

Hybrid Innovation with Artificial Intelligence

Personal Subjectivity: Conceptualization

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Abstract

This research aims to identify the most influential artists who used artificial intelligence (AI) in the process of hybridization as a tool for innovation and to specify their most evocative art projects. The different languages that artificial intelligence is using in the development of collaborative projects of artists and professional groups related to science and technology are determined. Also, a conceptual and practical project is configured that serves to develop artistic projects with AI and to be able to conceptualize the personal subjectivity that these hybrid art forms propose.

Introduction

The first block is dedicated to the study of the theoretical and historical context that defines the process of hybridization in art. For its development, a set of the most evocative artistic projects of the great masters of design are selected in which the cognitive factors are used in its configuration and the related practical elements that are used to create the appropriate hybrid art forms are specified. Also, in this first part of the text, it is important to carry out an etymological analysis of the term 'Hybridization'.

In the second block, an analysis of AI resources that are used to create hybrid works of art will be carried out. The relationship between technology and art will be studied, following in the footsteps of artists such as Harold Cohen and Karl Sims. A series of artistic practices will be introduced that use AI resources to propose interdisciplinary forms of artistic expression and to offer innovative user experiences. This research deals with the question of the concept of 'hybrid art' as an expression of personal subjectivity and that of AI as an expressive tool.

The third block is dedicated to the description of the theoretical and practical concept of the project. Its relevance to the future is explained and the context that it will be used is described. Furthermore, what was the inspiration to propose this project and the creative process of that will be outlined.

Hybridization

Hybridization refers to sociocultural processes in which discrete structures or practices, which existed separately, combine to generate new structures, objects and practices (Canclini 2005).

In the field of art, hybridization is the crossing between heterogeneous and is one of the techniques most relevant in the field of creativity and innovation. Hybridization is a hermaphrodite that permits rapidly using 'their ideas' and generating different eagle concepts.

Not all art forms are pure or thoroughbred. Some are hybrids. Hybrid status is primarily a historical thing, as is, in a way being a biological hybrid. An art form is hybrid one in virtue of its development and origin, in virtue of its emergence out of a field of previously existing artistic activities and concerns two or more of which it in some sense combines. In short, hybrids are art forms arising from the actual combination or interpenetration of earlier art forms (Levinson 1984). The principle of hybridization is universal. In the spirit and dynamism of artistic, scientific and technological revolution, hybridization is an unprecedented advancement and expansion in the possibilities for the representation of new art forms, convergence of media and technology, cross-disciplinary or multi-disciplinary human capital, applying unlimited processes and medium, valuing creative minds, embracing different cultures of origin and supporting the activity of combining them. Above all, the result of hybridization is controlled by aesthetics. Artists are given the freedom to explore art in their own creative and innovative methods, demonstrating skills, versatility and originality while providing insight into their individual aesthetic styles (Rahman 2007).

Personal Subjectivity

Subjectivity has been given various and ambiguous definitions by different sources. These varying definitions of subjectivity are often used together and interchangeably. However, it is related to ideas of consciousness, person-

hood, philosophy of mind, reality, and truth (Bykova 2018).

The term is most commonly used as an explanation for that which influences, informs, and biases people's judgments about truth or reality, it is the collection of the perceptions, experiences, expectations, and personal or cultural understanding of, and beliefs about, an external phenomenon, that are specific to a subject (Gonzalez Rey 2019).

Art could be subjective because it is an expression of personal perspective. It could also be subjective because we are all people with different tastes and preferences. For example, while a contemporary sculpture or painting might be considered 'beautiful' to one person, another viewer may perceive the same piece as 'ugly'. Despite this, the material art object remains unchanged.

Although subjectivity could be foregrounded as the most appropriate response to a work of art, it threatens to overlook the fact that tastes and preferences do in fact change over time, just as morals and public standards change too. In other words, subjective taste has a historical dimension, which should not be dismissed.

Therefore, it is important to delve deeply into the concept of 'Hybrid art', understanding it from a contemporary point of view in which subjectivity might play a small role.

Hence, this research has a look at the precursors of a non-expressive art, from times before the experimentations with AI, such as minimalism, and deals with the question whether these hybrid art forms created with AI should necessarily have to be expressive. Also, and hand in hand with the question of the expression of subjectivity, it is important to explore whether there is an intersubjective dimension in generative AI. Could artistic AI mediate human intersubjectivity? The focus of this research is not only on AI but on the mediations that AI (just like any other resource that can be used by art) can provoke in the interpersonal and collective.

Background of the use of artificial intelligence in works of art

Many artistic experiments of the twentieth century brought innovations to design. It showed how hybridization is possible and opened new possibilities for design and art. The result was that around the sixties and seventies, many artists attempted to bridge the gap between technology and science. A deeper and more complex type of hybridization appeared that was encouraged by emerging digital technology that broke radically with traditional techniques.

In contemporary art, works of art created with frontier areas of science and emerging technologies such as biology, robotics, physical sciences, experimental interface technologies such as speech, gesture, face recognition, artificial intelligence, and information visualization included in hybrid art forms.

The generation of artistic projects through artificial intelligence dates back several decades. First there was Harold Cohen, a British computer artist and author of

AARON, perhaps the longest-living artificial intelligence program in daily use. Since the 1980s, many artists, including Karl Sims, Scott Snibbe, Golan Levin, Scott Draves, Jason Salavon, and Zachary Lieberman, have created works of art by writing computer programs that generate static images or create interactive art experiences or performance installations.

In 2006, Simon Colton, a researcher at Imperial College London, created *Painting Fool*, a digital program that uses artificial intelligence resources such as Machine Learning and Natural Language Processing to make pictorial productions (Colton, 2008). Colton says, "The goal of this project is to build an automated 'painter' that will one day be taken seriously as a creative artist in its own right" (Colton, 2015, p. 189).

In 2014, researchers at the J. Walter Thompson advertising agency in Amsterdam, using artificial intelligence, created a 'new' portrait of Rembrandt. This portrait was made up of 148 million pixels printed on 14 three-dimensional layers and they called it *The Next Rembrandt*. This digital painting sparked controversy and raised disturbing questions about the nature of human intelligence and the meaning of creativity (Male, 2019, p. 566). Art critic Jonathan Jones wrote in *The Guardian* "What an awful, insipid, callous, soulless parody of everything in human nature" (Jones, 2016, para. 2).

Google DeepDream in 2015, Magenta in 2016, and SketchRNN in 2017 are research projects by the Google Brain team that explore the role of machine learning in the process of creating digital painting, music, and drawing. According to Douglas Eck, a researcher at Google Brain, AI "is not only creating new types of art, but it is creating new types of artists" (Google, 2019).

The 'Vincent Machine' in 2017 and the artificial intelligence system of the team of researchers from Charleston College in South Carolina, USA, Rutgers University in New Jersey and Facebook's AI laboratory in California, created images of different artistic styles based on the Generative Adversarial Network [antagonistic generative networks].

Also noteworthy are the works carried out by Mario Klingemann, German artist-in-residence at Google Arts and Culture, and the Spanish artist Albert Barqué-Duran, who have designed a neural network capable of producing pictorial productions.

Theoretical and conceptual description of the Project

'Posthuman fashion design' is an artificial intelligence project with hybrid design representations, hybrid processes, and hybrid materials.

In the current development of artificial intelligence, cyborg technologies, and robotics, this 'AI programme' represents the transformation of human fashion design into posthuman fashion design. The fashion industry is increasing and its levels of complexity will require smarter systems that can guide clothes manufacturers in the design

process much earlier, therefore, the fashion design today needs to move beyond current design tools.

This project is being inspired by adopting AI tools such as model-based reasoning systems and AI-based tools for virtual reality. In artificial intelligence, model-based reasoning refers to an inference method used in expert systems based on a model of the physical world. Then at run time, an 'engine' combines this model knowledge with observed data to derive conclusions such as suggested designs for the fashion industry.

This 'AI programme' in the live interaction with the nude body of its audience and based on their physical appearance collects data on them to find what better suits them. It designs what best fits each audience and chooses for them clothes fabric, colors, and preference of style. Whether it is a formal suit or casual clothing this AI will get the customers exactly what they want, or help them to find out what they want. Everyone wears clothes, and most want the best of the best style. This 'AI programme' will consider an integrated view of all possible manufacturing options and materials at the start of the design process to drive real fashion innovations.

The 'Posthuman fashion design' programme will create diverse 3D geometries images to suggest extensive options for the production of cost-effective designs with the most appropriate fabrics. In this way, we can fully grasp the features of the final fashion product and thus understand all the detailed information that will be required for manufacturing them.

At this point, virtual reality will make possible the representation of the final design on the nude body of the audience. The VR projection system creates striking visualizations of suggested fashion designs via 3D ultra-short-throw (UST) projectors on clients and transforms the audience's nude body into a live virtual fashion show.

To succeed in this project, we will need to enhance a human fashion designer's role by having our tools represent, plan, and manage complex, graded geometries and multiple length scales for clothes and materials, at the same time, asking the fashion designer to include domain-specific expertise and experience to curate designs efficiently.

This 'AI programme' gives customers the best look possible by designing multiple garments and changing the colors to see which shade better suits their skin tone, body shape, and what makes a better match for an outfit. As we know, the fashion industry is one of the top money-making industries in the world. Artificial intelligence will do nothing but make everything better, from the designs to the productions and helps clients to have new looks that they don't already have. This ensures that consumers leave happy and keeps them coming back every season to update their seasonal look. This AI project is going to change the way the fashion industry designs perfectly tailored products.

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