# SANGEON YONG

+82 10-5002-4924 ◇ Republic of Korea
sangeon.yong@audai.co ◇ seyong92.github.io

Machine learning engineer and full-stack developer with over 8 years of research experience in signal processing/machine learning. Main research interests are speech and singing voice for analysis and synthesis. Proven success in developing several user applications based on audio technologies.

As an engineer, totally interested in the full product development process that improves user experience with cutting-edge technologies, from back-end and system to front-end and UI/UX. Also, as an early adopter, very active in introducing new technologies and products into projects and teams.

As a coder, absorbed in automation and code readability, which improves working and cooperation efficiency.

## CORE SKILLS

- Machine learning and signal processing: Python (PyTorch, BentoML), MATLAB
- Front-End: JavaScript/TypeScript (React, SolidJS, Web Audio API), HTML/CSS
- Back-End: Python (FastAPI)
- Audio Application: C++ (VST, JUCE), JavaScript/TypeScript (Web Audio API)

## EDUCATION

**Korea Advanced Institute of Science and Technology (KAIST)** 2017 - present
Ph.D. Candidate in Graduate School of Culture Technology
Music and Audio Computing Lab (Advisor: Juhan Nam)

**Korea Advanced Institute of Science and Technology (KAIST)** 2015 - 2017
M.S. in Graduate School of Culture Technology
Music and Audio Computing Lab (Advisor: Juhan Nam)

**Korea Advanced Institute of Science and Technology (KAIST)** 2011 - 2015
B.S. in Electrical Engineering (Minored in Culture Technology)

## EXPERIENCE

**AudAi, Republic of Korea** Jun 2023 - present
Chief Technical Officer (CTO)

**T-Brain, SK Telecom, Republic of Korea** Aug 2019 - Feb 2020
Research Intern
(Topic: Piano Transcription and Chord Recognition)

**Clova Multimedia, Naver Corp., Republic of Korea** Jun 2018 - Sep 2018
Research Intern
(Topic: Musical Instrument Classification)

**Keio Media Design, Japan** Jan 2016 - Feb 2016
Student Researcher Visiting (Advisor: Liwei Chan)
(Topic: UI/UX Design for 3D Touch)

**Seoul National University, Republic of Korea** Jul 2014 - Aug 2014
Undergraduate Research Program at MARG (Advisor: Kyogu Lee)
(Topic: Visualizing Audio Compressor with VST)

**Korea Advanced Institute of Science and Technology, Republic of Korea** Jan 2013 - Jun 2013
Undergraduate Research Program at AIM Lab. (Advisor: Woonseung Yeo)
(Topic: Real-Time Voice-to-MIDI Interface)

## RESEARCH PROJECTS

**T-Brain X, SK Telecom** Jul. 2020 - Dec. 2020
Development of multi-Singer synthesis and modification algorithm

**Ministry of Trade, Industry, and Energy** Jul. 2017 - Dec. 2020
Development of Conversational Speech Synthesis Technology to Express Emotion and Personality of Robots through Sound Source Diversification

**Korea Creative Content Agency (KOCCA)** Jul. 2016 - Dec. 2018
Development of Pattern, Phrase, Motif Based Korean Virtual Instruments
(Topic: Real-Time Voice-to-MIDI Interface)

## ADVISING & TEACHING ACTIVITY

- TA, GCT634 Musical Applications of Machine Learning, KAIST (Mar 2019 - Jun 2019)
- TA, GCT583 Museum Technology in Digital Era, KAIST (Sep 2018 - Dec 2018)
- Mentor, Research & Education Program, Korea Science Academy (Mar 2018 - Dec 2018)
- TA, GCT674 Knowledge-based System Design, KAIST (Sep 2017 - Dec 2017)
- TA, CTP201 Introduction to Culture Technology, KAIST (Sep 2016 - Dec 2016)

## PUBLICATIONS

**A Phoneme-Informed Neural Network Model for Note-Level Singing Transcription**
**Sangeon Yong**, Li Su, Juhan Nam
Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2023

**Neural Vocoder Feature Estimation for Dry Singing Voice Separation**
Jaekwon Im, Soonbeom Choi, **Sangeon Yong**, Juhan Nam
Procs. of the 14th Asia Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA), 2022

**Children's Song Dataset for Singing Voice Research**
Soonbeom Choi, Wonil Kim, Saebyul Park, **Sangeon Yong**, Juhan Nam
Late Breaking Demo in the 21st International Society for Music Information Retrieval Conference (ISMIR), 2020

**PyTSMod: A Python Implementation of Time-Scale Modification Algorithms**
**Sangeon Yong**, Soonbeom Choi, Juhan Nam
Late Breaking Demo in the 21st International Society for Music Information Retrieval Conference (ISMIR), 2020

**Korean Singing Voice Synthesis Based on Auto-Regressive Boundary Equilibrium GAN**
Soonbeom Choi, Wonil Kim, Saebyul Park, **Sangeon Yong**, Juhan Nam
Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2020

**Data Augmentation and Model Optimization for Piano Transcription**
**Sangeon Yong**, Changhyun Kim, Jiwon Nam
Music Information Retrieval Evaluation eXchange (MIREX) in the 20th ISMIR, 2019

**Use the Force: Incorporating Touch Force Sensors into Mobile Music Interaction**
Edward Jangwon Lee, **Sangeon Yong**, Soonbeom Choi, Roshan Peiris, Liwei Chan, Juhan Nam
Lecture Notes in Computer Science (revised selected papers of CMMR 2017), Vol. 11265, 2018

**Singing Expression Transfer from One Voice to Another for a Given Song**
**Sangeon Yong**, Juhan Nam
Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2018

**Use the Force: Incorporating Touch Force Sensors into Mobile Music Interaction**
Edward Jangwon Lee, **Sangeon Yong**, Soonbeom Choi, Roshan Peiris, Liwei Chan, Juhan Nam
Proceedings of the 13th International Symposium on Computer Music Multidisciplinary Research (CMMR), 2017

**ForceClicks: Enabling Efficient Button Interaction with Single Finger Touch**
**Sangeon Yong**, Edward Jangwon Lee, Roshan Peiris, Liwei Chan, Juhan Nam
Proceedings of the 11th International Conference on Tangible, Embedded, and Embodied Interaction (TEI), 2017

## DOMESTIC PUBLICATIONS

**가창 음원의 음악적 표현 이식 시스템**
**Sangeon Yong**, Juhan Nam
한국 음성 학회, 2019

## THESIS

**Transferring Singing Expressions from One Voice to Another**
**Sangeon Yong**
M.S. thesis, Korea Advanced Institute of Science and Technology, 2017

## PATENTS

**Singing Expression Transfer System**
Juhan Nam, **Sangeon Yong**
US Patent Grant, 10885894, 2021

**Singing Voice Expression Transfer System**
Juhan Nam, **Sangeon Yong**
Korea Patent Grant, 10-1925217, 2018

## AWARDS

- Korean Society of Speech Sciences (KSSS) Spring Conference Best Paper Award (2019)
- KAIST Spring Semester URP Program Second Prize (2013)