HUAN ZHANG (KRISTIN)

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EDUCATION

Carnegie Mellon University, Pittsburgh, PA September 2017 - May 2021
Bachelor of Science in 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)*

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.
- Worked with 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 sound modules based on Web Audio API, and wrote report about the alpha release of Soundcool in sumission of Web Audio Conference 2021.

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 Research and Development Intern Dec 2020 - Present
Tencent Music Entertainment, Shenzhen, China
- Working under WeSing development team, assisted tasks in singing assessment and audio auto-tagging.

Music Research and Development Intern June 2020 - October 2020
Kuaishou Technology, Beijing, China
- Tackled the task of automatic melody harmonization by proposing a seq2seq approach, applying transformer model into melody - chords "translation".
- 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.
- Report *Key and Function Aware Melody Triad Harmonization based on Transformer Model*

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.

Music Intern May 2019 - Aug 2019
WYEP 91.3 fm, Pittsburgh, PA
- Daily management of the MusicMaster system : Adding and categorizing new music, ripping music from live sessions.
- Music production of the radio beds (the introductory sound logo of a radio feature) using Adobe Audition.
- Assisted with the organization of live session archive by labeling them in Adobe Audition.

Freelance Music Critique July 2015 - Present
- Hosted LiveinConcert Classical music Blog on Wechat public platform, wrote articles covering topics ranging from concert critique to classical music analysis.
- Published over 130 articles over the course of 5 years, reached to over 10000 audiences.

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 (Youtube)

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.
- Performance Video (Youtube) (Bilibili)

SKILLS AND COURSEWORKS

10605 - Machine Learning with Large Datasets	Fall 2020
15780 - Graduate Artificial Intelligence	Spring 2021
10701 - Introduction to Machine Learning (PhD)	Spring 2020
15210 - Parallel and Sequential Data Structures and Algorithms	Fall 2019
15213 - Introduction to Computer Systems	Fall 2019
18290 - Signals and Systems	Fall 2020
36217 - Probability Theory and Random Processes	Spring 2019
15323 - Computer Music Systems and Information Processing	Spring 2019
11411 - Natural Language Processing	Fall 2019