

Zehao Wang

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Education

- **UC San Diego** **California, U.S.A.**
 - *Ph.D. candidate in Computer Music* *2021 - Present*
 - Department of Music
 - Committee: Thomas Erbe(Chair, Music), Miller Puckette(Music), Rand Steiger(Music), Xiaochuan Tian(Math), Stefan Bilbao(Music, University of Edingurgh)
 - *Master of Arts* *2021 - 2023*
 - Department of Music
 - Committee: Miller Puckette(Chair), Thomas Erbe, Tamara Smyth
- **Peking University** **Beijing, China**
 - *Bachelor of Science in Data Science* *2017 - 2021*
 - School of Mathematical Sciences

Experience

Academic

- **Stanford University** **California, USA**
 - *CCRMA* *April 2023 - Present*
 - Host:** Prof. Julius Smith
 - **New York University Shanghai** **Shanghai, China**
 - *Music X Lab* *May 2020 - Jul 2021*
 - Host:** Prof. Gus G. Xia
 - **School of Psychological and Cognitive Sciences, Peking University** **Beijing, China**
 - *Bao Lab* *Mar 2020 - Jul 2021*
 - Advisor:** Prof. Yan Bao
 - **School of Mathematical Sciences, Peking University** **Beijing, China**
 - *Deep Learning Lab* *May 2019 - Sep 2020*
 - Advisor:** Prof. Zhanxing Zhu
 - **Wangxuan Institute of Computer Technology, Peking University** **Beijing, China**
 - *Digital Audio Lab* *Apr 2018 - Dec 2019*
 - Advisor:** Prof. Xiaoou Chen

Industry

- **Apple** **U.S.**
 - *Research Intern* *April 2023 - Sep 2023*
- **TikTok, ByteDance** **U.S.**
 - *Research Intern* *Jun 2022 - Sep 2022*
- **Yamaha** **Japan**
 - *Research Intern* *Mar 2022 - Jun 2022*
- **ByteDance** **China**
 - *Research Intern in AI Lab* *Nov 2020 - Mar 2021*
- **ByteDance** **China**
 - *Research Intern in AI Lab* *Dec 2019 - Sep 2020*
- **Microsoft** **China**
 - *Research Intern in Speech Group* *Jun 2019 - Dec 2019*

Teaching and Other Music Experience.....

Academy of Opera, Peking University

Beijing, China

○ Adjunct Piano Accompanist

Apr 2019 - Jul 2021

- Working for rehearsal and concert, including art songs, chorus and opera.

○ Teaching

- Teaching assistant:

- MUS5R, Sound in Time, 2024 Winter, UC San Diego
- MUS126R, Blues: An Oral Tradition, 2023 Fall, UC San Diego
- MUS6, Electronic Music, 2022 Fall, UC San Diego
- MUS175, Musical Psychoacoustics, 2022 Spring, UC San Diego
- MUS174B, Audio & MIDI Techniques II, 2022 Winter, UC San Diego
- MUS174A, Audio & MIDI Techniques I, 2021 Fall, UC San Diego
- Economics and Computation, 2019 Summer, Peking University

- Lecturer:

- American Mathematics Competitions (in English), 2020 Summer, Online
- Mathematical Olympiad, 2017 Summer, Zhengzhou No.1 High School

○ Other music experience

- Independent music producer (on Xiami Music & Netease Music)
- Orchestra and choir arranger
- Piano accompanist, chamber music conductor

Skills

○ **Programming:** Python, C++, Matlab, Julia, R

○ **Framework:** CUDA; Pytorch & TensorFlow (Deep Learning); JUCE, Csound, Supercollider, Puredata and Faust (Music Related)

○ **Language:** Chinese(Native), English(Fluent)

Publications

(* denotes equal contribution)

Regular Papers (including submissions and preprints).....

1. **Zehao Wang**, Han Zhang, Yifan Guo. **ModPhy: System Design for Real-time Modular Sound Synthesis with Physically-Modeled Objects**, in *Proceedings of the 2023 International Computer Music Conference (ICMC)*, 2023.
2. Stefan Bilbao, Craig Webb, **Zehao Wang**, Michele Ducceschi. **Real-Time Gong Synthesis**, in *Proceedings of the 26th International Conference on Digital Audio Effects (DAFx)*, 2023.
3. **Zehao Wang**, Miller Puckette. **A fast biharmonic solver for real-time music applications of the von-Kármán plate equation**, in *Proceedings of the 5th Stockholm Music Acoustic Conference (SMAC)*, 2023.
4. **Zehao Wang**, Miller Puckette, Tom Erbe, Stefan Bilbao. **Real-Time Implementation of the Kirchhoff Plate Equation using Finite-Difference Time-Domain Methods on CPU**, in *Proceedings of the 2023 Sound and Music Computing Conference (SMC)*, 2023.
5. **Zehao Wang***, Jingru Li*, Xiaoou Chen, Zijin Li, Shicheng Zhang, Baoqiang Han, Deshun Yang. **Musical Instrument Playing Technique Detection Based on FCN: Using Chinese Musical Instruments as Examples**, submitted to a journal, *arXiv preprint(previous version): 1910.09021*, 2020.
(Short Version appears at *ECML PKDD 2020 - 13th International Workshop on Machine Learning and Music* as a **Contributed Talk.**)

Workshop Papers

1. **Zehao Wang***, Jingru Li*, Xiaou Chen, Zijin Li, Shicheng Zhang, Baoqiang Han, Deshun Yang. **Deep Learning vs. Traditional MIR: a Case Study on Musical Instrument Playing Technique Detection**, *ECML PKDD 2020 - 13th International Workshop on Machine Learning and Music*, 2020.

Honors and Awards

The First Prize of Contemporary Undergraduate Mathematical Contest in Modeling	Sep 2018
The Silver Medal of 32nd Chinese Mathematical Olympiad	Dec 2016
The Second Place of 32nd National Mathematics League in Henan Division	Sep 2016
The Third Place of 13th Chinese Southeast Mathematical Olympiad	Aug 2016
The First Place of Pearl River - Kayserburg International Youth Piano Competition	Aug 2015
The Second Prize of Musical Ensemble Track in Art Festival of Henan Province	Jul 2015