HAN ZHANG

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EDUCATION AND INTERNSHIP

Music Department, University of California, San Diego *Sept. 2022 - Present*
- Ph.D. student in Computer Music.

Center of New Music and Audio Technology, UC Berkeley *Aug. 2021 - May 2022*
- Visiting scholar.

McCormick School of Engineering, Northwestern University *Aug. 2019 - Jun. 2021*
- M.S. in Electrical Engineering.

Department of Automation, Tsinghua University, China *Aug. 2015 - Jul. 2019*
- B.S. in Automation;
- Minor in Music Technology and Engineering.

RESEARCH EXPERIENCE

Project: Joint Time-Frequency Spectral Modeling of Music Timbre *Jan. 2023 - Present*
- With the awareness of the drawback of the Fast Fourier Transform and the traditional spectral modeling schemes, this project aims for a semantically describable and concisely controllable spectral model that considers both temporal and spectral characters. Moreover, exempting the separation step of amplitude and phase spectrograms and taking the implementation of FFT into account, this scheme goals for dealing with classic problems in spectral synthesis like phase reconstruction, sinusoidal leakage, and so forth.

Project: Computer-assisted auto-orchestration and texture generation *Aug. 2021 - Present*
- Proposed a workflow for generating musically reasonable multi-track scores for orchestra given the constraints of configuration, timbre morphology, and measures of textural complexity. Currently modeling a deep learning framework based on generative neural networks and realizing the auto transformation from parameter space of conditions to symbolic space of scores.

Project: Timbre Analysis and Synthesis *May 2020 - Jun. 2021*
- Designed a framework for the extraction and modification of harmonics morphological features for musical timbre. Practiced experiments to verify the analytic power of the the model, including musical instrument recognition and timbre descriptor mapping. Developed a synthesis method that allows sound reconstruction, design, and morphing based on understandable features. Implemented a GUI with PyQT that integrated all the functions and allowed future exploration of the model.

TEACHING EXPERIENCE

Music Department, University of California, San Diego *Sept. 2022 - Present*
- Taught undergrad-level music courses as a teaching assistant in the world-renowned music department. Both discussion-based music history and orchestra classes and theory-based musicianship classes are included. Received high evaluations from the students and positive feedback from the instructors.

COSMOS Program, University of California, San Diego *Jul. 2023 - Aug. 2023*

SKILLS AND WORKS

Music Software	Logic Pro, Ableton Live, Cubase, Pro Tools, Sibelius, Pd, Max MSP
Musical Instruments	Piano, Synthesizer
Compositional Works	https://soundcloud.com/zhanghanpqqo
Professional Skills	DSP, Machine Learning, Data Analysis, Software and Hardware Design, Sound Design, Interface Design, Amateur Radio Technician
Programming Languages	Python, MATLAB, C, C++, SQL, JavaScript, Latex