

Editorial

Perspectives on Artificial Intelligence for Art

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Recent advances in Large Language Models (LLMs), Retrieval-Augmented Generation (RAG), and Computational Aesthetics (CAe) have emerged as powerful driving forces for art generation and understanding, drawing increasing attention from both academia and industry. Researchers are actively exploring human-AI co-creativity and collaboration of AI art. AI applications now extend to art historical research, cultural heritage revitalization, and cross-cultural analysis. AI has not only demonstrated significant creative potential but has also stimulated interdisciplinary research spanning neuroscience, cognitive science, psychology, literature, art history, and media and communication studies. This collection on AI for Art, published in the *Transactions on Artificial Intelligence (TAI)*, brings together fascinating cutting-edge research. We believe it will advance the state of the art in both fundamental AI techniques and their application to art creation and understanding domains.

The articles in this collection span a rich spectrum of challenges in AI for Art, covering topics from AI for music (2 articles) and AI for culture (3 articles) to emotion recognition (1 article) and curatorial practice (1 article). The diversity and depth of these contributions underscore the evolving synergy between cutting-edge AI technologies and Art applications.

The first article titled “EMelodyGen: Emotion-Conditioned Melody Generation in ABC Notation with Musical Feature Templates” presents EMelodyGen, a system for generating melodies in ABC notation guided by emotional conditions. To address the lack of emotionally labeled data, the method leverages statistical correlations from small labeled datasets and principles from music psychology. This approach guides the automatic annotation of a large, well-structured sheet music collection, creating the Rough4Q dataset after format conversion and augmentation for label balance. The system backbone, pre-trained on Rough4Q, achieves a high music21 parsing rate.

The second article titled “MIRTracks: A Large-Scale Multi-Dimensional Multi-Track Music Dataset” proposes MIRTracks, a large-scale, royalty-free multi-track audio dataset designed to overcome the limitations of traditional source separation datasets, such as limited annotation dimensions and semantic gaps. It features high-quality, multi-dimensional musical semantic annotations across several genres, achieved through a semi-automated pipeline. Experiments show that fine-tuning models on this dataset leads to significant performance improvements in downstream tasks like beat detection.

The third article titled “RiverEcho-2.0: A Real-Time Interactive System for Yellow River Culture via Enhanced MultiModal Document RAG” introduces RiverEcho-2.0, a real-time interactive digital system designed to conserve and promote the cultural heritage of the Yellow River. The system is built upon a dedicated multimodal corpus of curated and digitized documents. To effectively utilize this corpus, a novel multimodal Retrieval-Augmented Generation (RAG) framework is proposed, which enhances retrieval through improved image-text alignment and joint embedding. The experimental results show that this method outperforms existing multimodal RAG baselines and improves performance on downstream tasks.

The fourth article titled “Verse-in-Wine: A Generative AI Framework for Chinese Calligraphy Painting with Drinking Culture” proposes Verse-in-Wine, a generative AI framework that integrates Chinese classical poetry, wine culture, and calligraphy painting. The system uses user-selected keywords to recommend poetic lines, associate them with symbolic wines and historical calligraphy styles, and synthesize coherent visual outputs. Evaluations through



both automated methods and user studies confirm the system’s cultural fidelity and usability. The framework demonstrates how generative AI can meaningfully connect related cultural heritages for artistic expression.

The fifth article titled “The Measure of Resonance: A Computational Cross-Cultural Analysis of Floral Poetics in Tang and Renaissance Verse” presents a computational framework to systematically compare the peony in Tang-dynasty Chinese poetry and the rose in Renaissance English sonnets. By modeling these flowers as symbolic forms through multi-method analysis, the study finds a shared preoccupation with beauty and transience, yet reveals a structural complementarity in their poetic framing. The work offers both a cross-cultural insight and a scalable methodological paradigm for comparative literary studies.

The sixth article titled “RPGCN-GDA: Regionally Progressive Graph Convolutional Network with Gender-Sensitive Domain Adaptation for EEG Emotion Recognition” addresses the limited generalization of EEG-based emotion recognition models by proposing a Regionally Progressive Graph Convolutional Network with Gender-Sensitive Domain Adaptation (RPGCN-GDA). The model is designed to capture gender-specific brain connectivity patterns using a progressive graph structure based on prior knowledge of gender differences. By fusing hierarchical emotional features and adaptively aligning data distributions across genders, the RPGCN-GDA model enhances generalization in both cross-subject and cross-gender recognition tasks.

Finally, the seventh article titled “CurateXelerator: A Collaborative Human-AI Framework for Accelerating Curatorial Practice” addresses the limitations of current AI in generating accurate and interpretively deep curatorial texts by proposing “CurateXelerator”, a collaborative Human-AI framework. It integrates a structured input strategy into the curatorial workflow to enhance text generation. Evaluations show that the framework produces texts superior to baseline AI prompts in key qualitative aspects. The research provides a validated collaborative framework and insights for integrating AI into human-centered creative practices.

Together, these articles reflect key advancements in AI models for art and culture. They exemplify the fusion of technology, art, and culture. Based on developing tendencies in Multimodal Large Language Models (MLLMs), Multimodal Agents, and Embodied Intelligence, we can look forward to more fruits in AI for Art.

We hope this collection will serve as a valuable resource for researchers and practitioners interested in the future of AI for Art.

Conflicts of Interest

The author declares no conflict of interest.

Use of AI and AI-Assisted Technologies

During the preparation of this work, Luntian Mou used DeepSeek to refine part of the writing. After using this tool, Luntian Mou reviewed and edited the content as needed and takes full responsibility for the content of the published article.

Author Biography

Luntian Mou is an Associate Professor and Master’s Supervisor at the School of Information Science and Technology and the Beijing Academy of Artificial Intelligence, Beijing University of Technology. He holds a Ph.D. from the University of Chinese Academy of Sciences, completed postdoctoral research at Peking University, and was a visiting scholar at the University of California, Irvine. His research focuses on artificial intelligence, machine learning, multimedia computing, affective computing, AI art, and brain-inspired computing. He has led or participated in more than ten national-level projects and has received awards including the First Prize for Technological Invention from the China Highway and Transportation Society and the Second Prize for Beijing Scientific and Technological Progress Award. With over 20 years of experience in multimedia technology standardization, he has led the development and publication of 4 National Standards and 3 International Standards. He is a four-time recipient of the AVS Industrial Technology Innovation Award (including the Individual Outstanding Contribution Award for the 15th Anniversary of AVS) and a three-time recipient of the IEEE Standardization Outstanding Contribution Award. His standardization-related work also earned him the Best Paper Award at the International Conference on Social Robotics (ICSR). He has published over 40 research papers in top-tier journals and international conferences and edited the world’s first international technical monograph in AI art. He holds 4 authorized international patents (U.S., EU, Japan, Korea) and 3 national patents. He serves as an Associate Editor for *Transactions on Artificial Intelligence (TAI)* and a Guest Editor for *Machine Intelligence Research (MIR)*, and regularly reviews for over 20 IEEE/ACM Transactions including *TPAMI*, *TIP*, *TAFFC*, *TMM*, and *TOMM*. He is a Senior Member of IEEE, CCF, and CSIG, and holds multiple committee memberships, including Executive Committee Member of the CCF Technical Committee on Multimedia, committee roles in several CSIG

and CAAI technical committees, and membership in the Beijing Artists Association's Experimental Art Committee. He is also the Co-Chair of the AVS Working Group Systems Subgroup, an expert in the Chinese MPEG delegation, Chair of the Organizing Committee for the 1st CSIG Conference on Emotional Intelligence, and the Founding Chair of the IEEE International Workshop on Artificial Intelligence for Art Creation (IEEE AIART).