Beici Liang

PhD · Amateur Pianist & Alto

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Now

Research Scientist
Shenzhen, China

Tencent Music Entertainment Group
Sept. 2019 - Present

- Implementing music information retrieval algorithms for music recommendation

Popular Science Writer
Online

Freelancer
July 2018 - Present

- Introducing music technology at WeChat Official Account "intro2musictech" and Zhihu Website (in Chinese)

Education

Queen Mary University of London
London, UK

Doctor of Philosophy
Sept. 2014 - Nov. 2019

- Topic: Modelling Instrumental Gestures and Techniques - A Case Study of Piano Pedalling
- Programme: Media and Arts Technology Centre for Doctoral Training (MAT CDT)
- Research Group: Centre for Digital Music (C4DM)
- Team Member of "*Fusing Audio and Semantic Technologies for Intelligent Music Production and Consumption*" (FAST-IMPACt) Project
- Research is supported by China Scholarship Council (CSC), EPSRC & AHRC Grant EP/L01632X/1, EPSRC Grant EP/L019981/1 and AudioCommons (688382).

Stanford University
Stanford, USA

Summer Workshop Student
July 2018

- Deep Learning for Music Information Retrieval I & II at Center for Computer Research in Music and Acoustics (CCRMA)

Tianjin University
Tianjin, China

Bachelor of Engineering
Sept. 2010 - July 2014

- Major in Integrated Circuit Design and Integrated System
- Grade: 88/100

Skill

Interests	Music Information Retrieval, Instrument Acoustics, Signal Processing, Deep Learning
Programming	Python, Matlab, Bash, Spark, Verilog, JavaScript
Tools	Git, LaTeX, Adobe Illustrator, Adobe InDesign, Logic Pro, Final Cut Pro, Laser Cutting
Languages	Chinese, English, Greek

Award

2014-18	**Chinese Government Scholarship**, awarded by China Scholarship Council	*China*
Jul. 2018	**Full Tuition Scholarship**, CCRMA Summer Workshops	*Stanford, USA*
Oct. 2017	**WiMIR Award**, 18th International Society for Music Information Retrieval Conference	*Suzhou, China*
Aug. 2017	**Best Poster**, 12th International Audio Mostly Conference	*London, UK*
Jul. 2014	**Excellent Graduate**, Tianjin University	*Tianjin, China*

Research Experience

Detection of Piano Pedalling Techniques
related papers in [1-3, 5-6]

Study in Audio Domain

- Built a dataset of MIDI-annotated piano recordings with different pedalling techniques.
- Analysed effects of pedalling on piano sound.
- Developed algorithms for pedalling techniques detection.

Piano Pedaller *related papers in*

Study in Sensor Domain *[4, 7-8]*

- Designed a dedicated system for sensing the pedal movement and recognising the employed techniques.
- Applied a score-following system for visualization.
- Provided ground truth dataset for audio-based pedalling detection.

The Organ Web App *related papers in*

MAT advanced placement project *[11]*

- Student internship of the Organ Project at the Union Chapel, London, UK. (Apr. - Sep. 2015)
- Developed a web app to present different aspects of the Henry Willis pipe organ.

Publication

[1] Beici Liang, György Fazekas, Mark Sandler. "Transfer Learning for Piano Sustain-Pedal Detection", in *Proceedings of the IEEE International Joint Conference on Neural Networks (IJCNN)*, Budapest, Hungary, 2019.

[2] Beici Liang, György Fazekas, Mark Sandler. "Piano Sustain-Pedal Detection Using Convolutional Neural Networks", in *Proceedings of the IEEE International Conference on Audio, Speech and Signal Processing (ICASSP)*, Brighton, UK, 2019.

[3] Beici Liang, György Fazekas, Mark Sandler. "Piano Legato-Pedal Onset Detection based on a Sympathetic Resonance Measure", in *Proceedings of the 26th European Signal Processing Conference (EUSIPCO)*, Rome, Italy, 2018.

[4] Beici Liang, György Fazekas, Mark Sandler. "Measurement, Recognition and Visualisation of Piano Pedalling Gestures and Techniques", *Journal of the Audio Engineering Society*, vol.66 no.6 pp. 448-456, 2018.

[5] Beici Liang, György Fazekas, Mark Sandler. "Towards the Detection of Piano Pedalling Techniques from Audio Signal", extended abstracts for the *Late-Breaking Demo Session of the 18th International Society for Music Information Retrieval Conference (ISMIR)*, Suzhou, China, 2017.

[6] Beici Liang, György Fazekas, Mark Sandler. "Detection of Piano Pedalling Techniques on the Sustain Pedal", in *Proceedings of the 143rd Convention of Audio Engineering Society*, New York, USA, 2017.

[7] Beici Liang, György Fazekas, Mark Sandler. "Recognition of Piano Pedalling Techniques Using Gesture Data", in *Proceedings of the 12th International Audio Mostly Conference*, London, UK, 2017.

[8] Beici Liang, György Fazekas, Andrew McPherson and Mark Sandler. "Piano Pedaller: A Measurement System for Classification and Visualisation of Piano Pedalling Techniques", in *Proceedings of the International Conference on New Interfaces for Musical Expression (NIME)*, Copenhagen, Denmark, 2017.

[9] Beici Liang. "Introduction of Centre for Digital Music", *Entertainment Technology*, vol.5 pp.57-58, 2016. (in Chinese)

[10] Beici Liang. "Introduction of Augmented Instruments", *Entertainment Technology*, vol.4 pp.44-46, 2016. (in Chinese)

[11] Beici Liang, György Fazekas, Mark Sandler. "The Organ Web App", extended abstracts for the *Late-Breaking Demo Session of the 16th International Society for Music Information Retrieval Conference (ISMIR)*, Malaga, Spain, 2015.

Academic Experience

2017-18	**Reviewer/Sub-Reviewer**, ISMIR, DAFx, CSMT, IEEE Transactions on Affective Computing	*QMUL, UK*
2015-18	**Teaching Assistant**, Research Methods, The Semantic Web, Interactive Digital Media Techniques, Digital Signal Processing	*QMUL, UK*
2012-14	**Piano Lecturer**, Keyboard Training Centre of Tianjin University	*Tianjin, China*

Media Coverage

Apr. 2018	**Invited Speaker**, Seminar Series by China Conference on Sound and Music Technology	*Seminar*
Dec. 2017	**11 Doctoral Students with "Sexy Brains"** , Annual Special Issue of CITYZINE Magazine	*Interview*