Complexity

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Special Issue on
Complex Systems in Aesthetics, Creativity and Arts

CALL FOR PAPERS

One of the main - possibly unattainable - challenges of computational arts is to build algorithms that evaluate properties such as novelty, creativity, and aesthetic properties of artistic artifacts or representations. Approaches in this regard have often been based on information-theoretic ideas. For example, ideas relating mathematical notions of form and balance to beauty date to antiquity. In the 20th century, attempts were made to develop aesthetic measures based on the ideas of balance between order and complexity. In recent years, these ideas have been formalized into the idea that aesthetic engagement occurs when work is on the "edge of chaos," between excessive order and excessive disorder, formalizing it through notions such as the Gini coefficient and Shannon entropy, and links between cognitive theories of Bayesian brain and free energy minimization with aesthetic theories. These ideas have been used both to understand human behavior and to build creative systems.

The use of artificial intelligence and complex systems for the development of artistic systems is an exciting and relevant area of research. In recent years, there has been an enormous interest in the application of these techniques in fields such as visual art and music generation, analysis and performance, sound synthesis, architecture, video, poetry, design, game content generation, and other creative endeavors.

This Special Issue invites original research and review articles which will focus on both the use of complexity ideas and artificial intelligence methods to analyze and evaluate aesthetic properties and to drive systems that generate aesthetically appealing artifacts, including: music, sound, images, animation, design, architectural plans, choreography, poetry, text, jokes, etc.

Potential topics include but are not limited to the following:

- ▶ Computational aesthetics
- ▶ Formalising the ideas of aesthetics using ideas from entropy and information theory
- ▶ Computational creativity
- ▶ Artificial Intelligence in art, design, architecture, music, and games
- ▶ Information Theory in art, design, architecture, music, and games
- ▶ Complex systems in art, music ,and design
- ▶ Evolutionary art and music
- ▶ Deep ;learning models to art and video creation
- ▶ Artificial life in arts
- ▶ Swarm art
- ▶ Pattern recognition and aesthetics
- ▶ Cellular automata in architecture
- ▶ Generative AI

Authors can submit their manuscripts through the Manuscript Tracking System at https://review.wiley.com/submit?specialIssue=941484.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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