Gus G. Xia 夏光宇

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Webpage: http://musicxlab.com/

RESEARCH INTEREST

I design intelligent systems to *understand* and *extend* musical creativity and expression. To *understand* means to learn the musical representation conveyed through sounds, performances, and symbolic compositions. To *extend* means to use such an understanding to create artificial music partners, serving music lovers at all levels.

My team builds interactive music agents who 1) compose and arrange music via style transfer and analogy, 2) perform accompaniment and improvise expressively in concert with human musicians by learning from rehearsal experience, and 3) teach music beginners using multimodal feedbacks. Other projects include content-based MIR, music robotics, and bio-music computing using slime molds.

ACADEMIC APPOINTMENTS

Jul 2023 – present **Mohamed bin Zayed University of Artificial Intelligence (MBZUAI)**, Abu Dhabi, UAE
Jan 2025 – present **Associate Professor**, Machine Learning Department
Jul 2023 – Dec 2024 **Assistant Professor**, Machine Learning Department

Sep 2017 – Jun 2023 **NYU Shanghai**, Shanghai, China
Assistant Professor, Computer Science

Aug 2016 – Aug 2017 **Dartmouth College**, Hanover, New Hampshire, USA
Neukom Postdoc Fellow, Digital Music Center

May 2013 – Aug 2016 **Carnegie Mellon University**, Pittsburgh, Pennsylvania, USA
Research Assistant, Machine Learning

AFFILIATIONS AND VISITING POSITIONS

Sep 2017 – Jul 2023 **NYU Tandon**, New York, USA
Global Network Assistant Professor, Computer Science

Mar 2020 – Present **NYU Center for Data Science,** New York, USA
Affiliated Faculty, CILVR Lab

Mar 2021 – Jul 2023 **NYU Steinhardt,** New York, USA
Affiliated Faculty, Music and Audio Research Laboratory (MARL)

Jun 2022 – Present **NYU Shanghai,** Shanghai, China
Affiliated Faculty, School of Engineering and Computer Science

EDUCATION

May 2010 – Aug 2016 **Carnegie Mellon University**, Pittsburgh, Pennsylvania, USA
Ph.D., Machine Learning
— Thesis Topic: Expressive Collaborative Music Performance via Machine Learning
— Advisor: Prof. Roger Dannenberg

Aug 2006 – Jul 2010 **Peking University**, Beijing, China
B.S., Information Management and Information System
B.S. (Minor), Psychology

Aug 2004 – Jul 2010 **China Conservatory of Music**, Beijing, China
— Private DI (Chinese flute) performance study
— Teacher: Prof. Weiliang Zhang, master DI player and the Dean of Chinese Music Department

SLECTED PUBLICATIONS

2025

A. Mehta, S. Chauhan, M. Sharma, **G. Xia**, K. K. Ganguli, N. Chandran, and Z. Talat,"Who Gets Heard? Rethinking Fairness in AI for Music Systems," arXiv preprint, arXiv:2511.05953 2025.

C. Wang, Y. Zhang, R. Yu, Y. Zheng, L. Gao, Z. Song, Z. Xu, **G. Xia**, and H. Zhang, "Do LLMs 'Feel'? Emotion Circuits Discovery and Control," arXiv preprint arXiv:2510.11328, 2025.

J. Jiang, B. Zhu, and **G. Xia**, "The Music Labels Itself: Content-based MIDI Chord and Key Estimation Without Human Labels," *in Proc. 26th International Society for Music Information Retrieval Conference (ISMIR)*, Korea, 2025.

Z. Wang, Y. Wu, R. B. Dannenberg, and **G. Xia**,"Automatic Melody Reduction via Shortest Path Finding," *in Proc. 26th International Society for Music Information Retrieval Conference (ISMIR)*, Korea, 2025.

F. Izzati, X. Li, Y. Wu, and **G. Xia**, "MusiScene: Leveraging MU-LLaMA for Scene Imagination and Enhanced Video Background Music Generation," arXiv preprint arXiv:2507.05894, 2025.

F. Izzati, X. Li, and **G. Xia**, "EXPOTION: Facial Expression and Motion Control for Multimodal Music Generation," *in Proc. 26th International Society for Music Information Retrieval Conference (ISMIR)*, Korea, 2025.

S. Wu, G. Zhancheng, R. Yuan, J. Jiang, S. Doh, G. Xia, J. Nam, X. Li, F. Yu, et al., "Clamp 3: Universal Music Information Retrieval Across Unaligned Modalities and Unseen Languages," in Findings of the Association for Computational Linguistics (ACL), pp. 2605–2625, 2025.

Q. He, **G. Xia**, and Z. Wang, "TOMI: Transforming and Organizing Music Ideas for Multi-Track Compositions with Full-Song Structure," *in Proc. 26th International Society for Music Information Retrieval Conference (ISMIR)*, Korea, 2025.

J. Jiang, D. Chin, L. Lin, X. Liu, and **G. Xia**,"Versatile Symbolic Music-for-Music Modeling via Function Alignment," *in Proc. 26th International Society for Music Information Retrieval Conference (ISMIR)*, Korea, 2025.

J. Jiang, A. Maezawa, and **G. Xia**, "Improvised Performance Following in Real Time for Automatic Accompaniment," *in Proc. IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP),* 2025.

G. Xia, "Function Alignment: A New Theory of Mind and Intelligence, Part I: Foundations," arXiv preprint arXiv:2503.21106, 2025.

D. Chin and **G. Xia**, "Language Model Mapping in Multimodal Music Learning: A Grand Challenge Proposal," arXiv preprint arXiv:2503.00427, 2025.

A. Mehta, S. Chauhan, A. Djanibekov, A. Kulkarni, **G. Xia**, and M. Choudhury, "Music for All: Representational Bias and Cross-Cultural Adaptability of Music Generation Models," arXiv preprint arXiv:2502.07328, 2025.

K. Fang, Z. Wang, **G. Xia**, and I. Fujinaga, "Exploring GPT's Ability as a Judge in Music Understanding," *in Proc. 26th International Society for Music Information Retrieval Conference (ISMIR)*, Korea, 2025.

2024

L. Lin, **G. Xia**, J. Jiang, Y. Zhang, "Content-based Controls for Music Large-scale Language Modeling", in *Proc. 24th International Society for Music Information Retrieval Conference*, San Francisco, Nov 2024

M. T. Haseeb, A. Hammoudeh, **G. Xia**, "DEEP RECOMBINANT TRANSFORMER: Enhancing Loop Compatibility in Digital Music Production", in *Proc. 24th International Society for Music Information Retrieval Conference*, San Francisco, Nov 2024

K. Fang, Z. Wang, **G. Xia**, I. Fujinaga, “Exploring GPT's Ability as a Judge in Music Understanding”, in *Proc. 24th International Society for Music Information Retrieval Conference*, San Francisco, Nov 2024

Y. Zhang, Y. Ikemiya, W. Choi, N. Murata, MA. Martínez-Ramírez, L. Lin, **G. Xia**, W. Liao, Y. Mitsufuji, S. Dixon, “Instruct-MusicGen: Unlocking Text-to-Music Editing for Music Language Models via Instruction Tuning”, arXiv preprint arXiv:2405.18386

Y. Wu, Z. Wang, B. Raj, **G. Xia**, “Emergent Interpretable Symbols and Content-Style Disentanglement via Variance-Invariance Constraints”, arXiv preprint arXiv:2407.03824

L. Ou, J. Zhao, Z. Wang, **G. Xia**, Y Wang, “Unlocking Potential in Pre-Trained Music Language Models for Versatile Multi-Track Music Arrangement”, arXiv preprint arXiv:2408.15176

Q. Liao, L. Li, Y. Fei, **G. Xia**, “CalliffusionV2: Personalized Natural Calligraphy Generation with Flexible Multi-modal Control”, arXiv preprint arXiv:2410.03787

M. Sharma, M.T. Haseeb, **G. Xia**, Y Tsuruoka, “M2M-Gen: A Multimodal Framework for Automated Background Music Generation in Japanese Manga Using Large Language Models”, arXiv preprint arXiv:2410.09928

Z. Wang, L. Min, **G. Xia**, “Whole-Song Hierarchical Generation of Symbolic Music Using Cascaded Diffusion Models”, In *Proc.12th International Conference on Learning Representations,* Austria, May 2024.

D. Chin, Y. Wang, **G. Xia**, “Human-Centered LLM-Agent User Interface: A Position Paper”, in *Proc. 13th EAI International Conference: ArtsIT, Interactivity & Game Creation,* November, Abu Dhabi, 2024.

Y. Li, R. Yuan, G. Zhang, Y. Ma, X. Chen, H. Yin, C. Lin, A. Ragni, E. Benetos, N. Gyenge, R. Dannenberg, R. Liu, W. Chen, **G. Xia**, Y. Shi, W. Huang, Y. Guo, J. Fu. “MERT: Acoustic Music Understanding Model with Large-scale Self-supervised Training.” In *Proc.12th International Conference on Learning Representations,* Austria, May 2024.

Y. Zhang, Y. Ikemiya, **G. Xia**, N. Murata, M. Martínez, W. Liao, Y. Mitsufuji, S. Dixon. “MusicMagus: Zero-Shot Text-to Music Editing via Diffusion Models”, in *Proc. the 33rd International Joint Conference on Artificial Intelligence*, Korea, Aug 2024.

L Lin, **G. Xia**, Y. Zhang, J. Jiang. “Arrange, Inpaint, and Refine: Steerable Long-term Music Audio Generation and Editing via Content-based Controls”, in *Proc. the 33rd International Joint Conference on Artificial Intelligence*, Korea, Aug 2024.

X. Liu, D. Chin, Y. Huang, **G. Xia**. “Learning Interpretable Low-dimensional Representation via Physical Symmetry”, In *Proc. Advances in Neural Information Processing Systems*, Canada, Feb 2024.

M.T. Haseeb, A. Hammoudeh, **G. Xia**. “GPT-4 Driven Cinematic Music Generation Through Text Processing”, in *Proc. 49th International Conference on Acoustics, Speech and Signal Processing.* Korea, April 2024.

R. Yuan, Y. Ma, Y. Li, G. Zhang, X. Chen, H. Yin, Y. Liu, J. Huang, Z. Tian, B. Deng, N. Wang, C. Lin, E. Benetos, A. Ragni, N. Gyenge, R. Dannenberg, W. Chen, **G**. **Xia**, W. Xue, S. Liu, S. Wang, R. Liu, Y. Guo, J. Fu. “Marble: Music Audio Representation Benchmark for Universal Evaluation”, In *Proc. Advances in Neural Information Processing Systems*, Canada, Feb 2024.

R. Yuan, H. Lin, Y. Wang, Z. Tian, S. Wu, T. Shen, G. Zhang, Y. Wu, C. Liu, Z. Zhou, Z. Ma, L. Xue, Z. Wang, Q. Liu, T. Zheng, Y. Li, Y. Ma, Y. Liang, X. Chi, R. Liu, Z. Wang, P. Li, J. Wu, C. Lin, Q. Liu, T. Jiang, W. Huang, W. Chen, E. Benetos, J. Fu, **G. Xia**, R. Dannenberg, W. Xue, S. Kang, Y. Guo. “ChatMusician: Understanding and Generating Music Intrinsically with LLM”, In *Proc. The 62nd Annual Meeting of the Association for Computational Linguistics*, Thailand, Aug 2024.

PUBLICATIONS (continued)

2023

Y. Zhang, A. Maezawa, **G. Xia**, K. Yamamoto, S. Dixon. "Loop Copilot: Conducting AI Ensembles for Music Generation and Iterative Editing", *arXiv preprint arXiv:2310.12404* (2023).

L. Min, J. Jiang, **G. Xia**, J. Zhao. "Polyffusion: A Diffusion Model for Polyphonic Score Generation with Internal and External Controls", in *Proc. 24th International Society for Music Information Retrieval Conference*, Milan, Nov 2023.

Y. Ma, R. Yuan, Y. Li, G. Zhang, X. Chen, H. Yin, C. Lin, E. Benetos, A. Ragni, N. Gyenge, R. Liu, **G. Xia**, R. Dannenberg, Y. Guo, J. Fu. "On the Effectiveness of Speech Self-supervised Learning for Music", in *Proc. 24th International Society for Music Information Retrieval Conference*, Milan, Nov 2023.

N. Byan-Kinns, C. Ford, A. Chamberlain, S.D. Benford, H. Kennedy, Z. Li, W. Qiong, **G. Xia**, J. Rezwana. "Explainable AI for the Arts: XAIxArts", in *Proc. 15th Conference on Creativity and Cognition*, 2023.

S. Wei, Z. Wang, W. Gao, **G. Xia**. "Controllable Music Inpainting with Mixed-Level and Disentangled Representation", in *Proc. 48th International Conference on Acoustics, Speech and Signal Processing.* Greece, June 2023.

J. Jiang, and **G. Xia**. "Self-Supervised Hierarchical Metrical Structure Modeling", in *Proc. 48th International Conference on Acoustics, Speech and Signal Processing.* Greece, June 2023.

J. Zhao, **G. Xia**, and Y. Wang. "Q&A: Query-based Representation Learning for Multi-track Symbolic Music Re-arrangement", in *Proc. 32nd International Joint Conference on Artificial Intelligence*. 2023.

Q. Liao, **G. Xia**, and Z. Wang. "Calliffusion: Chinese Calligraphy Generation and Style Transfer with Diffusion Modeling", in *Proc. 14th International Conference on Computational Creativity*, Canada, May 2023.

2022

Y. Qu, Y. Qin, L. Chao, H. Qian, Z .Wang, **G. Xia**, "Modeling Perceptual Loudness of Piano Tone: Theory and Applications", in *Proc. 23rd International Society for Music Information Retrieval Conference*, Online, Dec 2022.

J. Jiang, D. Chin, Y. Zhang, **G. Xia**, "Learning Hierarchical Metrical Structure Beyond Measures", in *Proc. 23rd International Society for Music Information Retrieval Conference*, Online, Dec 2022.

J. Zhao, **G. Xia**, Y. Wang, "Beat Transformer: De-mixed Beat and Downbeat Tracking with Dilated Self-Attention", in *Proc. 23rd International Society for Music Information Retrieval Conference*, Online, Dec 2022.

J. Zhao, **G. Xia**, Y. Wang, "Domain Adversarial Training on Conditional Variational Auto-Encoder for Controllable Music Generation", in *Proc. 23rd International Society for Music Information Retrieval Conference*, Online, Dec 2022.

L. Yi, H. Hu, J. Zhao, **G. Xia**, "AccoMontage2: A Complete Harmonization and Accompaniment Arrangement System", in *Proc. 23rd International Society for Music Information Retrieval Conference*, Online, Dec 2022.

Y. Zhang, J. Jiang, **G. Xia**, S. Dixon, "Interpreting Song Lyrics with an Audio-Informed Pre-trained Language Model", in *Proc. 23rd International Society for Music Information Retrieval Conference*, Online, Dec 2022.

Z. Wang, D. Xu, **G. Xia**, Y. Shan, "Audio-to-symbolic Arrangement via Cross-modal Music Representation Learning", in *Proc. 47th International Conference on Acoustics, Speech and Signal Processing.* Singapore & Online, May 2022.

S. Wei, **G. Xia**, W. Gao, L. Lin, Y. Zhang, "Music Phrase Inpainting Using Long-term Representation and Contrastive Loss", in *Proc. 47th International Conference on Acoustics, Speech and Signal Processing.* Singapore & Online, May 2022.

PUBLICATIONS (continued)

D. Chin, **G. Xia**, "A Computer-aided Multimodal Music Learning System with Curriculum: A Pilot Study", in *Proc. 22nd International Conference on New Interfaces for Musical Expression*, New Zealand, July 2021.

Z. Piao, **G. Xia**, "Sensing the Breath: A Multimodal Singing Tutoring Interface with Breath Guidance", in *Proc. 22nd International Conference on New Interfaces for Musical Expression*, New Zealand, July 2021.

2021

J. Zhao, **G. Xia**, "AccoMontage: Accompaniment Arrangement via Phrase Selection and Style Transfer", in *Proc. 22nd International Society for Music Information Retrieval Conference*, Online, Oct 2021.

L. Lin, Q. Kong, J. Jiang, **G. Xia**, "A Unified Model for Zero-shot Music Source Separation, Transcription and Synthesis", in *Proc. 22nd International Society for Music Information Retrieval Conference*, Online, Oct 2021.

S. Wei, **G. Xia**, "Learning Long-term Music Representations via Hierarchical Contextual Constraints", in *Proc. 22nd International Society for Music Information Retrieval Conference*, Online, Oct 2021.

Z. Wang, **G. Xia**, "MuseBERT: Pre-training Music Representation for Music Understanding and Controllable Generation", in *Proc. 22nd International Society for Music Information Retrieval Conference*, Online, Oct 2021.

D. Chin, Y. Zhang, **G. Xia**. "Hyper-hybrid Flute: Simulating and Augmenting How Breath Affects Octave and Microtone", in *Proc. 21st International Conference on New Interfaces for Musical Expression*, Online & Shanghai, June 2021.

Y. Li, **G. Xia**. "A Wearable Haptic Interface for Breath Guidance in Vocal Training", in *Proc. 21st International Conference on New Interfaces for Musical Expression*, Online & Shanghai, June 2021.

Y. Zhang**, G Xia,** M. Levy, S. Dixon. "COSMIC: A Conversational Interface for Human-AI Music Co-Creation", in *Proc. 21st International Conference on New Interfaces for Musical Expression*, Online & Shanghai, June 2021.

2020

Z. Wang, Y. Zhang, Y. Zhang, J. Jiang, R. Yang, J. Zhao, **G. Xia**, "PIANOTREE VAE: Structured Representation Learning for Polyphonic Music", in *Proc. 21st International Society for Music Information Retrieval Conference*, Montréal, Oct 2020.

Z. Wang, D. Wang, Y. Zhang, **G. Xia**, "Learning Interpretable Representation for Controllable Polyphonic Music Generation", in *Proc. 21st International Society for Music Information Retrieval Conference*, Montréal, Oct 2020.

Z. Wang, K. Chen, J. Jiang, Y. Zhang, M. Xu, S. Dai, X. Gu, **G. Xia**, "POP909: A Pop-song Dataset for Music Arrangement Generation", in *Proc. 21st International Society for Music Information Retrieval Conference*, Montréal, Oct 2020.

J. Jiang, **G. Xia**, T. Berg-Kirkpatrick, "Discovering Music Relations with Sequential Attention", in *Proc. of the 1st Workshop on NLP for Music and Audio (NLP4MusA),* Montréal, Oct 2020.

Y. Zhang, Z. Wang, D. Wang, **G. Xia**, "BUTTER: A Representation Learning Framework for Bi-directional Music-Sentence Retrieval and Generation", in *Proc. of the 1st Workshop on NLP for Music and Audio (NLP4MusA),* Montréal, Oct 2020.

D. Chin, Y. Zhang, T. Zhang, J. Zhao, **G. Xia**. "Interactive Rainbow Score: A Visual-centered Multimodal Flute Tutoring System", in *Proc. 20th International Conference on New Interfaces for Musical Expression*, UK, July 2020.

J. Jiang, **G. Xia**, D. Carlton, C. Anderson and R. Miyakawa, "Transformer VAE: A Hierarchical Model for Structure-Aware and Interpretable Music Representation Learning," in *Proc. 45th International Conference on Acoustics, Speech and Signal Processing.* Spain, May 2020.

PUBLICATIONS (continued)

K. Chen, **G. Xia** and S. Dubnov, "Continuous Melody Generation via Disentangled Short-Term Representations and Structural Conditions," in *Proc. 14th International Conference on Semantic Computing (ICSC)*, USA, Feb 2020.

2019

R. Yang, D. Wang, Z. Wang, T. Chen, J. Jiang and **G. Xia**. "Deep Music Analogy Via Latent Representation Disentanglement," in *Proc. 20th International Society for Music Information Retrieval Conference*, Delft, Nov 2019.

J. Jiang, K. Chen, W. Li, and **G. Xia.** "Large Vocabulary Chord Transcription via Chord Structure Decomposition," in *Proc. 20th International Society for Music Information Retrieval Conference*, Delft, Nov 2019.

J. Jiang, **G. Xia**, D. Carlton, "Crowd annotation for audio key estimation", in *15th Music Information Retrieval Evaluation eXchange (MIREX),* Delft, Nov 2019.

Y. Zhang, Y. Li, D. Chin, and **G. Xia**. "Adaptive Multimodal Music Learning via Interactive-haptic Instrument," in *Proc. 19th International Conference on New Interfaces for Musical Expression*, Brazil, June 2019.

R. Yang, T. Chen, Y. Zhang and **G. Xia**. "Inspecting and Interacting with Meaningful Music Representations Using VAE," in *Proc. 19th International Conference on New Interfaces for Musical Expression*, Brazil, June 2019

J. Jiang, **G. Xia**, R. Dannenberg. "Representing Music Structure by Variational Attention", in *International Workshop on Machine Learning for Music Discovery at ICML*, California, June 2019.

M. Xu, Z. Wang, and **G. Xia**. "Transferring Piano Performance Control Across Environments," in *Proc. 44th International Conference on Acoustics, Speech and Signal Processing,* UK, May 2019.

K. Chen, W. Zhang, S. Dubnov, **G. Xia**, W. Li. "The effect of explicit structure encoding of deep neural networks for symbolic music generation," in *2019 International Workshop on Multilayer Music Representation and Processing (MMRP)*, Milan, Jan 2019.

2018

Z. Wang, **G. Xia**. "A Framework for Automated Pop-song Melody Generation with Piano Accompaniment Arrangement." *6th National Conference on Sound and Music Technology*, Oct 2018.

G. Xia, S.Dai. "Music Style Transfer: A Position Paper", *6th International Workshop on Musica**l** Metacreation*, Spain, June 2018.

G. Xia, C. Jacobsen, Q. Chen, X-D. Yang, and R. Dannenberg. "ShIFT: A Semi-haptic Interface for Flute Tutoring." in *Proc. 18th The International Conference on New Interfaces for Musical Expression*, USA, June 2018.

2017

S. Dai, **G. Xia**. "Computational Models for Common Pipa Techniques", ***best student paper***, *the 5th National Conference on Sound and Music Technology*, Oct 2017.

S. Dai, **G. Xia**. "Computational Models and MusicXML Definitions for Common Pipa Techniques", Late Breaking Demo, in *Proc. 18th International Society for Music Information Retrieval Conference*, Suzhou, Oct 2017.

G. Xia, R. Dannenberg. "Duet Interaction: Learning Improvisation Techniques for Automatic Accompaniment", in *Proc. 17th The International Conference on New Interfaces for Musical Expression*, Copenhagen, June 2017.

2016

G. Xia, M. Kawai, K. Matsuki, M. Fu, S. Cosentino, G. Trovato, R. Dannenberg, S.Sessa and A. Takanishi. "Expressive humanoid robot for automatic accompaniment", *The 13th Sound and Music Computing Conference*, Hamburg, Germany, September 2016.

G. Xia, "Expressive and Collaborative Music Performance via Machine Learning", *CMU-MLD Doctoral Thesis*, August 2016.

PUBLICATIONS (continued)

2015 **G. Xia**, R. Dannenberg "Spectral Learning for Expressive Interactive Ensemble Music Performance", in *Proc. 16th International Conference on Music Information Retrieval*, Malaga, October 2015.

M. Fu, **G. Xia** R. Dannenberg "A Statistical View on Piano Rolled Chords", in *Proc. 16th International Conference on Music Information Retrieval*, Malaga, October 2015.

G. Xia, R. Dannenberg "Duet Interaction: Learning Musicianship for Automatic Accompaniment", in *Proc. 15th The International Conference on New Interfaces for Musical Expression*, Baton Rouge, June 2015.

2014 **G. Xia**, T. Huang**,** M. Yifei, R. Dannenberg, C. Faloutsos "MidiFind: Similarity Search and Popularity Mining in Large MIDI Databases", in *Music Sound and Motion*, pp. 259 -276.

R. Dannenberg, N. Gold, D. Liang, **G. Xia** "Methods and Prospects for Human Computer Performance of Popular Music", in *Computer Music Journal*, 38 (2) (Summer2014).

R. Dannenberg, N. Gold, D. Liang, **G. Xia** "Active Scores: Representation and Synchronization in Human-Computer Performance of Popular Music", in *Computer Music Journal,* 38 (2)

2013 T. Huang**, G. Xia**, Y. Ma, R. Dannenberg, C. Faloutsos "MidiFind: Fast and Effective Similarity Searching in Large MIDI Databases", in *Proc. 10th International Symposium on Computer Music and Multidisciplinary Research,* Marseille, October 2013.

2012 **G. Xia**, J. Tay, R. Dannenberg, M. Veloso "Autonomous Robot Dancing Driven by Beats and Emotions of Music*"*, in *Proc. 12th International Joint Conference on Autonomous Agents and Multi-Agent* Systems, Valencia, June 2012.

2011 **G. Xia**, D. Liang, R. Dannenberg, M. Harvilla "Segmentation, Clustering, and Display in a Personal Audio Database for Musicians"*,* in *Proc. 12th International Conference on Music Information Retrieval,* Miami, October 2011.

D. Liang, **G. Xia**, R. Dannenberg "A Framework for Coordination and Synchronization of Media", in *Proc. 11th The International Conference on New Interfaces for Musical Expression*, Oslo, May 2011.

TEACHING EXPERIENCE

Instructor

Fall 2025 **Class:** AI1010: Introduction to Artificial Intelligence, Section 2, MBZUAI
Co-instructor: Prof. Monojit Choudhury

Fall 2024 **Class:** ML801: Foundations and Advanced Topics in Machine Learning. MBZUAI
Co-instructor: Prof. Huan Xiong, Prof. Bhiksha Raj, Prof. Martin Takáč and Prof. Tongliang Liu

Spring 2024, 2025 **Class:** ML711: Intermediate Music AI. MBZUAI
Fall 2023, 2024 **Class:** ML701: Introduction to Machine Learning. MBZUAI
Co-instructor: Prof. Samuel Horváth and Prof. Zhiqiang Shen

Spring 2020 **Class:** CSCI-SHU 360: Introduction to Machine Learning. NYU Shanghai
Co-instructor: Prof. Ross

Spring 2018-2021 **Class:** CSCI-SHU 188: Introduction to Computer Music. NYU Shanghai
Fall 2017-2021 **Class:** CSCI-SHU 101: Introduction to Computer Science. NYU Shanghai

Winter 2017 **Class:** MUS102: Music, Mind, and Invention. Dartmouth College
Co-instructor: Prof. Casey

Guest Lecturer

Spring 2023 **Learning Interpretable Concepts for Music AI**
Class: 15322: Introduction of Computer Music, Carnegie Mellon University
Instructor: Dr. Sullivan

Spring 2022 **Music AI as Media Technology**
Class: DES8820: Introduction of Event Exhibition, SJTU-USC ICCI
Instructor: Dr. Yan

Spring 2017 **Computer Music and HCI**
Class: CS67/167: Introduction to Human-Computer Interaction, Dartmouth College
Instructor: Prof. Yang

Fall 2014 **Open Sound Control and its Applications in Music Performance**
Class: 15104: Principles of Computing for Creative Practice, Carnegie Mellon University
Instructors: Prof. Dannenberg & Prof. Roberts

Fall 2014 **The Design and Acoustic Properties of the Chinese Flute**
Class: 57337: Sound Recording, Carnegie Mellon University
Instructors: Prof. Schulz

Fall 2013 **The History and Future of Computer-aided Music Performance**
Alumni Lecture Series of Information Science Department, Peking University
Host: Prof. Wang

Student Supervision

Core Members of Music X Lab:

April 2018 – present Junyan Jiang, Ph.D. student in Computer Science, NYU
Project: Hierarchical Music Representation Learning and MIR

April 2018 – present Ziyu Wang, Ph.D. student in Computer Science, NYU
Project: Interactive Music Arrangement via Deep Representation Learning

April 2018 – present Tianyao Chen, Ph.D. student in Computer Science, NYU
Project: A Logic System for Music Structure Analysis and Music Theory Induction

Sept 2018 – present Daniel Chin, Ph.D. student in Computer Science, NYU
Project: Multimodal Music Tutoring, Bio-music computing using slime mold

May 2020 – present Liwei Lin, Research Associate in Computer Science, NYU
Project: A Unified Model for Source Separation, Transcription, and Controlled Synthesis

Sept. 2020 – present Xuanjie Liu, Research Assistant, NYU Shanghai & MBZUAI
Project: Self-supervised Learning via Symmetry

Sept. 2023 – present Yuxuan Wu, Ph.D. student in Machine Learning, MBZUAI
Project: Self-supervised Music Concept Learning via Variance, Invariance, and Equivariance

Sept. 2023 – present Muhammad Taimoor Haseeb, Ph.D. student in Machine Learning, MBZUAI
Project: Multimodal Music Understanding and Generation

Sept. 2023 – present Fathinah Izzati, Masters student in Machine Learning, MBZUAI
Project: Multimodal Music Understanding and Generation

Sept. 2023 – present Xiaoyu Qian, Masters student in Machine Learning, MBZUAI
Project: Understanding Music LLMs: Memorization Vs. Generalization

Sept. 2023 – present Xinyue Li, Masters student in Machine Learning, MBZUAI
Project: Understanding Music LLMs: Probing and Intervention

Sept. 2023 – present Wenye Ma, Research Associate, MBZUAI
Project: Understanding Music LLMs: Probing and Intervention

Graduated Core Members:

Sept. 2020 – June 2024 William Huang, Research Assistant, NYU Shanghai & MBZUAI
Project: A Computer-aided Tutoring System of Chord Recognition
Post-Graduation Path: RA, CMU.

Feb 2022 – May 2024 Lejun Min, Research Assistant, NYU Shanghai & MBZUAI
Project: Music Generation via Diffusion Modelling
Post-Graduation Path: Graduate student, CCRMA, Stanford University.

Sept 2022 – May 2024 Ahmad Hammoudeh, Masters Student in Machine Learning, MBZUAI
Project: Music Generation for Movie Scenes
Post-Graduation Path: Ph.D. student in Machine Learning, MBZUAI

Feb 2022 – May 2024 Kun Fang, Research Assistant, NYU Shanghai & MBZUAI
Project: Music Understanding using GPT
Post-Graduation Path: Ph.D. student in Computer Music, McGill University.

Feb 2020 – May 2024 Shiqi Wei, Ph.D. student in Computer Science, Fudan University
Project: Long-term music representation learning and generation
Post-Graduation Path: Research Scientist at ByteDance.

Feb 2020 – May 2022 Ziyue Piao, Masters student in Computer Science, Shanghai Jiao Tong University
Project: Multimodal Vocal Tutoring System
Post-Graduation Path: Ph.D. student in Computer Music, McGill University.

May 2020 – May 2021 Jingwei Zhao, Undergraduate student in Computer Science, Shanghai Jiao Tong University
Project: Automatic Arrangement via Searching the Latent Space
Post-Graduation Path: Ph.D. in Computer Science, NUS

May 2020 – May 2021 Zehao Wang, Undergraduate student in Math, Peking University
Project: Representation Learning for Chord Progression
Post-Graduation Path: Ph.D. in Computer Science, UCSD

May 2020 – May 2021 Qinying Lei, Undergraduate student in Media Technology, Communication University of China
Project: An GUI for Automated Music Arrangement
Post-Graduation Path: Masters student in Music Technology, Georgia Tech

Sept 2018 – May 2021 Yian Zhang, Undergraduate student in Computer Science, NYU Shanghai
Project: Multimodal Music Tutoring
Post-Graduation Path: Masters student in Computer Science, Stanford University

May 2019 – Nov 2020 Yixiao Zhang, Research Associate in Computer Science, NYU Shanghai
Project: Multimodal music representation learning
Post-Graduation Path: Ph.D. student in Computer Music, C4DM, Queen Mary University of London
Research Scientist at ByteDance

Dec 2018 – May 2020 Dingsu Wang, Undergraduate student in Data Science, NYU Shanghai
Project: Conditional VAE for music generation
Post-Graduation Path: MSRA researcher; Masters Student at UIUC

Dec 2018 – May 2020 Demi Li, Undergraduate student in IMA, NYU Shanghai
Project: Haptic guidance for flute on vocal training
Post-Graduation Path: Masters student in HCI, CMU; IMA Fellow, NYUSH; Ph.D. student at Northwest University

Dec 2017 – May 2019 Maoran Xu, Undergraduate student in Applied Mathematics and Data Science, Fudan University
Project: Performance Control Transfer
Post-Graduation Path: Ph.D. student in Statistics, University of Florida; Assistant Professor at IUB

May 2018 – Aug 2019 Ke Chen, Undergraduate student in Computer Science, Fudan University
Project: Conditional Deep Music Generation
Post-Graduation Path: Ph.D. student in Music, UCSD; Research Scientist at Adobe Research Lab

Nov 2017 – Aug 2019 Yiyi Zhang, Undergraduate student in Finance, NYU Shanghai
Project: Automated Music Generation
Post-Graduation Path: Masters student in Data Science, NYU

Nov 2017 – May 2018 Han Su, Undergraduate student in Computer Science & IMA, NYU Shanghai
Project: Bio-music Computing using Slime Mold
Post-Graduation Path: Master student in Comparative Media Study, MIT

May 2018 – Aug 2019 Ruihan Yang, Undergraduate student in Computer Science, NYU Shanghai
Project: Representation Learning and Disentanglement for Symbolic Music
Post-Graduation Path: Ph.D. student in Computer Science, UCI

Other Previous Mentees

Nov 2016 – Oct 2018 Shuqi Dai, Undergraduate student in Computer Science, Peking University
Project: Expressive Performance Model for Pipa
Post-Graduation Path: Ph.D. student in Computer Science, CMU

Oct 2016 – Aug 2017 Qianwen Chen, Masters Student in Computer Science and Digital Arts, Dartmouth College
Project: Haptic Guidance for Flute Tutoring
Post-Graduation Path: Designer, Apple.

Feb 2017 – Aug 2017 Rohan Arora, Masters Student in Computer Science, Dartmouth College
Project: Haptic Guidance for Flute Tutoring
Post-Graduation Path: Data & AI Products Builder, Microsoft.

Aug 2014 – Aug 2016 Mutian Fu, Masters Student in Music Technology, CMU
Project: Piano Rolled Chord Timing Analysis for Collaborative Performance
Post-Graduation Path: Software Engineer, Bloomberg

Summer 2015 Peiling Lu, Undergraduate Student in Communication Engineering, CMU
Project: Piano Pedal Timing Analysis for Collaborative Performance
Post-Graduation Path: Graduate student, CCRMA, Stanford University.

Ph.D. Thesis Committee Service

Jun 2024 – Jun 2025 Yijing Feng, Ph.D. candidate in Computer Science, Dartmouth College
Dissertation: Neural Response-Driven Music Generation
Committee members: Michael Casey (Chair), SouYoung Jin, Adithya Pediredla, Gus Xia

Nov 2023 – Aug 2025 Shuqi Dai, Ph.D. candidate in Computer Science, CMU
Dissertation: Towards Artificial Musicians: Modeling Style for Music Composition, Performance, and Synthesis via Machine Learning
Committee members: Julius Smith, Roger Dannenberg (Chair), Chris Donahue, Junyan Zhu, Gus Xia

Feb 2024 – Mar 2024 Antoine Bellemare-Pepin, Ph.D. in Music, Concordia University
Dissertation: The Neuroscience of Creative Perception: From Visual Ambiguity to Neuroacoustics
Committee members: Eldad Tsabary (Chair) Emily Coffey, Arms-length examiner, Ricardo Dal Farra, Karim Jerbi, Gus Xia

July 2023 – Nov 2023 Kyle Kastner, Ph.D. in Informatics, University of Montreal
Dissertation: Sequential Decision Modeling in Uncertain Conditions
Committee members: Aaron Courville, Anna Huang Gus Xia, Marlène Frigon, Aishwarya Agrawal

Nov 2021 – Aug 2022 Che Wang, Ph.D. in Computer Science, NYU Tandon
Dissertation: Sample Efficient Deep Reinforcement Learning for Continuous Control
Committee members: Keith Ross (Chair), Julian Togelius, Gus Xia, Chinmay Hegde

Nov 2021 – Aug 2022 Autumn Wu, Ph.D. in Computer Science, NYU Courant
Dissertation: Improve Sample Efficiency in On-Line and Off-Line DRL
Committee members: Keith Ross (Chair), Gus Xia, Kyunghyun Cho

Dec 2018 – Dec 2019 Jian Gao, Ph.D. in Computer Science, NYU Abu Dhabi
Dissertation: Game-theoretic Approaches for Generative Modeling
Committee members: Edward Wong, Julian Togelius, Gus Xia, Tembine Hamidou (Chair)

INDUSTRY RELATED EXPERIENCE

May 2024 – Present **Academic Advisor & Chief Scientist**, Audiomatic Inc., Abu Dhabi
A Startup from MBZUAI's Incubation and Entrepreneurship Center
Co-Founders: Muhammad Taimoor Haseeb and Ahmad Hammoudeh

Sep 2021– Jul 2022 **PI**, ByteDance x NYU Shanghai, Shanghai.
Gift fund for research collaboration: Source Separation and Music Understanding
Industry connection: Dr. Qiuqiang Kong

Feb 2021– Jul 2022 **PI**, Tencent ARC Lab x NYU Shanghai, Shanghai.
Gift fund for research collaboration: Multimodal Music AI
Industry connection: Dr. Ying Shan

Summer 2013 **Music Information Retrieval Research Intern**, The Echo Nest, Cambridge, MA
Project: Improvement on Echo Nest's Beat Tracking Algorithm
Mentor: Dr. Tristan Jehan

Summer 2012 **Research Intern**, Gracenote Inc., Emeryville, CA
Project: Improvement on Gracenote's Music Fingerprint Algorithm
Mentor: Dr. Bob Coover

Summer 2011 **Researcher**, Google x CMU, Pittsburgh, PA
Project: Autonomous Dancing Robot Following Beats and Emotion of Music
Mentor: Prof. Manuela Veloso and Prof. Roger Dannenberg

MUSIC RELATED EXPERIENCE

Music AI Concert & Performances:

Dec 2024 **Producer,** *Chinese National Symphony Orchestra meets with Music AI,* MBZUAI
Feb 2024 **Producer,** *Leia Zhu meets with Music AI, a human-AI performance,* MBZUAI
July 2022 **Producer, Flutist, and Vocalist,** *Music from Far Lands and Near Future*, House of Pianos, Dubai

Dizi and Xiao (Chinese Flute and Vertical Flute):

Mar 2020 – Mar 2022 **Flutist**, NYU Shanghai Jazz Ensemble, Shanghai.
Mar 2013 – May 2016 **Soloist**, Pitt Carpathian Ensemble, Pittsburgh, PA
May 2010 **Solo Concert,** President Hall of Peking University, Beijing
Dec 2006 – Jun 2010 **Leading Soloist**, Chinese Music Institute of Peking University, Beijing

Musical, Choral & Vocal:

Oct 2024 **Flutist**, "Moon river over spring flower night", the celebration of 40-year anniversary of UAE-China relationship
Dec 2023 **Vocal Solo as Guest Musician,** "The Great Compassion Mantra", Abu Dhabi Music and Art Foundation Concert
Feb 2022 **Vocal Solo,** "How can I help but think of you" & "Three wishes of Rose", Shanghai Science and Art Program Concert.
Dec 2021 **Vocal Solo,** "The Song of the Yue Boatman" (越人歌) & "Great River of No Return" (大江东去), Faculty Concert, NYU Shanghai
June 2021 **Vocal Solo,** "Three wishes of Rose"(玫瑰三愿), Post-NIME Celebration Concert, NYU Shanghai
Dec 2020 **Vocal Solo,** "How can I help but think of you"(教我如何不想他), Faculty Concert, NYU Shanghai
Spring 2018 **Choir Member,** NYU Shanghai Show Choir**,** NYU Shanghai.
Oct 2016 – Jun 2017 **Glee Club Member,** Dartmouth College
Apr 2014 **Role of Audrey 2,** in the musical "Little Shop of Horrors", Carnegie Mellon University
Feb 2013 **Role of Phantom,** in the single "Music of the Night", Carnegie Mellon University
Oct 2012 **Role of Teen Angel,** in the musical "Grease", Carnegie Mellon University
Oct 2011 **Role of Simon Zealotes,** in the musical "Jesus Christ Superstar", Carnegie Mellon University

Conducting:

Apr 2007 – Jun 2009 **Assistant Conductor,** Chamber Orchestra of Chinese Music Institute of Peking University, Beijing
Apr 2019 – Feb 2021 **Conductor,** Chamber Orchestra of Chinese Music Institute of NYU Shanghai, Shanghai

RESEARCH PROJECTS

MBZUAI, NYU Shanghai & NYU Tandon, Abu Dhabi, Shanghai & New York:

Sep 2024 – present **Project: Function Alignment and Emergent Language**
- Proposed a new theory of mind and intelligence
- Designed 1st-principle for system1-system2 alignment
- Designed 1st-principle for concept emergence

Sep 2022 – present **Project: Large Language Model for Music (*in collaboration with MAP)***
- Designed foundation models for symbolic music (MERT, MuPT, ChatMusicians, etc.)
- Designed Benchmarks for music-related tasks
- Designed control mechanism for foundation models (Coco-Mulla, AIR-Gen, etc.)

Sep 2017 – present **Project: Deep Music Representation Learning**
- Designed music style transfer and representation disentanglement algorithms
- Designed long-term generation and inpainting algorithms
- Designed hybrid and hierarchical models for deep music generation

Sep 2017 – present **Project: Multimodal Music Tutoring System**
- Designed adaptive haptic feedback for flute tutoring
- Designed adaptive visual feedback for sight-playing tutoring
- Designed Flute X GPT, the first LLM-empowered general tutoring system

Dec 2017 – present **Project: Music Information Retrieval Using Deep Learning**
- Built the state-of-the-art chord recognition system (first place in MIREX 2018)
- Built the state-of-the-art key recognition system (first place in MIREX 2019)
- Built self-supervised algorithms for music concept discovery

Sep 2017 – present **Project: Performance Control Transfer via Player Pianos**
- Designed heuristics to build the mapping between performance control and sound
- Enabled different player pianos to "adjust" performance in different environments

Neukom Institute, Dartmouth College, USA:

Aug 2016 – Aug 2017 **Project: New Instrumental Interface for Flute Tutoring**
- Enabled machines to control human fingers in real time
- Designed new flute infrastructure with motors

Jul 2012 – May 2013 **Project: Biocomputing for music composition**
- Used live creature, slime mold, as a computational model
- Enabled slime mold to sing

Humanoid Piano Robotics Lab, TeoTronica Inc., Italy (*visiting collaboration*):

Sep 2015 – Aug 2016 **Project: A Humanoid Piano Robot for Human-Computer Music Performance**
- Enabled a piano robot to perform music interactively with a human musician
- Enabled a piano robot to compose an accompaniment for a given melody
- Designed algorithms generating natural facial expressions in music performance

Takanishi Lab, Humanoid Robotics Institute, Waseda University, Japan (*visiting collaboration*):

Sep 2015 **Project: A Humanoid Saxophone Robot for Human-Computer Music Performance**
- Enabled a saxophone robot to perform music interactively with a human musician
- Designed algorithms generating natural body gestures in music performance

Machine Learning Department, Carnegie Mellon University, USA:

Jul 2013 – Aug 2016 **Project: Expressive Collaborative Music Performance via Machine Learning**
- Enabled machines to learn musicianship from human rehearsals
- Enabled machines to expressively perform music with human musicians

Jul 2012 – May 2013 **Project: A Fast and Effective MIDI Search Algorithm**
- Aimed to search different performance MIDI files of the same composition
- The algorithm is both effective (0.95 F-score) and fast (searching 10K files in 0.1 second)

Jul 2011 – Jul 2012 **Project: Dancing Robots Driven by Music**
- Automatic music beats and emotion analysis

- Enabled physically based robots to dance with music according to the beats and emotion

Aug 2010 – Jul 2011 **Project: A Framework for Coordination and Synchronization of Media**
- Designed the GUI for interactive performance based on scanned sheet music
- Automatic page turning driven by music performance

Aug 2010 – Aug 2011 **Project: Rehearsal Audio Stream Segmentation and Clustering**
- Designed novel and robust representation of noisy music signals
- Achieved state of the art accuracy (0.98) by ADAboost-HMM classification frameworks

National Laboratory on Machine Perception, Peking University, China:

Aug 2009 – May 2010 **Project: Automated Music Structure Analysis on a Symbolic Representation**
- Designed a hierarchical music structure analysis framework
- Detected music phrases using Conditional Random Fields
- Detected music sections using NTRPs (Nontrivial Repeating Patterns)

Oct 2009 – Jun 2010 **Project: Automated Composition Based on Music Structure Analysis**
- Designed a structural model of music styles
- Automated composition by recombining and modifying extracted phrases

INVITED TALKS

Nov 2025 Music AI: from Knowledge Incorporation to Concept Emergence*, NYU Abu Dhabi*
Nov 2025 Musicality for, by, and of AI*, Online, CMU*
Sep 2025 Function Alignment and Emergent Language, *Hong Kong Polytech University*
Jul 2025 Musicality for, by, and of AI*, Online, Tencent*
Jun 2025 LLM agent for a musical experience, *Institute of Future Technology, Paris*.
Jun 2025 Music AI: From Control to Emergence*, Paris Telecom*
Jun 2025 Towards Meaningful Music AI Research, *ICME*
May 2025 Towards Meaningful Music AI Research, *ECS NYU Shanghai*
Apr 2025 Towards Meaningful Music AI Research, *NUS*
Jan 2025 Knowledge Incorporation and Emergence for Music AI*, Computer Science Research Week, NUS*
Jun 2024 A Musical View on Multimodal Large Language Models: Hierarchical Modeling, Control, and AI Partnership. *1st MBZUAI Workshop on Machine Learning for Large Models, MBZUAI*
May 2024 Music Meets Metaphysics: AI for Music, Music for AI, *Online, Global Audio Summit*.
May 2024 A Musical View on Multimodal Large Language Models. *ECS, NYU Shanghai*
May 2024 A Musical View on Multimodal Large Language Models. *CMA, HKUST (GZ)*
Mar 2024 Concept Learning in Music AI. *MLD, CMU*
Mar 2024 A Musical View on Multimodal Large Language Models. *CDS, CMU*
Mar 2024 Learning Interpretable Concepts for Music AI. *ICNMC.*
Nov 2023 Music AI for future Musical Life, *Abu Dhabi Art Talk, ADMAF*
Nov 2023 Learning Interpretable Concepts for Music AI. *Computer Science, ETH*
Nov 2023 Concept Learning in Music AI: A Preview of Coco-Mulla & Symmetry. *ISMIR*
Jun 2023 Learning Interpretable Concepts for Music AI. *Zhiyuan College, Shanghai Jiao Tong University*
May 2023 Learning Interpretable Concepts for Music AI. *CDS, NYU*
Apr 2023 From Poly-dis to AccoMontage: Modular Concept Learning for Music Arrangement. *CMU*
Apr 2023 Learning Interpretable Concepts for Music AI. *Computer Science & Music Technology, MIT*
May 2023 Learning Interpretable Concepts for Music AI. *Summer Data Science and AI Webinar, Dartmouth*
Oct 2022 Music AI for New Arrangement and Performance Experience. *Culture Summit, Abu Dhabi*
July 2022 Hierarchical Representation Learning Approach for Source Separation, Transcription, and Music Generation. *ICML workshop on Machine Learning for Audio Synthesis*
May 2022 Small Tricks, Grand Design: Learning Interpretable Music Representations*, Music AI Online Forum, Center Conservatory of Music.*
Mar 2022 Music AI for New Arrangement and Performance Experience, *CMU*
Feb 2022 Small Tricks, Grand Design: Learning Interpretable Music Representations*, MBZUAI*
Nov 2021 Computer-aided Multimodal Music Learning, *TEDxNYUShanghai*
Oct 2021 From Human Stupidity to Artificial Intelligence: A Musical Perspective, *Tencent*
Apr 2021 Music AI and Computational Creativity, *ICCI, Shanghai Jiao Tong University*
Mar 2021 The Importance of Inductive Bias in Music Representation Learning, *Fudan University*
Mar 2021 Small Tricks, Grand Design: Learning Interpretable Music Representations, *Peking University*
Feb 2021 Small Tricks, Grand Design: Learning Interpretable Music Representations, *ByteDance*
Dec 2020 Webinar: Small Tricks, Grand Design: Learning Interpretable Music Representations, *CMU*
Dec 2020 My Research Journey on Music AI, *Seeds for the Future Year End Celebration*

Oct 2020	AI and Music Creativity, *Seeds for the Future Lecture Series*
Oct 2020	Music Representation, Creativity, and Buddhist Philosophy, *Donghua Temple*
Oct 2020	PianoTree VAE for polyphonic music representation learning, *ISMIR*
Aug 2020	Towards better music automation via representation learning, *Kwai Research Lab*
July 2020	Webinar: AI in Music*, Dartmouth College*
Mar 2020	Webinar: Music representation learning in AI and education, *Peking University*
Nov 2019	Better Music Representation Learning via Inductive Bias: Mind vs. Machine, *CDS, NYU*
Nov 2019	Deep Music Analogy via Representation Disentanglement, *ISMIR*
Oct 2019	Hierarchical Music Representation Learning Using Transformer VAE, *MARL, New York University*
Oct 2019	Better Music Representation Learning via Inductive Bias: Mind vs. Machine, *Carnegie Mellon*
Oct 2019	Better Music Representation Learning via Inductive Bias, *Dartmouth College*
Sep 2019	Interpretable Music Generation via Representation Disentanglement, *CILVR, New York University*
Aug 2019	Music Understanding and Generation via AI, *CCF Annual Conference*
Apr 2019	Music Style Transfer via Analogy-Making, *International Forum on Statistics, SUFE*
Apr 2019	Music Intelligence: Towards Creative AI Systems, *Zaojiu Talk*
Jan 2019	Explicit Structure Encoding for Music Generation, *MMRP*
Oct 2018	Towards More Expressive Artificial Music Intelligence. *Carnegie Mellon University*
July 2018	A Framework for Automated Popular Music Arrangement, *CSMT*
May 2018	Music Style Transfer: Some Important Concepts, *MuMe workshop, ICCC*
Oct 2017	Computer Music as an Interdisciplinary Field, *Shanghai Science and Technology Museum*
Jun 2017	Turing Test for the Creative Arts, *MuMe workshop, ICCC*
May 2017	Learning Improvisation for Automatic Accompaniment, *NIME*
Feb 2017	Expressive Human-computer Music Interaction, *Georgia Tech*
Aug 2016	Robot Embodiment for Automatic Accompaniment, *SMC*
Oct 2015	Spectral Learning for Expressive Interactive Ensemble Music Performance, *ISMIR*
Sep 2015	Modeling Piano Rolled Chords and Pedal Timing, *Carnegie Mellon University*
Jun 2015	Learning Musicianship for Automatic Accompaniment, *NIME*
Sep 2014	Improving Automatic Accompaniment by Machine Learning, *University of California, San Diego*
Dec 2013	A History of Automatic Accompaniment and its Future Directions, *Peking University*
Oct 2012	A Vision of Human-Robot Music Performance, *Carnegie Mellon University*
Jun 2012	Autonomous Dancing Robots Driven by Music, *AAMAS*
Dec 2011	Smart Music Displays and Autonomous Dancing Robots, *Peking University*
Jun 2011	Coordination and Synchronization of Media for Human-Computer Music Performance, *NIME*

SERVICE

- Special Committee for MBZUAI's Undergraduate Plan, 2024
- Space Allocation Committee, MBZUAI, 2024 – present
- MBZUAI Space and Culture group, 2024
- Graduate Student Admission Committee, MLD, MBZUAI, 2024 – present
- Logo and Interior Design Group, MLD, MBZUAI, 2024
- Commencement Preparation Committee, MBZUAI, 2022
- Space Use Committee, NYU Shanghai, 2017 – 2022
- Faculty Search Committee, Computer Science, NYU Shanghai, 2022
- Faculty Promotion Committee, Computer Science, NYU Shanghai, 2022
- Faculty Promotion Committee, Music Department, NYU Shanghai, 2021
- Undergraduate thesis program committee, CS & DS, NYU Shanghai, 2019 – 2022

HONORS and AWARDS

- General co-chair for ISMIR2026
- Keynote series on “Function Alignment”, NUA, 2025
- Keynote speaker, Speech and Music AI: The Current Research Frontier Workshop, NUS, 2025
- MIREX chair for ISMIR 2024 and ISMIR 2025
- Paper Co-chair for ICLC Conference, 2024
- Keynote speaker, 11th International Conference on New Music Concepts, 2024
- Faculty Representative on MBZUAI x ADMAF Collaboration, 2022 – present
- Panelist of “Hybrid Collaboration: Pushing Boundaries Between Art and Tech”, ADMAF, 2023
- Panelist of “Hybrid Deep Learning”, ISMIR, 2023
- Panelist of “Riwaq Al-Fikr Music and Artificial Intelligence”, ADMAF & MBZUAI, 2023
- Panelist of “Education in a digital world”, Berklee Abu Dhabi Summit, 2022
- Keynote speaker, 4th IEEE Workshop on Artificial Intelligence for Art Creation, 2022

- Keynote speaker, DMRN+16: Digital Music Research Network One-day Workshop, 2021
- Keynote speaker, TechMe Week, Online & Tencent, 2021
- Panelist of "MIR for Human Health and Potential" ISMIR, 2021
- Panel Chair of "MIR Technology Across Culture", ISMIR, 2021
- General co-chair for NIME Conference, 2021
- Keynote speaker, Seeds for the Future Year End Celebration, Online, 2020
- Music Co-chair for MuMe workshop, 2019
- Eastern Young Scholar, Shanghai Ministry of Education, 2017
- Panelist of "Future of MIR", ISMIR, 2017
- Music Chair for ISMIR Conference, 2017
- Turing Test for Creative Arts Competition Organizer, Dartmouth College, 2017
- 3-Minute Thesis Presentation Competition Finalist, Carnegie Mellon University, 2015
- Graduate Student Assembly Representative, Carnegie Mellon University, 2013-2014
- Team Leader for OurCS Computer Music Group, Carnegie Mellon University, 2013, 2015
- Outstanding Society Leadership Award (2 out of 260), Peking University, 2009
- President and Music Director of Chinese Music Institute, Peking University, 2007-2009
- Volunteer for Olympic Games, Beijing, 2008
- Selected Student Delegation out of 2000+ candidates for BESETOHA Forum, Tokyo, 2007.
- 1st place out of 3000+ in the National Musical Instrument Proficiency Evaluation, China, 2006

REFERENCES

Available upon request.