Joann Ching

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Education

M.S. in Music Technology, Georgia Institute of Technology, USA   *2020 - Now*
- Relevant courses: Audio Content Analysis, Interactive Music, Recording & Mixing

Professional Studies Program, The National Chiao Tung University, Taipei, Taiwan   *2019 Fall*
- Relevant courses: Algorithms

B.M. in Music Performance, The University of Texas at Austin, USA   *2015 - 2019*
- Relevant courses: Music Theory, Music History

Work Experiences

Research Assistant at Academia Sinica, the National Academy of Taiwan   *2019 - 2021*
- Researched on deep learning algorithms with PyTorch and TensorFlow for automatic music classification/auto-tagging, music generation, beat detection and music transcription
- Published at three conferences and presented at several seminar talks

Academic Experiences

<u>Peer-Reviewed Publications</u>

[1] Hung, H-T., **Ching, J.**, Doh, S-H., Kim, N., Nam, J., Yang, Y-H. "EMOPIA: A Multi-Modal Pop Piano Dataset for Emotion Recognition and Emotion-based Music Generation.", *International Society for Music Information Retrieval (**ISMIR**)*, 2021

[2] Chiu, C-Y., **Ching, J.**, Hsiao, W-Y., Chen, Y-H., Su, W-Y., Yang, Y-H. "Source Separation-based Data Augmentation Techniques for Improved Joint Beat and Downbeat Tracking in Classical Music". *European Signal Processing Conference (**EUSIPCO**)*, 2021

[3] **Ching, J.**, Ramires, A., Yang, Y-H. "Instrument Role Classification: Auto-tagging for Loop Based Music." *Joint Conference on AI Music Creativity (2020)*. ISBN: 978-91-519-5560-5

[4] Ramires, A., Font, F., Bognadov, D., Smith, J. B. L., Yang, Y-H., **Ching, J.**,…Serra, X. "The FreeSound Loop Dataset and Annotation Tool." *International Society for Music Information Retrieval (**ISMIR**)*, 2020

<u>Non-refereed Publications</u>

[5] **Ching, J.**, Yang, Y-H. "Learning to Generate Piano Music with Sustain Pedals," *Late-Breaking Demos of the 18th International Society for Music Information Retrieval Conference (ISMIR)*, 2021. *arXiv preprint arXiv:2111.01216*

[6] Chou, I-H., Chen, I-C., Chang, C-J., **Ching, J.**, Yang, Y-H. "MidiBERT-Piano: Large-scale Pre-training for Symbolic Music Understanding". *arXiv preprint arXiv:2107.05223*, 2021

<u>Poster Presentations</u>

- Learning to Generate Piano Music with Sustain Pedals, *International Society for Music Information Retrieval (ISMIR)*, Atlanta, Georgia(Virtual Conference), 2021
- Instrument Role Classification: Auto-tagging for Loop Based Music, *Joint Conference on AI Music Creativity (CSMC+MuMe)*, Stockholm, Sweden (Virtual Conference), 2020

<u>Professional Involvement</u>

- Presenter, 22nd ISMIR (International Society for Music Information Retrieval)
- Attendee, 7th TMAC Workshop (Taiwanese Music and Audio Computing Workshop)
- Presenter, 2021 CSMC+MuMe (Joint Conference on AI Music Creativity)
- Volunteer, 21st ISMIR (International Society for Music Information Retrieval)
- Reviewer, 21st ISMIR (International Society for Music Information Retrieval)
- Mentee, WiMIR (Women in Music Information Retrieval)

Research Projects

Pitch Tracking for Polyphonic Music *2021 Fall - Now*
   Research lab project advised by Dr. Claire Arthur, GaTech
   - Leverage of my music theory knowledge for error analysis on existing works of f0 estimation
   - Building new machine learning system based on the analysis results

Optimization of Guitar Tablature Transcription Using Beat Information *2021 Fall*
   Audio Content Analysis course project supervised by Prof. Alexander Lerch, GaTech
   - Proposed a system that incorporates beat information during data preprocessing to improve the transcription result
   - Research on guitar pitch tracking/tablature transcription, and beat detection algorithm

EMOPIA Dataset [1] *2020 - 2021*
   Advised by Dr. Yi-Hsuan Yang, Academia Sinica, and Dr. Juhan Nam, KAIST
   - Compiled the EMOPIA dataset for future research on emotion-related tasks in MIR
   - Designed new model architecture to generate symbolic piano music with a target emotion
   - Compared the results with baseline models and tested with classification tasks

Beat Tracking for Classical Music [2] *2021 Spring*
   Advised by Dr. Yi-Hsuan Yang, Academia Sinica.
   - Analyze and modify the model based on the behaviors with domain knowledge in classical music
   - Designed new model architecture and training data to improve detection results on classical music

Loop Role Classification [3] *2020 Summer*
   Advised by Dr. Yi-Hsuan Yang, Academia Sinica.
   - Proposed the idea of using "roles" of the loops as classification target
   - Implemented the idea to a HCNN model and analyzed the errors and limitations

FreeSound Loop Dataset [4] *2020 Spring*
   Advised by Dr. Yi-Hsuan Yang, Academia Sinica.
   - Collaborated with researchers, and doctoral students from KAIST, MTG-UPF, and TikTok
   - Annotate audio files to create a dataset for loop music

Technical Skills

Machine Learning	Language: Python
	Tools: PyTorch, TensorFlow, Numpy, Scikit-learn, Matplotlib, Librosa
Research	Music Information Retrieval, Machine Learning, Data Analysis, Statistics, Audio Signal Processing
Others	Git, Linux, Latex, HTML, JavaScript, CSS
Musical Skills	Violin, Piano, Percussion, Conducting, Music Theory, Music History

Awards

Dean's Fellowship, School of Music, Georgia Institute of Technology *2021 - 2022*
The Butler School of Music Scholarship, The University of Texas at Austin *2015 - 2019*

Other Experiences

Georgia Tech Symphony Orchestra	*2021 Aug. - Now*
Philharmonia Moments Musicaux	*2020 - 2021*
Butler Opera Center Orchestra	*2019 April - May*
SXSW Audio Engineer	*2018 March*
University of Texas Symphony Orchestra	*2015 - 2019*
National Taiwan University Symphony Orchestra Concert Tour	*2017 Jul. - Aug.*