Jingyue Huang

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Education

University of California San Diego — *California, USA*
· *Ph.D. in Computer Science*, advised by Professor Julian McAuley — Sept 2024 - Present

New York University — *New York, USA*
· *M.S. in Data Science*, GPA 3.97/4.0 — Sept 2022 - May 2024
· Courses: Deep Learning for Media, Digital Signal Processing, Natural Language Processing

Fudan University — *Shanghai, China*
· *B.S. in Data Science*, GPA 3.7/4.0, Rank: 10/84 — Sept 2018 - June 2022
· Courses: Machine Learning, Fusion of Music and Computer Science, Database System

Experience

Music and AI Lab, National Taiwan University — *Taiwan*
· Research Assistant supervised by Professor Yi-Hsuan Yang — Mar 2023 - Present
· The development of an emotion-conditioned music generation framework.

HPC-AI Lab, National University of Singapore — *Singapore*
· Research Assistant supervised by Professor Yang You — Apr 2021 - Sept 2021
· The design of a weakly supervised learning method for Textbook Question Answering.

Knowledge Works Research Laboratory, Fudan University — *Shanghai, China*
· Research Assistant supervised by Professor Deqing Yang — Sept 2020 - June 2022
· The design of concept extraction and concept generation models for knowledge graphs.

Publications

[1] **J. Huang**, K. Chen, and Y. Yang, "Emotion-Driven Piano Music Generation via Two-stage Disentanglement and Functional Representation", in *Proceedings of the 25th International Society for Music Information Retrieval Conference, ISMIR 2024.*

[2] **J. Huang** and Y. Yang, "Emotion-Driven Melody Harmonization via Melodic Variation and Functional Representation", *arXiv preprint arXiv:2407.20176*, 2024.

[3] J. Ma, Q. Chai, **J. Huang**, J. Liu, Y. You, and Q. Zheng, "Weakly Supervised Learning for Textbook Question Answering", *IEEE Transactions on Image Processing*, vol. 31, pp. 7378–7388, 2022.

[4] S. Yuan, D. Yang, J. Liang, Z. Li, J. Liu, **J. Huang**, and Y. Xiao, "Generative Entity Typing with Curriculum Learning", in *Proceedings of the 2022 Conference on Empirical Methods in Natural Language Processing, EMNLP 2022.*

[5] S. Yuan, D. Yang, J. Liang, J. Sun, **J. Huang**, and K. Cao, "Large-scale Multi-granular Concept Extraction Based on Machine Reading Comprehension", in *Proceedings of the 20th International Semantic Web Conference, ISWC 2021.*

Projects

EMO-Disentanger ()

· *Advisor: Yi-Hsuan Yang, Professor | National Taiwan University*

· Developed a two-stage framework for emotion disentanglement in piano performance generation, modeling valence through lead sheet composition and arousal via performance-level attributes.

· Proposed a novel functional representation for symbolic music, encoding both melody and chords with Roman numerals relative to musical keys, to consider the interactions among notes, chords and tonalities.

EMO-Harmonizer ()

· *Advisor: Yi-Hsuan Yang, Professor | National Taiwan University*

· Developed a melody harmonization framework enabling melodic variations and chord re-harmonization driven by emotional conditions.

· Utilized Roman numeral formats to represent melody notes and chords relative to musical keys for symbolic music, considering the relationships between notes, chords and scales (major or minor).

Relating Chord to Emotion ()

· *Advisor: Magdalena Fuentes, Assistant Professor | New York University*

· Implemented an emotion estimation model through transfer learning and a chord recognition model with madmom.

· Analyzed the relation between major-minor tonality and valence-arousal values to explore the potential of reducing the frequency of misclassified chords by incorporating emotion information.

Music Recommender System

· *Advisor: Brian McFee, Assistant Professor | New York University*

· Developed a distributed system in Spark employing collaborative filtering to recommend music on the ListenBrainz.

· Compared the distributed system with a single-machine implementation regarding efficiency and accuracy.

WSTQ ()

· *Advisor: Yang You, Presidential Young Professor | National University of Singapore*

· Developed weakly supervised learning methods to investigate deep semantic comprehension of both text and diagrams for Textbook Question Answering (TQA), achieving the state-of-the-art results on CK12-QA and AI2D datasets.

MRC-CE ()

· *Advisor: Deqing Yang, Associate Professor | Fudan University*

· Built a concept extraction framework with machine reading comprehension model based on BERT to tackle concept shortage of knowledge graphs, resulting in 7,053,900 new entity-concept pairs for CN-DBpedia.

Scholarships and Leaderships

- **Outstanding Student Scholarship : 2021 - 2022, 2020 - 2021, 2019 - 2020**
- Vice President of Technology Education: Connecting Cultures (TECC), Fudan University
- Volunteer of TECC Summer Institute, Fudan University

Skills

- **Programming**: Python, SQL, C, R, and Matlab
- **Framework**: PyTorch, and TensorFlow
- **Language**: Native in Chinese; Fluent in English
- **Instrument**: Guitar, Guzheng