YUTIAN QIN

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EDUCATION

Tandon School of Engineering, New York University (New York City, NY) *Sep. 2020 - Present*

B.S. in Electrical and Computer Engineering

- Core courses: Real-Time Digital Signal Processing, , Intro to Computer Music, Medical Imaging, Feedback Control System, Data Structures, Fundamental of Electronics, Ordinary Differential Equations, Communication Networks

School of Rail Transportation, Soochow University (Suzhou, CHN) *Sep. 2018 – Jun. 2020*

Major in Electrical Engineering and Intelligent Control

- Core courses: Complex Variables & Integral Transformation, Signals and Systems, Advanced Mathematics, Linear Algebra, Programming and Application: C Language, General Physics; Circuit Analysis

University of California, Berkeley (Berkeley, CA) *Jul. 2019 - Aug. 2019*

- Summer Session: Introduction to Environmental Science, Introduction to International Business

RESEARCHES & INTERNSHIPS

Music Biocomputing on *Physarum Polycephalum*

Undergrad Researcher | Prof. Gus Xia | Music X Lab, NYU Shanghai *Feb 2021 - Present*

- Cultivated *Physarum polycephalum* (a.k.a. Slime Molds) as computational models to process music and understand the logic and cognition of slime molds as a way to understand learning model.
- Designed and conducted experiments on slime molds to train conditioned reflex using food, temperature change, illumination, and noise audio as the stimuli.
- Proposing algorithms to detect slime molds coverage from video data and analyze its growing speed.

Perceptual Loudness Modelling of Complex Tones for Performance Transfer on Player Piano

Undergrad Researcher | Prof. Gus Xia | Music X Lab, NYU Shanghai *Jun 2021 - Present*

- Conducted preliminary experiments on piano tone loudness to study possible perceptive bias in terms of hearing order, pitch intervals, and harmonics overlapping.
- Designed and conducted experiments on Equal Loudness Curve of piano tones on pitch-velocity space.
- Optimizing piano performance transfer algorithms in terms of duration and velocity to improve transfer quality between player pianos with weighting filters and gains on frequency domain.

Electrification of a traditional Chinese musical instrument *Liu-qin*

Group Leader | Dean's Undergraduate Research Funding, College of Art and Science, NYU *Apr 2021 - Present*

- Set up timbre model of *Liu-qin* using dynamic spectral envelope modeling and Jensen's sinusoidal timbre model on frequency domain to describe timber in Python.
- Fabricated pickups for *Liu-qin* and a circuit that amplifies the signal.
- Synthesizing *Liu-qin* sounds based on the timbre model and transfer timbre into other timbres such as the piano's.

High Efficiency and High Performance of Rail Transit Auxiliary Converter Based on Wide Band-Gap Devices

UROP | Prof. Mingdi Fan | Advanced Energy and Electrified Transportation Research Center, SCU *Sep 2019- Jun 2020*

- Established current converter and voltage converter to build an FPGA-based system to transfer high voltage into serviceable voltage for loads in the railway transportation system.

Project Department of Intelligent Distribution Center in Bosideng International Holdings Limited

Intern *Aug 2019-Sep 2019*

- Set up intelligent logistics conveyor with Programmable Logic Controller
- Established correctness the new conveyors and supervised human-machine mixture flow system based on Geek robot.

Intern, Metal Processing and Metal Working *Nov. 2019- Dec. 2019*

- Laser cutting; 3D printing; steel Welding; polish with lathes and milling machines; cast mechanical elements

HONORS

- The Dean's List of Tandon School of Engineering, NYU *2020-2021*
- Dean's Undergraduate Research Funding, NYU *2021*
- Successful Participant in Mathematical Contest in Modeling *2020*
- First-class Scholarship for Excellence in Soochow University *2018-2019*
- The Third Prize for Band C in 2019 National English Competition for College Student *2019*

SKILLS & HOBBIES

- Skills: Python; C; MATLAB; C++; Verilog; AutoCAD; SolidWorks; SIGMA NEST; Up Studio; Pro Engineer.
- Hobbies: Piano; *Liu-qin*; musical theater.