

USE OF AI IN THE CONTEXT OF FASHION AND RELATED INDUSTRY.

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Abstract

Artificial intelligence (AI) is revolutionizing everyday tasks, enhancing processes and improving efficiency, positioning it as a powerful tool for optimizing time for producers and customers. Beyond efficiency, AI influences cultural behaviors and aesthetic preferences, opening up new opportunities for creative expression. In the fashion industry, AI supports designers and retailers by offering personalization and automation to enhance user experience amidst a landscape of abundant fashion choices. This paper examines the impact of AI on the fashion industry as both a technological innovation and a cultural influencer, referencing Gilles Lipovetsky's theories on consumer psychology. The semiotic and dynamic nature of fashion is touched upon through the theory of Yuri Lotman (1922–1993) and Roland Barthes (1915–1980), as well as the dynamic contemporary processes

and technologies through the perspective of Lev Manovich (1960–) and Emanuele Arielli (1972–). AI is shown to drive creative exploration and cultural diversity within fashion, while highlighting the human element in the aesthetic process.

Keywords: AI, Fashion industry, Cultural influence, Creative expression, Automation

Introduction

Artificial intelligence is transforming the way we perform our daily tasks, redefining processes and increasing their efficiency. Thanks to this, AI is increasingly perceived as a means of optimizing time and effort, both by manufacturers and consumers. At the same time, it influences our cultural choices and behavior, providing new opportunities for creative development and interaction with the world. With the development of technology, AI continues to push the boundaries of what is possible in various fields - from photography and design to fashion trends and social media, emphasizing the importance of the human factor and generally accepted cultural norms in the process of aesthetic creation.

The text explores the interaction and use of AI in the fashion industry. According to the theory of the French sociologist Gilles Lipovetsky (1944–), the growing variety of fashion items, can cause feelings of insecurity and anxiety in consumers. Given this background, AI has been interpreted as a tool for optimizing and improving the user experience through personalization and automation. AI technologies help designers and retailers effectively address the challenges of a rapidly changing fashion market by providing tools to better understand and engage customers. Furthermore, AI plays a role in pushing creative boundaries and increasing people's creative abilities, thereby contributing to cultural and aesthetic diversity in the fashion industry. This study touches upon the semiotic and dynamic essence of fashion through the theory of Yuri Lotman (1922–1993) and Roland Barthes (1915–1980), as well as the dynamic contemporary processes and technologies through the perspective of Lev Manovich (1960–) and Emanuele Arielli (1972–). In this context, where fashion is understood as a semiotic and dynamic shaped both by cultural conventions and by contemporary technological processes, the relationship between human creativity and computational tools is particularly relevant. The ever-advancing AI and the human with their creativity and cognitive abil-

ities are complementary. AI can support and enhance human activities, reducing the individual's efforts, while human critical thinking and creativity remain central to the human-AI relationship.

The definition of **fashion** given by Vincent Colapietro (1950–) in *Glossary of Semiotics* reads: “An area of semiotic inquiry opened up, in a systematic way, by Roland Barthes’ *The Fashion System* (1967 [1983]). Just as our buildings are designed to do more than shelter us, our clothes are fashioned to do more than clothe us. They are one of the ways we make statements about ourselves.” (Colapietro 1993: 104). The current work, while adhering to this definition and further developing it with Lotman’s understanding of the term “fashion”, will use the opportunity to interpret it both as a whim and as an innovative creativity. Both in need of an audience. (1998: 93).

The definition of **AI** is broad and includes data mining, natural language processing, and machine learning. According to the *Britannica* dictionary, AI is: “the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. The term is frequently applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalize, or learn from experience. Since their development in the 1940s, digital computers have been programmed to carry out very complex tasks - such as discovering proofs for mathematical theorems or playing chess - with great proficiency. Despite continuing advances in computer processing speed and memory capacity, there are yet no programs that can match full human flexibility over wider domains or in tasks requiring much everyday knowledge. On the other hand, some programs have attained the performance levels of human experts and professionals in executing certain specific tasks, so that artificial intelligence in this limited sense is found in applications as diverse as medical diagnosis, computer search engines, voice or handwriting recognition, and chatbots.” (Copeland 2025) The definition given in a Statista study, part of which will be used in the report, reads: “Artificial intelligence (AI) is a branch of computer science that focuses on creating machines able to perform tasks traditionally requiring human intelligence, such as perception, reasoning, and learning. The Artificial Intelligence (AI) market includes a wide range of applications, such as speech recognition, image processing, and autonomous vehicles and has seen rapid growth in recent years due to advancements in technology and increased investment. The Artificial Intelligence (AI) market includes software, hardware, and services that enable organizations to develop and deploy AI applications.” (Statista 2024).

AI in e-commerce

The practical application of AI redefines everyday tasks and their performance in an innovative way. Thanks to data from Statista, last updated in March 2024, we know that the AI market is expected to reach a value of US\$ 184 billion in 2024. The projected annual growth rate for the period 2024-2030 is 28.46%, suggesting that the market volume will grow to USD 826.70 billion by 2030. Globally, the largest market share will be in the United States, where the market size is expected to reach USD 50.16 billion in 2024. (Statista 2024). From the information provided, AI is increasingly being perceived as a means of improving our daily lives as manufacturers and consumers. This is mainly due to the optimization of time and effort. Adequately adapting to the ever-changing horizon of trade requires businesses to offer their services and products online in a timely and appropriate manner. This also applies to the fashion industry which also faces the challenge of attracting, retaining and keeping the attention of the fashion consumer, turning him into a loyal customer. According to Geopost data from January 2024, the most frequently ordered goods online are from the fashion clothing industry and occupy 58% (Geopost, n.d.). In the e-commerce sector specifically, artificial intelligence consists not only of human-like robotics, but the training technologies and algorithms which provide the foundation. By implementing AI in e-commerce, merchants can provide optimized customer experience to visitors to their sites through accumulated business and customer data. The information collected is used for better, high quality analyses, as well as for better forecasting of the future. Given the exponential progress in technology, every day sees new improvements, innovations, proposals which compete for the attention of not only online merchants, but also representatives of their target audience. AI technologies are a powerful tool for both increasing sales and optimizing operations.

The article entitled “Artificial Intelligence in Ecommerce: How This Rapidly Evolving Tech Will Change the Online Storefront”, published on the website of one of the leading e-commerce platforms – BigCommerce.com, highlights some of the ways in which AI is developing the sector and expanding the boundaries of what can be achieved by e-commerce. (BigCommerce, n.d.). Among other aspects, more targeted marketing efforts and advertising are mentioned. Personalizing advertising messages across any communication channel of stores and brands is essential. The analysis of large amounts of data regarding purchase history and interactions of all kinds with customers allows for their deeper understanding and, accord-

ingly, a more concentrated distribution of the message which will resonate for the longest in terms of reaching the right audience. In turn, personalized marketing and advertising messages also have an impact in terms of customer retention. (BigCommerce.com). Another aspect is the performance of operational tasks with as little human intervention as possible (automation of processes where the implementation of AI is possible). This includes scheduling email campaigns in CRM and other marketing tools, product recommendations, providing discounts for loyal customers, etc. (BigCommerce, n.d.).

The sales process is also undergoing changes, leading to facilitation and increased results. The commercial sector of fashion items and acute competition between retailers and fashion brands imply increased attention and special care to potential and current customers. Usman Aslam indicates that, unlike mainstream brands, fashion brands are more focused on personal expression and individuality. The emphasis falls on identity, aesthetics and style, which makes them more challenging to promote before a wide audience (*Understanding the usability of retail fashion brand chatbots: Evidence from customer expectations and experiences*, 2023). In turn, behavior changes as a result of the numerous choices in front of them and customers become more demanding and impatient. One way to further support the sales process is to introduce chatbots as a valuable tool for improving service. They provide a quick real-time solution to the requests of demanding and eager customers. Therefore their implementation in the fashion industry is becoming an increasingly common practice. Among the examples of chatbots which have successfully implemented on their websites are brands such as Victoria's Secret, Louis Vuitton, Tommy Hilfiger, Burberry and others. ("Fashion chatbots do they really work", n.d.)

Types of diversity

The regular performance of certain tasks and activities in combination with created habits indeed optimized the time and resources needed for their implementation. However, at the same time, it creates an obstacle for the people involved in work, since it limits the perimeter of creative development and mixing techniques. Manovich highlights the role of AI in culture and the growing influence on our choices, behaviors and imagination (Manovich & Arielli 2024). In addition to recommending photographs, music and other types of media files, AI also automatically enhances photographs and selfies to meet socially accepted norms for in the context of contemporary culture in its digital form (Manovich 2018: 2) The emphasis falls on the importance of distinguishing between types of diversity. One

type is defined as “diversity of content” (2018: 7), referring to objects created in a particular cultural area. In the context of the above-mentioned photographs, this refers to the techniques and styles, including the filters provided for use. The second aspect of cultural diversity concerns consumer choice. Modern fashion designers around the world can create fashion items characterized by a variety of styles, silhouettes, shapes, textures and colors. However, this does not mean that the range of goods which fashion consumers buy and apply in their clothing will not be significantly more limited. On the other hand, the reason for the great variety can be attributed to the fact that in their desire to create a unique look, a large part of consumers combine different elements in their clothing which are not offered by designers and retailers. (2018: 7).

Such photographs and media artifacts find application in several social networks online. In “*Instagram and Contemporary Image*” (2017), Manovich focuses on Instagram, originally released as an iPhone app in 2010 and calls it “a good example of the new era of mobile photography” (Manovich 2017). Here again, as in the above paragraph, we are talking about combining elements. In the case of Instagram, they are taken from various contemporary and historical greens, as well as from commercial and marketing proposals (Manovich 2017: 137). A comparison for such a combination is also given with some of the world’s best fashion designers, such as Alexander McQueen, John Galliano, Jean-Paul Gaultier (Manovich 2017: 137). “Instagram” at the time was a neologism. The initial idea of the application was related to speed of decision-making and swiftness of action, but now the modern visually sophisticated audience and representatives of the global creative class use it in the opposite way – for the purpose of visual pleasure (Manovich 2017: 95). Again, thanks to Manovich, we know that, as in other cultural areas, the choices of Instagram users (liked photos, followed users, posted photos) can serve to legitimize the economic and social status of a given user (Manovich 2017: 40). The legitimization of such a status can also occur in an identical way to what is communicated through the clothing of the fashion consumer. For its part, adapting and coordinating certain decisions means consistency and applies to any “design of life”, not only those communicated on the social networks. The practical application of the above skills leads to the creation of cultural capital, the measures of which are respect in the community and the number of followers. Affirmation in the community leads to the transformation of cultural capital into economic capital. This is when the consumer begins to collaborate with representatives of both the commercial sector and advertisers (Manovich 2017: 99–117).

From Roland Barthes (*Camera Lucida: Reflections on Photography*, 1981) we know that the photo portrait is an intersection of forces. Standing in front of the lens, the individual occupies several roles – the one they are thinking about; the one they want others to think of; and the one the photographer considers them to be (Barthes 1981). Visuals posted on Instagram, in addition to conveying the complex combination of images, communicate techniques, styles, visual solutions (Manovich 2017: 40). Since a large part of the users of the application are interested in aesthetics, one of the main reasons for the social network to become dominant in mobile photography is its filters. They are a quick and easy mechanism for giving additional visual effects and an attractive look to photos (Manovich 2017: 40). Attractive photographs of images and fashion products are present on them abound. As Kristian Bankov writes (1970–) in “*Face and trust: A semiotic inquiry into influencers, money, and amygdala*” (2021): After the cultural explosion of Web 2.0, digital culture reveals an apparently semiotic paradox associated with the incredibly widespread use of facial images. At the same time the reason to trust in the authenticity of these faces is constantly declining. This is because graphic technology has made the sophisticated manipulation of images both possible and easy. (Bankov 2021). Social networks online, in which the aforementioned images circulate endlessly, are designed in a way which provides their users with the ability to create discrete signs of attention and interest measured quantitatively (Manovich 2020: 181). The creation of these photographs, or “Media Artifacts” as Manovich calls them, to a level where they are aesthetically satisfying, is possible with sufficient progress in the field of AI. This will happen when the computer has roughly the same knowledge of the world as the human individual (Manovich 2018: 10).

Other innovations/ Innovations in other fields/ Diversity in several fields

Fashion is always semiotic, and its semiotics is manifested in the requirement and necessity of an observer, even if the information to it is unexpected and incomprehensible (Lotman 1998: 77). According to Lotman, the triumph of fashion consists in opposing the crowd (Lotman 1998: 77). In turn, fashion implies a continuous experimental verification of the limits of the conventional (Lotman 1998: 94). In the context of the promotion of fashion items in modern online social networks through popular users, as well as technological progress and the emergence of virtual fashion influencers generated through AI, this mechanism can also be viewed through the perspective of the outraged and shocked public which, according to

Lotman, fashion aims to provoke (Lotman 1998: 77). This dynamic – in which fashion is constructed through opposition, provocation and constant testing of boundaries – can also be seen as a mechanism which generates diversity, insofar as it stimulates the continuous production of new, different visual and behavioral models from the mainstream. In this sense, the relationship between fashion and diversity should be thought of as a result of its very semiotic nature. The main difference between a traditional fashion influencer and one created through computer technology lies in their mode of existence. The first is a living human being, and the second is a virtual construct created by human beings. Despite the artificial nature of the latter, it has the full potential to set fashion trends and seamlessly promote brands in innovative ways. (Izea, n.d). Examples of virtual influencers are Lil Miquela with over 2,577,456 followers (Lil Miquela, n.d.) on Instagram and Imma with 387,589 followers. (Imma, n.d.) The trend is constantly growing and in addition to the growing popularity of fashion influencers, the virtual clothing on offer is also developing in parallel. Some brands which enjoy wide popularity, such as Gucci, Adidas and others, are developing their product portfolio with virtual clothing, and there are brands specializing in selling only such. (DressX, n.d.)

SPACE CRYSTAL



Figure 1: “Space Crystal” virtual sweatshirt (Adidas Metaverse, n.d.)



Figure 2: Virtual dress, named “Dress Flight” (DressX: Dress-Flight, n.d.)

On the other hand, digitalization and its logic of automation make the postmodern individual vulnerable to deeper individualization and alienation (Hassan 2020: 134). In *Paradoxical Happiness*, Gilles Lipovetsky also mentions the vulnerability of the individual, the anxieties and depressions which accompany him in his current existence, the value of which is questioned by the individual himself. (Lipovetsky 2008: 158). Lipovetsky also speaks of “individualized consumption” (Lipovetsky 2008: 35). Narcissistic infatuation and the pleasure of comparison with others, in favor of oneself, aimed at achieving difference and not resembling others. These are characteristics of the civilization of the hypermarket (Lipovetsky 2008: 41), and the behavior of unpredictable and fickle consumers. The individual who is in the cultural space of clothing, according to Lotman, is forced to resist the conflict between the desire to adhere to the traditional and its opposite extravagance (Lotman 1998: 77).

The product and information abundance have serious consequences: the variety of fashion items with different designs, colors, textures; and the numerous influencers and trend setters setting the direction of existing or emerging fashion trends. The “individualized consumption” already mentioned by Lipovetsky, is when the individual consumes for their own pleasure in being different from the crowd (Lipovetsky 2008: 35). However, simultaneous vulnerability, or an overload of “channel capacity” is also

possible. In “The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information” (1956), the American psychologist George Armitage Miller (1920–2012) defined “channel capacity” as “the upper limit of the extent to which the observer can match his responses to the stimuli we give him.” (Miller 1956: 82). In the context of operational and creative tasks, routine tasks may require less cognitive effort, allowing people to handle simultaneous multiple tasks efficiently. On the other hand, complex, creative, or new tasks may require more mental energy, making it difficult to perform them at the same time. This can lead to cognitive overload. Viewed through a different perspective from that mentioned in the first part of the text, in which routine activities are an obstacle and a barrier to potential creative development, AI can also be seen as contributing to the increase of creative skills in humans. D.Ariely touches on the human limits of aesthetic capacity and the attainment of peak creativity and aesthetic sensitivity. He points to the personal qualities of the individual and generally accepted cultural norms as factors shaping the individual’s capabilities in the given artistic field (2021: 9). In the context of the development of modern technological systems and their tools in creative disciplines such as design and advertising, AI represents a further expansion of people’s abilities to interact even more fully with the world (2021: 9). The algorithm is unable to produce the cultural process which led to the emergence of the artistic artifact and/or design. Not all individuals have developed artistic skills to a remarkable or even impressive level, and AI is programmed to simulate learned skills through imitation, rather than to simulate universal cognitive abilities (Manovich 2018: 2). As we know from Lotman’s theory (Lotman 1992: 163), the phenomenon of consciousness is related to the individuation factor. For a system to be intellectual, it must consist of individualities. Following this line of argument and given the many events which impact the world’s cultural and aesthetic diversity, the role of AI has not yet reached a point of greatest significance. Billions of people (individuals) do not yet have access to the Internet and the automation of aesthetic solutions is still far from the completion stage.

The exponentially growing variety of fashion items, designs, patterns of fashion (real or virtual), even if it creates conditions for fashion consumers to be increasingly insecure and vulnerable, does not mean that AI technology should be perceived as a threat. AI is a progressive tool which aims to make our daily lives easier as users and creators. On the other hand, as written in *Seven arguments about AI images and generative media*, “if we think humans are creative and AI are not, this is because we better understand how AI works, while we still do not sufficiently understand how

humans work.” (2023: 12). AI needs humans and their creativity, and for humans, critical thinking and ideas will become increasingly important.

Final words

The development of aesthetic qualities and preferences is a process and result of all activities in a person’s life. Style means adapting and coordinating certain decisions, and requires consistency (Manovich 2017: 99). This concerns not only the choice of clothing of the fashion consumer, but also the overall lifestyle – what to eat, how to spend time, and even whom to imitate or not. All of the above cannot be achieved solely by AI, no matter how big its role is in the daily performance of elementary activities.

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