

Bochen Li

<https://bochenli.github.io>

+1(917)-969-5428

bochen1106@gmail.com

INTERESTS

- Music information retrieval, interactive music design, audio-visual scene analysis

EDUCATION

University of Rochester

Rochester, NY, USA

- PhD, Electrical and Computer Engineering (ECE)
Master of Science, Electrical and Computer Engineering (ECE)

October 2020

May 2016

University of Science and Technology of China

Hefei, China

- Bachelor of Science, Electronic Engineering and Information Science

June 2014

RESEARCH/INDUSTRIAL EXPERIENCE

TikTok - Intelligent Creation Audio

Mountain View, CA, USA

- Research Scientist

December 2019 - Present

- Development of interactive and audiovisual music effects.
- Launch of 10+ music stickers on TikTok.
- Algorithms for music understanding and generation.

University of Rochester - Audio Information Research Lab

Rochester, NY, USA

- Research Assistant

September 2014 - August 2020

◦ PhD Thesis: Multi-Modal Analysis for Music Performance:

- * Created two audiovisual datasets for the research community, URMP and URSing.
- * Addressed coordination of multiple music modalities, including score following and audiovisual source association techniques.
- * Applied multi-modal analysis for traditional music information retrieval tasks and new frontiers of emerging research topics, e.g., visually-informed multi-pitch analysis, source separation, and cross-modal localization/retrieval/generation.

Bytedance AI Lab - Speech, Audio, and Music Intelligence Team

Palo Alto, CA, USA

- Research Intern

February 2019 - May 2019

- Implemented the state-of-the-art music source separation method.

Spotify - Music Intelligence Team

New York, NY, USA

- Research Intern

June 2018 - August 2018

- Music-query by video. Developed a two-stream network to learn the cross-modal distance between music and unconstrained videos via latent emotion space, which includes audio/video emotion tagging branches and cross-modal distance learning framework. The model recommends a music/playlist given user-uploaded video clip.

Yamaha - Music AI Team

Hamamatsu, Shizuoka, Japan

- Research Intern

October 2017 - December 2017

- Visual performance generation. Developed a system to learn the music context of the given MIDI data (music score) and generate expressive whole-body visual performance as pianist skeleton key points, using convolutional and recurrent neural networks.

Knowles Intelligent Audio - Speech Interface Team

Mountain View, CA, USA

- Intern

May 2017 - August 2017

- Performed the keyword spotting process including data augmentation, training, parameter tuning, and testing.
- Developed the framework for talker ID recognition based on the Gaussian mixture models (GMM).

TEACHING EXPERIENCE

- **Academic Tutorials**

- “Audio-visual Music Processing” given at the *ISMIR2019* conference. *Fall 2018*

- **Guest Lectures**

- “Intro to Music Information Retrieval and Industrial Applications”, *University of Wisconsin - Stout*. *Fall 2020*
- “Audio-visual analysis for music performance”, *University of Rochester*. *Fall 2018*
- “Machine learning for audio signal processing”, *University of Rochester*. *Spring 2018*

- **Teaching Assistant**

- “Audio Signal Processing”, *University of Rochester* *Spring 2018*
- “Music and Math”, for pre-college students from the *Upward Bound Program*. *Summer 2016*
- “Circuits and Signals”, *University of Rochester* *Spring 2015*
- “Intro to C/C++ Programming”, *University of Rochester* *Fall 2014*

PUBLICATIONS/PATENTS

- **Bochen Li**, Yuxuan Wang, and Zhiyao Duan, “Audiovisual singing voice separation,” *Transactions of the International Society for Music Information Retrieval*, 2021.
- Qiuqiang Kong, **Bochen Li**, Jitong Chen, and Yuxuan Wang, “GiantMIDI-Piano: a large-scale MIDI dataset for classical piano music,” *Transactions of the International Society for Music Information Retrieval*, accepted.
- Qiuqiang Kong, **Bochen Li**, Xuchen Song, Yuan Wan, and Yuxuan Wang, “High-resolution piano transcription with pedals by regressing onsets and offsets times,” *IEEE/ACM Transactions on Audio, Speech, and Language Processing*, accepted.
- Akira Maezawa and **Bochen Li**, “Information processing method,” *U.S. Patent 16/983,341*. November 2020.
- **Bochen Li**, Karthik Dinesh, Chenliang Xu, Gaurav Sharma, and Zhiyao Duan, “Online audio-visual source association for chamber music performances,” *Transactions of the International Society for Music Information Retrieval*, 2(1), pp.29-42, 2019.
- **Bochen Li** and Aparna Kumar, “Systems, methods & computer program products for associating media content having different modalities,” *U.S. Patent 16/439,626*. June 2019.
- **Bochen Li** and Aparna Kumar, “Query by video: cross-modal music retrieval,” in *Proc. International Society for Music Information Retrieval (ISMIR)*, 2019.
- **Bochen Li***, Xinzhaoy Liu*, Karthik Dinesh, Zhiyao Duan, and Gaurav Sharma, “Creating a musical performance dataset for multimodal music analysis: challenges, insights, and applications,” *IEEE Transactions on Multimedia*, vol. 21, no. 2, pp. 522-535, 2019. (* *Equal contribution*)
- **Bochen Li**, Akira Maezawa, and Zhiyao Duan, “Skeleton plays piano: online generation of pianist body movements from MIDI performance,” in *Proc. International Society for Music Information Retrieval (ISMIR)*, 2018.
- **Bochen Li** and Akira Maezawa, “MIDI2Pose: online keyboard performance motion generation from performance data,” in *Proc. Information Processing Society of Japan*, 2018.
- Yapeng Tian, Jing Shi, **Bochen Li**, Zhiyao Duan, and Chenliang Xu, “Audio-visual event localization in unconstrained videos,” in *Proc. European Conference on Computer Vision (ECCV)*, 2018.
- Xueyang Wang, Ryan Stables, **Bochen Li**, and Zhiyao Duan, “Score-aligned polyphonic microtiming estimation,” in *Proc. International Conference on Audio, Speech and Signal Processing (ICASSP)*, 2018.
- **Bochen Li**, Karthik Dinesh, Gaurav Sharma, and Zhiyao Duan, “Video-based vibrato detection and analysis for polyphonic string music,” in *Proc. International Society for Music Information Retrieval (ISMIR)*, 2017. (**Best Paper Nomination**)

- **Bochen Li**, Chenliang Xu, and Zhiyao Duan, “Audio-visual source association for string ensemble videos through multi-modal vibrato analysis,” in *Proc. Sound and Music Computing Conference*, 2017. (**Best Paper Award**)
- **Bochen Li**, Karthik Dinesh, Zhiyao Duan, and Gaurav Sharma, “See and listen: score-informed association of sound tracks to players in chamber music performance videos,” in *Proc. International Conference on Audio Speech and Signal Processing (ICASSP)*, 2017.
- Karthik Dinesh*, **Bochen Li***, Xinzhaoh Liu, Zhiyao Duan, and Gaurav Sharma, “Visually informed multi-pitch analysis of string ensembles,” in *Proc. International Conference on Audio, Speech and Signal Processing (ICASSP)*, 2017. (* *Equal contribution*)
- **Bochen Li** and Zhiyao Duan, “An approach to score following for piano performances with sustained effect,” *IEEE/ACM Transactions on Audio, Speech, and Language Processing*, vol. 24, no. 12, 2016.
- **Bochen Li** and Zhiyao Duan, “Score following for piano performances with sustain-pedal effects,” in *Proc. International Society for Music Information Retrieval (ISMIR)*, 2015.

AWARDS

- **Outstanding PhD Dissertation Award**, *University of Rochester* *June, 2021*
- **Best Paper Nomination**, *18th International Society for Music Information Retrieval (ISMIR)* *October, 2017*
- **Best Paper Award**, *14th Sound and Music Computing Conference (SMC)* *July, 2017*

ACADEMIC SERVICE

- Committee members
 - Music program chair, *International Society for Music Information Retrieval*, 2021
 - Technical chair, *North East Music Information Special Interest Group*, 2017
- Reviewer for journals
 - *Journal of New Music Research*
 - *The Journal of the Acoustical Society of America*
 - *Digital Audio Processing: A Review Journal*
 - *EURASIP Journal on Audio Speech and Music Processing*
 - *IEEE Transactions on Multimedia*
 - *Transactions of the International Society for Music Information Retrieval*
 - *IEEE/ACM Transactions on Audio, Speech and Language Processing*
 - *IEEE Transactions on Affective Computing*
 - *The Journal of Supercomputing*
 - *Journal of Scientific Programming*
- Reviewer for conferences
 - *ACM Symposium on Applied Perception (SAP)*
 - *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*
 - *International Society for Music Information Retrieval (ISMIR)*
 - *ACM International Conference on Multimedia* (Program Committee Member)
 - *IEEE Technical Committee on Multimedia Computing*
 - *IEEE International Symposium on Multimedia*
- Reviewer for book chapters
 - *Audio Source Separation and Speech Enhancement*