continuous pitch control for instrument sound generation using ControlNet.

Selected Presentations

AdaTT: Text-Guided Instrument Timbre Transfer with Target-Adaptive Structural Control May 30, 2026

Short Oral and Poster Sessions, Korean Society for Music Informatics (KSMI) 2026

Jeong Ha Sang Hall, Sogang University, Seoul, South Korea

AI generative models for controllable music and Foley sound synthesis May 12, 2026

KOBA 2026 AI Audio/Sound Day

COEX Conference Room, Seoul, South Korea

Skills

Programming Languages: Python

ML/DL Frameworks: PyTorch, PyTorch Lightning

Creative & Audio Tools: Ableton Live, Logic Pro, Max/MSP, SuperCollider