

CALL FOR PAPERS

Artistic behavior is a universal trait of the human species and one of the most valued qualities of the human mind. Early pioneers of computer science, such as Ada Byron and Alan Turing, showed an interest in using computational devices for art-making purposes. However, artistic and aesthetic taste is very challenging to model on computers, because it is subjective and culturally dependent and varies over time.

The last 15 years have seen significant growth in the area of computing applied to aesthetics and arts. A major reason for this growth is the use of complex adaptive systems. Techniques and ideas such as evolutionary computation, artificial neural networks, artificial life, cellular automata, ant colony optimization, fractals, and chaos have been employed both in the generation of artistic images and musical sounds and in the aesthetic evaluation of artworks. These techniques have been applied to fields such as design, robotic art, architecture, choreography, curation, interactive art, performance, literature, poetry, and music generation. Recent developments in the field have included the development of systems that (i) generate artistic or aesthetic works in a way that is independent of direct human interaction, based only on a set of examples or theories, (ii) are able to identify the creator of a painting or a song, (iii) predict the perceptual complexity of an image, and (iv) transfer the style of a particular set of images onto other unrelated images. Finally, artworks based on complex systems are regularly exhibited and collected by major international museums and art galleries, and such works have been sold as artworks alongside human created work.

This special issue will provide an opportunity to review the state of the art of this emerging and cross-disciplinary field. Authors are invited to present new models of human aesthetics or related measures, both alone or inside a generative system. Original research papers related to new techniques such as style transfer, or novel ways of using complex adaptive systems in creative art generation, supported by experimental data, are especially welcome. We encourage state-of-the-art papers that explore new trends in complex adaptive systems in arts or analyze a specific domain or technique.

Potential topics include but are not limited to the following:

- ▶ Complex systems based on evolutionary computation and artificial neural networks
- ▶ Cellular automata, artificial life, chaos theory, and so on, applied to the creative arts and aesthetics
- ▶ Complex systems that model or predict human aesthetics and other related measures such as perceptual image complexity, symmetry, novelty, and emotional response
- ▶ Complex systems that generate images, videos, designs, architectural forms, 3D forms, web pages, music, text, games, and so on
- ▶ Systems in which an analysis or interpretation of the artworks is used in conjunction with complex systems to produce novel objects
- ▶ State-of-the-art overviews in the use of one of these techniques (evolutionary computation, artificial neural networks, cellular automata, fuzzy systems, chaos, etc.) in art and aesthetics
- ▶ Models of human aesthetics as part of complex system

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/complexity/csaa/>.

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

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