

# SEUNGHEON DOH

Ph.D Candidate @ Music and Audio Computing Lab, KAIST

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[blog](#) • [google scholar](#) • [github](#)

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## RESEARCH INTEREST

Music Informational Retrieval, Natural Language Processing, Multi-Modal Deep Learning

My research focuses on the machine's ability to listen to music, express music experience in natural language, and imagine visuals. My research primarily revolves around the field of representation learning between music and multimodal media. The detailed task is as follows:

- Annotation: Music Auto-Tagging, Music Captioning
- Retrieval: Cross-modal Music Retrieval, Conversational Music Retrieval
- Generation: Music Conditioned Media Generation
- Representation Learning: Self-supervision, Disentanglement

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## SELECTED PUBLICATIONS

### LP-MusicCaps: LLM-based Pseudo Music Captioning

Seungheon Doh, Keunwoo Choi, Jongpil Lee, Juhan Nam

Proceedings of the 24nd International Society for Music Information Retrieval Conference (ISMIR), 2023

### Toward Universal Text-to-Music Retrieval

Seungheon Doh, Minz Won, Keunwoo Choi, Juhan Nam

Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2023

### Textless Speech-to-Music Retrieval Using Emotion Similarity

Seungheon Doh, Minz Won, Keunwoo Choi, Juhan Nam

Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2023

### Musical Word Embedding: Bridging the Gap between Listening Contexts and Music

Seungheon Doh, Jongpil Lee, Tae Hong Park, and Juhan Nam

Machine Learning for Media Discovery Workshop, International Conference on Machine Learning (ICML), 2020

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## ACADEMIC PAPERS (PEER-REVIEWED CONFERENCES AND WORKSHOPS)

### TräumerAI: Dreaming Music with StyleGAN

Dasaem Jeong, Seungheon Doh, Taegyun Kwon

Workshop on Machine Learning for Creativity and Design, Neural Information Processing Systems (NeurIPS), 2020

### Hi, KIA: A Speech Emotion Recognition Dataset for Wake-Up Words

Taesu Kim\*, SeungHeon Doh\*, Gyunpyo Lee, Hyung seok Jun, Juhan Nam, Hyeon-Jeong Suk (\*equally contribution)

Proceedings of the 14th Asia Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA), 2022

### EMOPIA: A Multi-Modal Pop Piano Dataset For Emotion Recognition and Emotion-based Music Generation

Hung, Hsiao-Tzu and Ching, Joann and Doh, Seungheon and Kim, Nabin and Nam, Juhan and Yang, Yi-Hsuan

Proceedings of the 22nd International Society for Music Information Retrieval Conference (ISMIR), 2021

### Music Playlist Title Generation Using Artist Information

Haven Kim, Seungheon Doh, Junwon Lee, Juhan Nam

1st Workshop on Creative AI Across Modalities (AAAI), 2023

### Music Playlist Title Generation: A Machine-Translation Approach

Seungheon Doh, Junwon Lee, Juhan Nam

2nd Workshop on Natural Language Processing for Music and Spoken Audio (NLP4MusA, ISMIR), 2021

### Million Song Search: Web Interface for Semantic Music Search Using Musical Word Embedding

Seungheon Doh, Jongpil Lee, Juhan Nam

Late Breaking Demo in the 22st International Society for Music Information Retrieval Conference (ISMIR), 2021

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## EDUCATION

Korea Advanced Institute of Science and Technology (KAIST)

2021 - present

Ph.D Student in Graduate School of Culture Technology  
Music and Audio Computing Lab (Advisor: Juhan Nam)

**Korea Advanced Institute of Science and Technology (KAIST)**

2019 - 2021

MSc. in Graduate School of Culture Technology  
Music and Audio Computing Lab (Advisor: Juhan Nam)

**Ulsan National Institute of Science and Technology (UNIST)**

2014 - 2019

B.S. in School of Business administration & Industrial Design  
Academic Performance Scholarship Recipient for every semester

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EXPERIENCE

**Naver Corp.**

Dec 2022 - Mar 2023

Seongnam, South Korea  
Research Intern in Now AI Team (Advisor: Jeong Choi)

**Computational Intelligence, Learning, Vision, and Robotics (CILVR)**

Jun 2022 - Aug 2022

New York University, United States  
Visiting Student (Advisor: Kyunghyun Cho)

**ByteDance**

Jul 2021 - Jan 2022

Remote (due to COVID-19)  
Research Intern in Speech, Audio & Music Intelligence Team (Advisor: Keunwoo Choi, Minz Won)

**Music and Audio Research Laboratory (MARL)**

Dec 2019 - Feb 2020

New York University, United States  
Visiting Student (Advisor: TaeHong Park)

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ADVISING

Have advised research internship students. Academic papers have been presented in top-tier conferences and workshops (ISMIR, NLP4MusA).

- Mentor, Gwonda Yong - Computer Science, KAIST (Jun 2023 - Dec 2023)
- Mentor, Junwon Lee - Electronic Engineering, KAIST (Jun 2021 - Sep 2022)
- Mentor, Hounsung Kim - Mechanical Engineering, KAIST (Dec 2020 - Mar 2021)
- Mentor, Nabin Kim - CS/Music, Georgia Institute of Technology (Dec 2020 - Mar 2021)

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TEACHING ACTIVITY

- TA, GCT731 Topics in Music Technology: Generative AI for Music (Mar 2023)
- TA, GCT634 Musical Applications of Machine Learning (Sep 2022)
- TA, GCT634 Musical Applications of Machine Learning (Sep 2021)
- TA, GCT731 Topics in Music Technology: Cognitive Science of Music (Sep-2020)
- TA, GCT576 Social Computing, KAIST GSCT (Sep 2019)

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TALK

- Invited Talk, Multimodal Music Retrieval for Listener and Contents Creator, Music and Audio Research Group (MARG), Seoul National Univ. (Feb 2023)
- Invited Talk, Music Informational Retrieval with Natural Language Processing, YONSEI Univ. (Dec 2022)
- Invited Talk, Digital Signal Processing and Speech Recognition, SK planet (May 2020)
- Tutorial, Music and Deep Learning, PyconKR (Aug 2019)

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SERVICE

- Korean translator, NYU Deep Learning DS-GA 1008, Yann LeCun & Alfredo Canziani (Sep 2020)

## LANGUAGES & SKILL & INTERESTS

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- English(fluent), Korean(native)
- Python (Pytorch, Tensorflow), HTML/CSS, React.js, C++
- Media Art, Graphic Design, Prototyping & Making, Piano, Movie, Crossfit, Lifting