

Joann Ching

Email: jching9@gatech.edu | LinkedIn: [joann-ching](#) | GitHub: [joann8512](#) | Google Scholar: [joann-ching](#)

Education

- M.S. in Music Technology**, Georgia Institute of Technology, USA 2021 - 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

Peer-Reviewed Publications

- [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

Non-refereed Publications

- [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

Poster Presentations

- 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

Professional Involvement

- 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.