

I Believe In AI's Artistic Ability: Perceived Creativity of Machines and the Evaluation of Their Artistic Performance

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Abstract

Two studies were conducted to see what variables influence the evaluation of artistic performances of AI, music composing and painting. While two studies focused on different factors, they both found that public acceptance of creative AI played a crucial role. Implications of the findings for application and theory are discussed.

Machines and Art

There has been consistent effort to create machines with artistic performance. The endeavour to develop AI musicians started even before the term “artificial intelligence” was familiar to the public (Roads 1980; Roads 1985). There are now multiple tech companies that provide music created by AI composers. Similarly, there are already many visual art products made either by or with AI technology, such as Google's DeepDream project. We should now shift our focus and discuss how people see those machines' artistic performances. This has not been done enough.

There are now growing attempts to measure the subjective appreciation of art (Lindell and Mueller 2011). Measuring artistic appreciation can help find factors that influence the evaluation of machine-created artwork, which in turn can help create AI artists that perform in ways that people prefer. However, do the attributes of AI artists matter to the assessment of their performance? What about people's attitudes toward machine's creativity?

Evaluating Machine-Created Art

Multiple studies have examined how people react to machine-created art (Hong and Curran

2019; Hong et al. 2020). Chamberlain et al. (2017) conducted an experiment and found that participants held biases toward computer-generated art, though this bias was reverted when researchers showed them the humanlike aspects of the AI artist. Based on the previous studies, it can be argued that people's attitudes and bias toward machine's creativity are assumed to be a crucial component when it comes to assessing machine-created artwork. There are two recent studies to confirm the argument.

Recent Studies about Machine-Created Art

Experiments with different types of machine-created art, painting and music, were conducted to see how people evaluate them.

Painting

The first study examines how people evaluate artwork created by AI and how an artist's identity (Human vs. AI) affects individuals' evaluation of art. Drawing on Schema theory and Computers Are Social Actors (CASA), this study used an experiment controlling the identity of the artist (AI vs. Human) and types of artwork (AI-created vs. Human-created). After seeing images of six artwork created by either AI or human artists, participants (n=288) assessed their artistic value using a validated scale commonly accepted by art professionals.

The study found that human-created artwork and AI-created artwork were not judged to be equivalent in their artistic value. While the artists' identity—either AI or human—did not influence the assessment of artistic value, having a belief that AI cannot make art led to a negative assessment of AI-created artwork.

Music

The second study uses an experiment to test evaluations of machine-composed music. Three parameters were examined: the met or unmet expectations about AI-composed music; whether the music is better or worse than expected; and the genre of music. A 2 (expectancy violation vs. confirmation) x 2 (positive vs. negative evaluation) x 2 (electronic dance music vs. classical) research design was applied. Researchers also examined the relationship between attitudes toward machine creativity and music evaluation. Participants (n=299) in an online survey listened to a randomly assigned AI-composed music piece and evaluated it.

The acceptance of creative AI led to higher ratings of AI-composed music. A two-way interaction between the expectancy violation and its valence, and a three-way interaction between the expectancy violation, its valence, and music genre were also found.

Machine Creativity Perceptions

Findings from the two studies above demonstrate the relationship between machine creativity perception and assessing AI-created artwork. People with more positive attitudes toward machine creativity tended to give higher ratings to artwork created by machines. In other words, the evaluation of machine-created artwork may be a representation of bias toward machine creativity. In order for the creative output of machines to be appreciated, people must first be persuaded that machines can be autonomously creative.

The recent AI technology achieved the level where people cannot distinguish AI-created paintings from human-created ones (Chamberlain et al. 2017). If people still prefer human being's art performance over a machine's performance, it is highly likely due to their bias toward creative machines. There is still a reluctance towards endowing machines with creativity. Even though it is found from those studies that acknowledging machines as artists plays a crucial role, what leads to the acceptance of this idea has not been studied enough. In order to advance the field of machine-made art, this

paper urges future studies to investigate the elements that influence people to have positive attitudes toward machine creativity.

References

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Biography

Joo-Wha Hong is a Ph.D. student at the Annenberg School for Communication and Journalism at the University of Southern California. His research interests have included the cognitive and psychological attributes in Human-computer interaction, particularly AI.