HUAN ZHANG (KRISTIN)

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EDUCATION

Carnegie Mellon University, Pittsburgh, PA September 2017 - May 2021
Bachelor in Science of Music and Technology, minor in Computer Science, GPA: 3.7/4.0

RESEARCH AND PROJECTS

S.Dai, **H. Zhang**, R. Dannenberg, "Automatic Analysis and Influence of Hierarchical Structure on Melody, Rhythm and Harmony in Popular Music", in proceeding of *Joint Conference on AI Music Creativity (CSMC-MuMe 2020)*

H. Zhang, R. Zhang, K. Zhang, X. Wang, Z. Wang, "Key and Function Aware Melody Triad Harmonization based on Transformer Model", in submission of ICASSP 2021.

Undergraduate Capstone Project: Soundcool May 2019 - Present
- Collaboratively developed the web version of music educational application Soundcool, system for collaborative creation of music, sound, and audiovisual.
- Led the front-end team to implement the GUI and interactive audio project editor based on the React and Redux API.
- Assisted with the implementation of audio modules in browser via Web Audio API.

Study: "Unsupervised Clustering of Classical Composers" Jan 2020 - May 2020
with Jingyuan Xing
- In this project, we investigated the stylistic trends of Western classical music composers by clustering their compositions and analyze the clustering result. Comparing algorithms like KMeans, Spectral clustering, we clustered compositions by different composers by applying machine learning methods to pitch, rhythm, intervals features extracted from music in MIDI format.

PROFESSIONAL EXPERIENCE

Music Generation Research and Development Intern June 2020 - Present
Kuaishou Technology, Beijing, China
- Tackled the task of automatic melody harmonization by proposing a seq2seq approach, applying the transformer model into melody - chords "translation". Adapted the model in terms of masking and representation from musical perspective.
- Completed the entire life-cycle including analyzing and processing data from Wikifonia, Hooktheory and POP909 symbolic datasets, tuning and training the transformer, to testing and inferencing.
- Proposed a melody harmonization evaluation scheme that's used to evaluate the quality of generated chord.

EXCEL Leader Sept 2018 - May 2020
Carnegie Mellon University Academical Development, Pittsburgh, PA
- Assisted courses: Math Concepts, Matrices and Linear Transformations.
- Hold 2 weekly sessions with 20 students, preparing handouts and design classroom activities to facilitate collaborative learning.
- Communicating with professors, team members and supervisors to design flexible teaching plan, resulting in 10 percent of grade improvement of students on average.

PRESENTATIONS

Music and Technology Seminar, "Soundcool: music educational application, system for collaborative creation of music" Nov 2019
Undergraduate Internship Showcase Jan 2020

HONORS/AWARDS

CMU Summer Internship Experience Fund (SIEF) Receiver April 2019
Ranked top 1000 in Putnam Mathematical Competition December 2017
Carnegie Mellon University Dean's List 2017-2019

INVOLVEMENT AND LEADERSHIP

CMU Laptop Orchestra Jan 2019 - May 2019
Collaborative Project
- A project lead by professor Roger Dannenberg and implemented by music technology students, it presents a Multi-thread, network-based real time laptop music-generation performance.
- I am contributing as one of the laptop instrumentalist with saxophone and piano, with jazz-style composition algorithm written in Serpent and synchronizing with the conductor over the network.
- : Performance Video: https://www.youtube.com/watch?v=3OYhC3KNt-gt=2s

Piano performance Feb 2018
- In this performance video I played Bach's Well Tempered Clavier in b minor, book 1, and the Jeux D'eau by Maurice Ravel. https://www.youtube.com/watch?v=Qh6aTkbX-yg