Mingyang Yao

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Education

University of California, San Diego   *Sept 2022 – June 2026*
BS in Mathematics and Computer Science   *(expected)*
BS in Cognitive Science with spec. in Machine Learning and Neural Computation
GPA: 3.928/4.000

Research Interests

○ Symbolic Music Generation and Music Style Transfer
○ Symbolic Music Information Retrieval
○ Multi-Modality on Music AI, including symbolic, audio, and text

Publications

From Generality to Mastery: Composer-Style Symbolic Music Generation via Large-Scale Pre-training Paper Link ↗

Mingyang Yao, Ke Chen
The Sixth Conference on AI Music Creativity (AIMC 2025); Oral Presentation

BACHI: Boundary-Aware Symbolic Chord Recognition Through Masked Iterative Decoding on Pop and Classical Music Paper Link ↗

Mingyang Yao, Ke Chen, Shlomo Dubnov, Taylor Berg-Kirkpatrick
Full Paper Submitted to ICASSP 2026 and Under Review

The development of FEDUPP: Feeding Experimentation Device Users Processing Package to Assess Learning and Cognitive Flexibility Paper Link ↗

Mingyang Yao*, Avraham M Libster*, Shane Desfor, Freiya Malhotra, Nathalia Castorena, Patricia Montilla-Perez, Francesca Telese
Full Paper Submitted to Journal and Under Review

Research Experience

Conditional Symbolic Music Generation| Independent Research   *Fed 2024 - March 2025*
Mentor: Ke Chen ↗ | Adobe Research

○ Developed and released ↗ a 16k multi-genre MIDI corpus with curated classical composer subsets and enhanced REMI tokenization with improved time signature handling and finer temporal resolution
○ Designed a two-stage training approach combining large-scale pre-training on diverse musical genres with targeted fine-tuning on composer-specific works, achieving superior few-shot style transfer compared to contemporary NotaGen-finetuned ↗.
○ Established a comprehensive evaluation framework incorporating quantitative style fidelity metrics, harmonic analysis, structural consistency measures, and human preference studies to assess compositional quality
○ Delivered complete research pipeline including reproducible codebase, demo ↗ page, and full manuscript accepted at AIMC 2025

Symbolic Chord Recognition| Independent Research   *June 2025 - Sept 2025*
Mentor: Ke Chen ↗, Taylor Berg-Kirkpatrick | University of California San Diego

○ Architected boundary-aware transformer combining piano-roll patch embeddings with FiLM-based bound-

ary conditioning and confidence-ordered masked decoding for chord root, quality, and bass prediction

- Demonstrated that confidence-ordered prediction strategy, inspired by human annotation practices, achieves state-of-the-art performance with more than 8% improvement over the best baseline on classical music benchmarks
- Curated POP909-CL dataset based on POP909 ↗ with expert chord annotations, enabling robust evaluation across popular music genres and contributing a valuable resource to the music information retrieval community
- Completed full manuscript currently under review at ICASSP 2026

Telese Lab | Research Assistant   *Sept 2023 - Present*
Principal Investigator: Francesca Telese

- Developed FEDUPP, the first comprehensive open-source Python pipeline ↗ for automated analysis of FED3 feeding device data, addressing a critical gap in behavioral neuroscience research tools
- Integrated machine learning algorithms including unsupervised clustering for data labeling and LSTM classifiers for temporal feeding pattern analysis, enabling multi-timescale behavioral assessment
- Led manuscript preparation as co-first author, contributing substantial portions of methodology, experimental design, and discussion sections while coordinating post-submission revision process
- Implemented computer vision pipeline using fine-tuned YOLOv11 and DeepLabCut software for automated video data processing and mouse trajectory tracking, demonstrating technical leadership in an interdisciplinary research environment

Teaching Experience

Instructional Apprentice   *Fall 2023*
Course: Cogs 18 - Introduction to Python | Instructor: Eric Morgan

- Hold Discussion and Office Hour for 3 hours per week
- Grade weekly programming assignments and exams
- 100% student recommendation rate

Reader/Grader   *April 2024 - Dec 2024*

- Math 154 - Discrete Math and Graph Theory (Spring 2024; Professor William Wesley)
- Math 20D - Introduction to Differential Equations (Fall 2024; Professor Rishabh Dixit)

Related Honors and Awards

Chinese Musicians' Association (CMA) Piano Graded Examination (Amateur), Level 10 Certificate (2015)

UCSD Provost Honor (2022-2025)

UCSD Student Research Assistant Summer Fellowship (2024)