

# Yi-Hsuan Yang (楊奕軒)<sup>1,2,3</sup>

## 1 Professor

Department of Electrical Engineering  
National Taiwan University

## 2 Joint-Appointed Research Fellow

Research Center for Information Technology Innovation (CITI),  
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## EXPERTISE

Music information research; Artificial intelligence; Machine learning; Music generation

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## EDUCATION

- Ph.D., Communication Engineering, National Taiwan University, Taiwan 2010
- B.S., Electrical Engineering, National Taiwan University, Taiwan 2006

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## WORK EXPERIENCES

- **Full Professor**, Dept. Electrical Engineering, National Taiwan University **since 2023/02**
- **Chief Music Scientist**, Taiwan AI Labs **2019-2023**
- **Associate Research Professor**, Research Center for IT Innovation, Academia Sinica **2015-2023**
- Joint-Appointment Associate Professor, CSIE, National Cheng Kung University 2017-2019
- Adjunct Associate Professor, CSIE, National Tsing-Hua University 2016
- **Assistant Research Professor**, Research Center for IT Innovation, Academia Sinica **2011-2015**
- Visiting Scholar (three months), Columbia University, USA 2013
- Visiting Scholar (three months), Music Technology Group, Universitat Pompeu Fabra, Spain 2011
- Second Lieutenant (one year), Communications, Electronics and Information, ROC Army 2010-2011

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## AWARDS & HONORS

- Multimedia Rising Stars Award, IEEE International Conference on Multimedia Expo. (ICME) 2019
- Best Associate Editor Service Award, IEEE Transactions on Multimedia 2018
- Best Conference Paper Award, IEEE Multimedia Communications Technical Committee (MMTC) 2015
- Best Paper Award, IEEE International Conference on Multimedia Expo. (ICME) 2015
- Young Scholars' Creativity Award, Foundations for the Advancement of Outstanding Scholarship 2015
- Ta-You Wu Memorial Research Award, Ministry of Science and Technology 2014
- Best Poster Award, IEEE/ACM Joint Conference on Digital Libraries 2014

- Project for Excellent Junior Research Investigators, National Science Council 2013–2016
- Career Development Award, Academia Sinica 2013–2017
- Pan Wen Yuan Research Exploration Award 2013
- First Prize, ACM Multimedia Grand Challenge 2012
- IEEE SPS Young Author Best Paper Award, IEEE Signal Processing Society 2011
- Best Ph.D. Dissertation Award, Graduate Institute of Communication Engineering, NTU 2010
- Best Ph.D. Dissertation Award, TAAI (Taiwanese Association for Artificial Intelligence) 2010
- MediaTek Fellowship 2009
- Microsoft Research Asia (MSRA) Fellowship 2008

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## SELECTED RECENT PUBLICATIONS

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- “MuseMorphose: Full-song and fine-grained piano music style transfer with just one Transformer VAE,” *TASLP* 2023.
- “Relative positional encoding for Transformers with linear complexity,” *ICML* 2021.
- “Compound Word Transformer: Learning to compose full-song music over dynamic directed hypergraphs,” *AAAI* 2021.
- “Pop Music Transformer: Beat-based modeling and generation of expressive Pop piano compositions,” *ACM Multimedia* 2020.
- “Dilated convolution with dilated GRU for music source separation,” *IJCAI* 2019.
- “Musical composition style transfer via disentangled timbre representations,” *IJCAI* 2019.
- “Score-to-audio music generation with multi-band convolutional residual network,” *AAAI* 2019.
- “Learning to recognize transient sound events using attentional supervision,” *IJCAI* 2018.
- “MuseGAN: Multi-track sequential GAN for symbolic music generation and accompaniment,” *AAAI* 2018.
- “Generating music medleys via playing music puzzle games,” *AAAI* 2018
- “MidiNet: A convolutional GAN for symbolic-domain music generation,” *ISMIR* 2017
- *Music Emotion Recognition*, CRC Taylor & Francis Books, Feb. 2011.

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## ACADEMIC SERVICES

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- **Associate Editor** of
  - IEEE Transactions on Multimedia 2016/9-2019/2
  - IEEE Transactions on Affective Computing 2016/11-2019/2
- **IEEE Senior Member** since 2017
- **Program Chair** of
  - Int. Society for Music Information Retrieval Conference (ISMIR) 2014
- **Guest Editor** of
  - ACM Transactions on Intelligent Systems and Technology 2015
  - IEEE Transactions on Affective Computing 2014
- **10K Award Committee Member** of

IEEE International Conference on Multimedia and Expo. (ICME)	2016–2018
• <b>Tutorial Chair</b> of	
Int. Society for Music Information Retrieval Conference (ISMIR)	2021
• <b>Unconference Chair</b> of	
Int. Society for Music Information Retrieval Conference (ISMIR)	2017
• <b>External PhD thesis committee member</b> of	
Hong Kong University of Science and Technology	2015
• <b>Senior PC Member (Meta-reviewer)</b> of	
AAAI 2022, ISMIR 2021, etc	
• <b>Organizer</b> of	
Int. Workshop on Affect and Sentiment in Multimedia, in conjunction with ACM MM	2015
MediaEval Affect Task: Music in Emotion	2013–2015
MIREX Singing Voice Separation Task	2014–2015
Int. Workshop on Affective Analysis in Multimedia, in conjunction with IEEE ICME	2013
Taiwanese Workshop on Music Information Retrieval	2012–2014

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## PROJECTS

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• Human-level and Open-Source Mandarin Pop Music Melody and Singing Generation by AI	MOST 2023-2025
• Open DJ Project (II): Automatic EDM Generation	MOST 2020-2022
• GenMusic Project: Industrial AI-Powered Music Composition Platform	MOST 2018-2020
• Open DJ Project: AI for Automatic and Personalized DJing	MOST 2018-2020
• A Unified Framework for Processing and Understanding Heterogeneous Data for Intelligent Recommendation (co-PI)	MOST 2017-2020
• Product Recommendation and Customer Status Prediction	Cathay 2017-2018
• Online Guitar Transcription: Melody, Chord and Playing Techniques Recognition	MOST 2016-2018
• Mobile Music Recommendation using Brain-Computer Interfaces	MOST 2015-2018
• User-centered Intelligent Music Streaming and Recommendation Platform (III)	KKBOX Inc., 2017-2019
• User-centered Intelligent Music Streaming and Recommendation Platform (II)	KKBOX Inc., 2015-2017
• User-centered Intelligent Music Streaming and Recommendation Platform	KKBOX Inc., 2013-2015
• User Preference Modeling from Listening History & Artist Similarity	KKBOX Inc., 2012-2013
• Music Recommendation based on Listening Context	HTC Inc., 2012
• Dictionary-based Music Signal Analysis, Understanding, and Retrieval	Academia Sinica, 2013-2017
• Automatic Music Recommendation and Retrieval	MOST 2013-2016
• Dictionary-based Multipitch Estimation of Polyphonic Music	NSC 2012-2013
• Large-scale Music Emotion Recognition System using Social Media	NSC 2011-2012

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## TUTORIALS

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- Hao-Wen Dong and **Yi-Hsuan Yang**, "Generating Music with GANs: An Overview and Case Studies," *Int. Society for Music Information Retrieval Conference (ISMIR)*, 2019 ([link](#)).
- Xiao Hu and **Yi-Hsuan Yang**, "Music Affect Recognition: The State-of-the-art and Lessons Learned," *Int. Society for Music Information Retrieval Conference (ISMIR)*, 2012.

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## STUDENT AWARDS

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- Yi-Jen Shih, 1st Prize, Bachelor Thesis Award, Dept. of EE, NTU 2022
- Shih-Lun Wu, Ssu-Nien Fu's Award (1st Prize), Best Bachelor's Thesis, National Taiwan University 2021
- Shih-Lun Wu, 1st Prize, Bachelor Thesis Award, Dept. of CSIE, NTU 2021
- Yi-Hui Chou, 2nd Prize, Bachelor Thesis Award, Dept. of EE, NTU 2021
- Shih-Lun Wu, 1st Prize, Bachelor Thesis Award, Dept. of CSIE, NTU 2020
- Ching-Yu Chiu, Jury's Recommendation Award, 美律電聲論文獎 2021
- Yu-Hsiang Huang, Special Award, 美律電聲論文獎 2020
- Wen-Yi Hsiao, 2nd Prize, 美律電聲論文獎 2018

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## PUBLICATIONS

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*Total citations: 9048; citations of most-cited paper: 576; h-index: 47; i10-index: 160*

### • Book

- [1] Y.-H. Yang and H. H. Chen, *Music Emotion Recognition*, CRC Taylor & Francis Books, Feb. 2011.

### • Proceedings (Edited)

- [2] Meinard Müller, Emilia Gómez, and Yi-Hsuan Yang, "Computational methods for melody and voice processing in music recordings," Report from Dagstuhl Seminar 19052, 2019.
- [3] Hsin-Min Wang, Yi-Hsuan Yang, and Jin Ha Lee, *International Society for Music Information Retrieval Conference, Proceedings, ISMIR, Taipei, Taiwan, 2014*.

### • Journal Papers

- [4] Ching-Yu Chiu, Meinard Müller, Matthew E. P. Davies, Alvin Wen-Yu Su, and Yi-Hsuan Yang, "Local periodicity-based beat tracking for expressive classical piano music," *IEEE/ACM Transactions on Audio, Speech, and Language Processing (TASLP)*, vol. 31, pp. 2824-2835, July 2023.
- [5] Shih-Lun Wu and Yi-Hsuan Yang, "MuseMorphose: Full-song and fine-grained piano music style transfer with just one Transformer VAE," *IEEE/ACM Transactions on Audio, Speech, and Language Processing (TASLP)*, vol. 31, pp. 1953-1967, May 2023.
- [6] Ching-Yu Chiu, Meinard Müller, Matthew E. P. Davies, Alvin Wen-Yu Su, and Yi-Hsuan Yang, "An analysis method for metric-level switching in beat tracking," *IEEE Signal Processing Letters (SPL)*, vol. 29, pp. 2153-2157, Oct. 2022.
- [7] Yi-Jen Shih, Shih-Lun Wu, Frank Zalkow, Meinard Müller, and Yi-Hsuan Yang, "Theme Transformer: Symbolic music generation with theme-conditioned Transformer," *IEEE Transactions on Multimedia (TMM)*, accepted for publication.

- [8] Juan Sebastián Gomez-Cañón, Estefanía Cano, Tuomas Eerola, Perfecto Herrera, Xiao Hu, Yi-Hsuan Yang, and Emilia Gómez, "Music Emotion Recognition: Towards new robust standards in personalized and context-sensitive applications," *IEEE Signal Processing Magazine*, vol. 38, no. 6, pp. 106-114, Nov. 2021.
- [9] Ching-Yu Chiu, Alvin Wen-Yu Su, and Yi-Hsuan Yang, "Drum-aware ensemble architecture for improved joint musical beat and downbeat tracking," *IEEE Signal Processing Letters (SPL)*, vol. 28, pp. 1100-1104, May 2021.
- [10] Yin-Cheng Yeh, Wen-Yi Hsiao, Satoru Fukayama, Tetsuro Kitahara, Benjamin Genchel, Hao-Min Liu, Hao-Wen Dong, Yian Chen, Terence Leong, and Yi-Hsuan Yang, "Automatic melody harmonization with triad chords: A comparative study," *Journal of New Music Research*, vol. 50, no. 1, pp. 37-51, 2021.
- [11] E. Zangerle, C.-M. Chen, M.-F. Tsai and Y.-H. Yang, "Leveraging affective hashtags for ranking music recommendations," *IEEE Transactions on Affective Computing (TAC)*, vol. 12, no. 1, pp. 78-91, 2021.
- [12] Zhe-Cheng Fan, Tak-Shing T. Chan, Yi-Hsuan Yang, and Jyh-Shing R. Jang, "Backpropagation with *N*-D vector-valued neurons using arbitrary bilinear products," *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*, vol. 31, no. 7, pp. 2638-2652, 2020.
- [13] T.-W. Su, Y.-P. Chen, L. Su, and Y.-H. Yang, "TENT: Technique-embedded note tracking for real-world guitar solo recordings," *Transactions of the International Society for Music Information Retrieval (TISMIR)*, vol. 2, no. 1, pp. 15-28, 2019.
- [14] S.-Y. Chou, J.-S. R. Jang, and Y.-H. Yang, "Fast tensor factorization for large-scale context-aware recommendation from implicit feedback," *IEEE Trans. Big Data (TBD)*, vol. 6, no. 1, pp. 201-208, Mar. 2020.
- [15] J.-Y. Liu, Y.-H. Yang, and S.-K. Jeng, "Weakly-supervised visual instrument-playing action detection in videos," *IEEE Transactions on Multimedia (TMM)*, vol. 21, no. 4, pp. 887-901, Apr. 2019.
- [16] J. Nam, K. Choi, J. Lee, S.-Y. Chou, and Y.-H. Yang, "Deep learning for audio-based music classification and tagging," *IEEE Signal Processing Magazine (SPM)*, vol. 36, no. 1, pp. 41-51, Jan. 2019.
- [17] J.-C. Lin, W.-L. Wei, T.-L. Liu, Y.-H. Yang, H.-M. Wang, H.-R. Tyan, and H.-Y. M. Liao, "Coherent deep-net fusion to classify shots in concert videos," *IEEE Transactions on Multimedia (TMM)*, vol. 20, no. 11, pp. 3123-3136, Nov. 2018.
- [18] Y.-H. Chin, J.-C. Wang, J.-C. Wang and Y.-H. Yang, "Predicting the probability density function of music emotion using emotion space mapping," *IEEE Transactions on Affective Computing (TAC)*, vol. 9, no. 4, pp. 541-549, Oct.-Dec. 2018.
- [19] Y.-S. Huang, S.-Y. Chou, and Y.-H. Yang, "Pop music highlighter: Marking the emotion keypoints," *Transactions of the International Society for Music Information Retrieval (TISMIR)*, vol. 1, no. 1, pp. 68-78, Sep. 2018.
- [20] Y.-P. Lin, P.-K. Jao, and Y.-H. Yang, "Improving cross-day EEG-based emotion classification using robust principal component analysis," *Frontiers in Computational Neuroscience*, Jul. 2017.
- [21] A. Aljanaki, Y.-H. Yang, and M. Soleymani, "Developing a benchmark for emotional analysis of music," *PLOS ONE*, vol. 12, no. 3, e0173392.doi:10.1371/journal.pone.0173392, Mar. 2017.
- [22] X. Hu and Y.-H. Yang, "The mood of Chinese pop music: Representation and recognition," *Journal of the Association for Information Science and Technology (JAIST)*, doi:10.1002/asi.23813, Jun. 2017.

- [23] Y.-A. Chen, J.-C. Wang, Y.-H. Yang, H. H. Chen, "Component tying for mixture model adaptation in personalization of music emotion recognition," *IEEE/ACM Transactions on Audio, Speech, and Language Processing* (TASLP), vol. 25, no. 7, pp. 1409-1420, Jul. 2017. [cover page of the issue]
- [24] X. Hu and Y.-H. Yang, "Cross-dataset and cross-cultural music mood prediction: A case on Western and Chinese pop songs," *IEEE Transactions on Affective Computing* (TAC), vol. 8, no. 2, pp. 228-240, Apr. 2017.
- [25] T.-S. Chan and Y.-H. Yang, "Informed group-sparse representation for singing voice separation," *IEEE Signal Processing Letters* (SPL), vol. 24, no. 2, pp. 156-160, Feb. 2017.
- [26] T.-S. Chan and Y.-H. Yang, "Polar  $n$ -complex and  $n$ -bicomplex singular value decomposition and principal component pursuit," *IEEE Transactions on Signal Processing* (TSP), vol. 64, no. 24, pp. 6533-6544, Dec. 2016.
- [27] M. Schedl, Y.-H. Yang, and P. Herrera, "Introduction to intelligent music systems and applications," *ACM Transactions on Intelligent Systems and Technology* (TIST), vol. 8, no. 2, article 17, Oct. 2016.
- [28] P.-K. Jao, L. Su, Y.-H. Yang and B. Wohlberg, "Monaural music source separation using convolutional sparse coding," *IEEE/ACM Transactions on Audio, Speech, and Language Processing* (TASLP), vol. 24, no. 11, pp. 2158-2170, Nov. 2016.
- [29] T.-S. Chan and Y.-H. Yang, "Complex and quaternionic principal component pursuit and its application to audio separation," *IEEE Signal Processing Letters* (SPL), vol. 23, no. 2, pp. 287-291, Feb. 2016.
- [30] C.-Y. Liang, L. Su and Y.-H. Yang, "Musical onset detection using constrained linear reconstruction," *IEEE Signal Processing Letters* (SPL), vol. 22, no. 11, pp. 2142-2146, Nov. 2015.
- [31] L. Su and Y.-H. Yang, "Combining spectral and temporal representations for multipitch estimation of polyphonic music," *IEEE/ACM Transactions on Audio, Speech, and Language Processing* (TASLP), vol. 23, no. 10, pp. 1600-1612, Oct. 2015.
- [32] P.-K. Jao and Y.-H. Yang, "Music annotation and retrieval using unlabeled exemplars: correlation and sparse codes," *IEEE Signal Processing Letters* (SPL), vol. 22, no. 10, pp. 1771-1775, Oct. 2015.
- [33] Y.-H. Yang and Y.-C. Teng, "Quantitative study of music listening behavior in a smartphone context," *ACM Transactions on Interactive Intelligent Systems* (TiIS), vol. 5, no. 3, article 14, Aug. 2015.
- [34] M. Soleymani, Y.-H. Yang, G. Irie, and A. Hanjalic, "Challenges and perspectives for affective analysis in multimedia," *IEEE Transactions on Affective Computing* (TAC), vol. 6, no. 3, pp. 206-208, 2015.
- [35] J.-C. Wang, Y.-H. Yang, H.-M. Wang, and S.-K. Jeng, "Modeling the affective content of music with a Gaussian mixture model," *IEEE Transactions on Affective Computing* (TAC), vol. 6, no. 1, pp. 56-68, Feb. 2015.
- [36] L. Su, H.-M. Lin, and Y.-H. Yang, "Sparse modeling of magnitude and phase-derived spectra for playing technique classification," *IEEE Transactions on Audio, Speech, and Language Processing* (TASLP), vol. 22, no. 12, pp. 2122-2132, Dec. 2014.
- [37] L. Su, C.-C. Yeh, J.-Y. Liu, J.-C. Wang, and Y.-H. Yang, "A systematic evaluation of the bag-of-frames representation for music information retrieval," *IEEE Transactions on Multimedia* (TMM), vol. 16, no. 5, pp. 1188-1200, Aug. 2014.
- [38] Y.-P. Lin, Y.-H. Yang, and T.-P. Jung, "Fusion of Electroencephalogram dynamics and musical contents for estimating emotional responses in music listening," *Frontiers in Neuroscience*, vol. 8, no. 94, pp. 1-14, May 2014.

- [39] Y.-H. Yang and J.-Y. Liu, "Quantitative study of music listening behavior in a social and affective context," *IEEE Transactions on Multimedia* (TMM), vol. 15, no. 6, pp. 1304-1315, Oct. 2013.
- [40] K.-S. Lin, A. Lee, Y.-H. Yang, C.-T. Lee, and H. H. Chen, "Automatic highlights extraction for drama video using music emotion and human face features," *Neurocomputing*, vol. 119, pp. 111-117, Nov. 2013.
- [41] C.-T. Lee, Y.-H. Yang and H. H. Chen, "Multipitch estimation of piano music by exemplar-based sparse representation," *IEEE Transactions on Multimedia* (TMM), vol. 14, no. 3, pp. 608-618, Jun. 2012.
- [42] Y.-H. Yang and H. H. Chen, "Machine recognition of music emotion: a review," *ACM Transactions on Intelligent Systems and Technology* (TIST), vol. 3, no. 3, article 40, May 2012.
- [43] Y.-C. Lin, Y.-H. Yang, and H. H. Chen, "Exploiting online tags for music emotion classification," *ACM Transactions on Multimedia Computing, Communications, and Applications* (TOMCCAP), vol. 7s, no. 1, article 26, Oct. 2011.
- [44] Y.-H. Yang and H. H. Chen, "Prediction of the distribution of perceived music emotions using discrete samples," *IEEE Transactions on Audio, Speech, and Language Processing* (TASLP), vol. 19, no. 7, pp. 2184 -2196, Sep. 2011.
- [45] Y.-H. Yang and H. H. Chen, "Ranking-based emotion recognition for music organization and retrieval," *IEEE Transactions on Audio, Speech, and Language Processing* (TASLP), vol. 19, no. 4, pp. 762-774, May 2011.
- [46] Y.-F. Su, Y.-H. Yang, M.-T. Lu, and H. H. Chen, "Smooth control of adaptive media playout for video streaming," *IEEE Transactions on Multimedia* (TMM), vol. 11, no. 7, pp. 1331-1339, Nov. 2009.
- [47] Y.-H. Yang, W.-H. Hsu, and H. H. Chen, "Online reranking via ordinal informative concepts for context fusion in concept detection and video search," *IEEE Transactions on Circuits and Systems for Video Technology* (TCSVT), vol. 19, no. 12, pp. 1880-1890, Dec. 2009.
- [48] Y.-H. Yang, Y.-C. Lin, Y.-F. Su, and H. H. Chen, "A regression approach to music emotion recognition," *IEEE Transactions on Audio, Speech, and Language Processing* (TASLP), vol. 16, no. 2, pp. 448-457, Feb. 2008.

#### • Conference Papers

- [49] Shih-Lun Wu and Yi-Hsuan Yang, "Compose & Embellish: Well-structured piano performance generation via a two-stage approach," in *Proc. IEEE Int. Conf. Acoustics, Speech and Signal Processing* (ICASSP), 2023.
- [50] Yen-Tung Yeh, Bo-Yu Chen, and Yi-Hsuan Yang, "Exploiting pre-trained feature networks for generative adversarial networks in audio-domain loop generation," in *Proc. Int. Society for Music Information Retrieval Conf.* (ISMIR), 2022.
- [51] Yueh-Kao Wu, Ching-Yu Chiu, and Yi-Hsuan Yang, "Conditional beat-aware drum accompaniment generation in the audio domain using Transformer VQ-VAE," in *Proc. Int. Society for Music Information Retrieval Conf.* (ISMIR), 2022.
- [52] Chih-Pin Tan, Wen-Yu Su, and Yi-Hsuan Yang, "Melody infilling with user-provided structural context," in *Proc. Int. Society for Music Information Retrieval Conf.* (ISMIR), 2022.
- [53] Da-Yi Wu, Wen-Yi Hsiao, Fu-Rong Yang, Oscar Friedman, Warren Jackson, Scott Bruzenak, Yi-Wen Liu, and Yi-Hsuan Yang, "SawSing: A DDSF-based singing vocoder via subtractive sawtooth waveform synthesis," in *Proc. Int. Society for Music Information Retrieval Conf.* (ISMIR), 2022.

- [54] Taejun Kim, Yi-Hsuan Yang, and Juhan Nam, "Joint estimation of fader and equalizer gains of DJ mixers using convex optimization," in *Proc. Int. Conf. Digital Audio Effects (DAFx)*, 2022.
- [55] Yu-Chih Tsai, Tse-Yu Pan, Ting-Yang Kao, Yi-Hsuan Yang, and Min-Chun Hu, "EMVGAN: Emotion-aware music-video common representation learning via generative adversarial networks," in *Proc. Int. Joint Workshop on Multimedia Artworks Analysis and Attractiveness Computing in Multimedia*, in conjunction with ACM ICMR, 2022.
- [56] Chien-Feng Liao, Jen-Yu Liu, and Yi-Hsuan Yang, "KaraSinger: Score-free singing voice synthesis with VQ-VAE using Mel-spectrograms," in *Proc. IEEE Int. Conf. Acoustics, Speech and Signal Processing (ICASSP)*, 2022.
- [57] Bo-Yu Chen, Wei-Han Hsu, Wei-Hsiang Liao, Marco A. Martínez Ramírez, Yuki Mitsufuji, and Yi-Hsuan Yang, "Automatic DJ transitions with differentiable audio effects and generative adversarial networks," in *Proc. IEEE Int. Conf. Acoustics, Speech and Signal Processing (ICASSP)*, 2022.
- [58] Yu-Hua Chen, Wen-Yi Hsiao, Tsu-Kuang Hsieh, Jyh-Shing Roger Jang, and Yi-Hsuan Yang, "Towards automatic transcription of polyphonic electric guitar music: A new dataset and a multi-loss transformer model," in *Proc. IEEE Int. Conf. Acoustics, Speech and Signal Processing (ICASSP)*, 2022.
- [59] Fu-Rong Yang, Yin-Ping Cho, Da-Yi Wu, Yi-Hsuan Yang, Shan-Hung Wu, and Yi-Wen Liu, "Mandarin singing voice synthesis with a phonology-based duration model," in *Proc. Asia Pacific Signal and Information Processing Association Annual Summit and Conf. (APSIPA ASC)*, 2021.
- [60] Chin-Jui Chang, Chun-Yi Lee, and Yi-Hsuan Yang, "Variable-length music score infilling via XLNet and musically specialized positional encoding," in *Proc. Int. Society for Music Information Retrieval Conf. (ISMIR)*, 2021.
- [61] Tun-Min Hung, Bo-Yu Chen, Yen-Tung Yeh, and Yi-Hsuan Yang, "A benchmarking initiative for audio-domain music generation using the FreeSound Loop Dataset," in *Proc. Int. Society for Music Information Retrieval Conf. (ISMIR)*, 2021.
- [62] Hsiao-Tzu Hung, Joann Ching, Seunghoon Doh, Nabin Kim, Juhan Nam and Yi-Hsuan Yang, "EMOPIA: A multi-modal pop piano dataset for emotion recognition and emotion-based music generation," in *Proc. Int. Society for Music Information Retrieval Conf. (ISMIR)*, 2021.
- [63] Juan Gómez-Cañón, Estefania Cano, Yi-Hsuan Yang, Perfecto Herrera, and Emilia Gomez, "Let's agree to disagree: Consensus entropy active learning for personalized music emotion recognition," in *Proc. Int. Society for Music Information Retrieval Conf. (ISMIR)*, 2021.
- [64] Pedro Sarmiento, Adarsh Kumar, C. J. Carr, Zack Zukowski, Mathieu Barthet, and Yi-Hsuan Yang, "DadaGP: A dataset of tokenized GuitarPro songs for sequence models," in *Proc. Int. Society for Music Information Retrieval Conf. (ISMIR)*, 2021.
- [65] Antoine Liutkus, Ondřej Cífka, Shih-Lun Wu, Umut Simsekli, Yi-Hsuan Yang, and Gael Richard, "Relative positional encoding for Transformers with linear complexity," in *Proc. International Conference on Machine Learning (ICML)*, 2021.
- [66] Ching-Yu Chiu, Joann Ching, Wen-Yi Hsiao, Yu-Hua Chen, Alvin Wen-Yu Su, Yi-Hsuan Yang, "Source separation-based data augmentation for improved joint beat and downbeat tracking," in *Proc. European Signal Processing Conference (EUSIPCO)*, 2021.
- [67] Taejun Kim, Yi-Hsuan Yang, and Juhan Nam, "Reverse-engineering the transition regions of real-world DJ mixes using sub-band analysis with convex optimization," in *Proc. International Conference on New Interface for Musical Expression (NIME)*, 2021.



- [68] Wen-Yi Hsiao, Jen-Yu Liu, Yin-Cheng Yeh, and Yi-Hsuan Yang, "Compound Word Transformer: Learning to compose full-song music over dynamic directed hypergraphs," in *Proc. AAAI Conf. Artificial Intelligence (AAAI)*, 2021 (acceptance rate 21%).
- [69] Joann Ching, Antonio Ramires, and Yi-Hsuan Yang, "Instrument role classification: Auto-tagging for loop based music," in *Proc. Joint Conference on AI Music Creativity*, 2020.
- [70] Yu-Hua Chen, Yu-Siang Huang, Wen-Yi Hsiao, and Yi-Hsuan Yang, "Automatic composition of guitar tabs by Transformers and groove modeling," in *Proc. Int. Society for Music Information Retrieval Conf. (ISMIR)*, 2020.
- [71] Shih-Lun Wu and Yi-Hsuan Yang, "The Jazz Transformer on the front line: Exploring the shortcomings of AI-composed music through quantitative measures," in *Proc. Int. Society for Music Information Retrieval Conf. (ISMIR)*, 2020.
- [72] Bo-Yu Chen, Jordan Smith, and Yi-Hsuan Yang, "Neural loop combiner: Neural network models for assessing the compatibility of loops," in *Proc. Int. Society for Music Information Retrieval Conf. (ISMIR)*, 2020.
- [73] Taejun Kim, Minsuk Choi, Evan Sacks, Yi-Hsuan Yang, and Juhan Nam, "A computational analysis of real-world DJ mixes using mix-to-track subsequence alignment," in *Proc. Int. Society for Music Information Retrieval Conf. (ISMIR)*, 2020.
- [74] Antonio Ramires, Frederic Font, Dmitry Bogdanov, Jordan Smith, Yi-Hsuan Yang, Joann Ching, Bo-Yu Chen, Yueh-Kao Wu, Hsu Wei-Han, and Xavier Serra, "The Freesound Loop Dataset and annotation tool," in *Proc. Int. Society for Music Information Retrieval Conf. (ISMIR)*, 2020.
- [75] Jen-Yu Liu, Yu-Hua Chen, Yin-Cheng Yeh and Yi-Hsuan Yang, "Unconditional audio generation with generative adversarial networks and cycle regularization," in *Proc. INTERSPEECH*, 2020.
- [76] Da-Yi Wu and Yi-Hsuan Yang, "Speech-to-singing conversion based on boundary equilibrium GAN," in *Proc. INTERSPEECH*, 2020.
- [77] Ching-Yu Chiu, Wen-Yi Hsiao, Yin-Cheng Yeh, Yi-Hsuan Yang, and Alvin W. Y. Su, "Mixing-specific data augmentation techniques for improved blind violin/piano source separation," in *Proc. IEEE Int. Workshop on Multimedia Signal Processing (MMSP)*, 2020.
- [78] Yu-Siang Huang and Yi-Hsuan Yang, "Pop Music Transformer: Beat-based modeling and generation of expressive Pop piano compositions," in *Proc. ACM Int. Conf. Multimedia (MM)*, 2020.
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