Baotong Tian

✉ baotongtian0527@gmail.com   •   ⌂ user-tian

Education

Tsinghua University   **September 2020 – Present**
B.Eng
Major in Automation
GPA 3.876/4.0

Core Courses
- **Mathematics**: Calculus A, Linear Algebra, Random Mathematics and Statistics, Numerical Analysis and Algorithms, Discrete Mathematics
- **Computer Science**: Computer Languages and Programming, Data Structures, Principles and Systems of Computer, Signals and System Analysis, Basis of Artificial Intelligence, Pattern Recognition and Deep Learning
- **Music**: Music Phenomena in The Multi-Culture, Vocal Foundation to Improve, Theory and Production of Song Arrangement

Projects

Controllable Sheet Music Generation   **June 2021-Dec 2022**
Advisor: Xin Jin & Duo Xu & Song-chun Zhu
Beijing Institute for General Artificial Intelligence
- Learned music psychology and emotion perception in music.
- Learned the Generative Theory of Tonal Music and basic structure analysis of music.
- Implementation of music And-or-Graph.
- Data Labeling of figure in music, music structure division and music variation in phrases.
- Implemented genetic algorithm for **music variation** in Python.

Tactile Music(Music Perception)   **Oct 2022-Feb 2023**
Advisor: Yun Wang & Zijin Li & Yingqing Xu
the Future Laboratory, Tsinghua University
- STM32 programming for linear motor tactile device.
- Designed experimental protocols
- Analysis of experimental data relating to the relationship of fragrance and music

XAI   **Feb 2023-Present**
Advisor: Jiwen Lu & Jie Zhou
Department of Automation, Tsinghua University
- Designed framework for baseline generation for attribution methods such as Integrated Gradients and RISE.

Music Information Retrieval–Chord Recognition   **Jun 2023-Present**
Advisor: Jian Wu
Beijing Deepmusic Technology Co.
- Modified neural network framework to achieve higher performance in ACR(automatic chord recognition) tasks.
- Applied Conditional Random Field as post-filtering methods to improve the performance of ACR tasks.

Achievements

Tsinghua Arts and Culture Merit Scholarship   **2021& 2022**
- Received for students who have specialty in art and have made great contribution for cultural activities within the department.

Friends of Tsinghua-Weichai Power Scholarship   **2022**
- Received for excelling GPA throughout the school year.

Skills & Interests

Programming Skills:
- Proficient: Python, PyTorch, Markdown, LaTeX, Git
- Familiar: MATLAB, C/C++, Linux, TensorFlow, HTML, etc

Music Background & Interests

○ Learned basic music production skills such as music arrangement and mixing on my own.

○ Four songs have already been released on QQ music & The NetEase's cloud music, produced by Logic Pro X.

○ Link:My musician page on The NetEase's Cloud Music

○ Link:My musician page on QQ Music