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# Lotman's semiotics of culture in the age of AI: analyzing the cultural dynamics of AI-generated video art in the semiosphere

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**Abstract:** The use of AI-generated videos centered on the face raises various concerns among professionals and audiences due to the difficulty of providing coherent descriptive tools of their cultural significance. At the same time, the focus of artists and their audiences shifts from the art as a text to the collaboration process between artificial intelligence (AI) and the involved social actors. This raises significant concerns between policymakers and other social actors looking for guidelines for the appropriate use of AI as a tool, collaborator or substitute for creative workers, which can have immediate and long-term impacts on society and culture. Semiotics of culture provides descriptive tools for understanding and evaluating artistic texts and their role in semiotic space, the semiosphere. This article addresses how Lotman's theory can contribute to the methodology for analyzing AI-generated texts as dynamic models. The theoretical framework developed by Lotman in his research on artistic text, dynamic systems and culture can be applied to the studies of current shifts related to AI-generated arts. This paper looks at the reception of AI-generated videos focused on face representations. In doing so, it analyses the dynamic processes in the creation process of AI-generated videos through their reception in related texts. The findings of this article highlight how Lotman's theoretical framework can contribute to the methodology to analyze the cultural dynamics evoked by AI-generated artistic texts.

**Keywords:** generative AI; AI-generated video art; Lotman; digital face representation; cultural dynamics

## 1 Introduction

Using AI-generated audio-visual content has ignited a spectrum of concerns within both professional circles and the public. These concerns stem from the inherent challenge of formulating comprehensive descriptive tools to elucidate the cultural

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significance of AI-generated videos for entertaining purposes, that some may identify as AI-generated art. Furthermore, there has been a discernible shift in the attention of artists and their audiences; the focal point has transitioned from the art itself, treated as a standalone text, to a broader exploration of the collaborative processes involving AI and the associated social actors. This transformation has given rise to the need for regulations on AI applications, whether as a tool, collaborator or even as a surrogate for creative human agents. The implications of these regulations have the potential to have immediate or far-reaching influence on society and culture, changing how creative industries work and how audiences interact with them, identifying themselves through these interactions.

Several pieces of AI art generated using tools like ChatGPT3, Dall-E, and Mid-journey gained significant attention from audiences worldwide, becoming viral. The use of AI tools for art creation poses new challenges for artists, creators, designers and all sorts of production industries. Besides being used strictly for commercial purposes, like advertisements, there are various examples of AI-generated visualizations used to create illustrations for books, movie introductions, and other previously considered uniquely artistic fields. It raises multiple concerns in artistic communities concerning the ethics of AI-mediated artistic creative processes and their reception among audiences.

All of these raise the question about drawing the line between whether AI is a tool augmenting the capacities of the authors or rather can shift the values in audiences' entertainment. This research delves into the reception and interpretation of AI-generated videos that predominantly represent fictional characters' facial features as pivotal identity components. The analysis dissects the dynamic processes that unfold while creating AI-generated videos and tracks their reception within interconnected textual contexts. The conclusions drawn from this study underscore the invaluable contribution of Lotman's theoretical framework to the methodology that can be used to intricate cultural dynamics inherent in AI-generated texts.

The main research question addressed in this research is how Lotman's theoretical findings can contribute to creating the methodology to analyze AI-generated video art. To effectively address the research question, this work develops a methodological approach based on the results of Juri Lotman that can provide descriptive tools to analyze AI-generated texts like videos, where users' agency is involved at all stages. Nevertheless, the role of AI is identified as primary through the reception practices. Therefore, this work investigates a description of AI-generated art videos as a text and as a dynamic system within cultural processes.

This article explores how Lotman's theoretical insights can enrich the methodology employed in analyzing AI-generated texts, focusing on online videos centered on the human face, functioning as dynamic systems. Lotman's theoretical framework, crafted through extensive studies of artistic texts, dynamic systems and

culture, can be meaningfully applied to investigate the contemporary shifts associated with AI-generated art. A case study in this research concerns AI-generated videos manipulating the identities of world-famous fictional stories about Harry Potter, written by J. K. Rowling, with a film adaptation by Warner Bros. The case study video depicting Harry Potter characters as protagonists of Balenciaga's campaign in the late 1980s<sup>1</sup> or early 1990s raises a somewhat different concern: how AI-generated art becomes central to our culture. This video and "Harry Potter but in Italy"<sup>2</sup> were analyzed alongside this research article, produced by Berlin-based photographer and AI content creator known under the username Demon Flying Fox. On YouTube, he explains, "I want to show what is possible with AI." Moreover, the main interest among professionals and regular consumers in these videos lay less with the final product and more on how these arts were created to be central to audiences' entertainment, drawing attention worldwide.

The paper first presents a theoretical framework (Section 2) rooted in Lotman's works on cybernetics and artificial intelligence. It then develops a methodology (Section 3) to address the main research question on how AI-generated art as a dynamic model interpreted on individual and social levels. Later it elaborates a comparative analysis (Section 4) between case studies of two videos "Harry Potter by Balenciaga" and "Harry Potter in Italy," focusing on AI-generated face representations and key elements in their reception among the audiences. Finally, it discusses the findings on descriptive tools based on the applications of Lotman's to study AI-generated arts and their reception among audiences (Sections 5 and 6).

## 2 Theoretical framework: if Lotman would talk about AI-generated text

A significant part of Lotman's research is dedicated to analyses of artistic text and its role in cultural dynamics. Artistic texts that Lotman analyzed were created by humans within a given culture. Moreover, Lotman (1979, 1990) was interested in how artificial intelligence can contribute to understanding human creative processes. Therefore, considering the rise of AI as a tool and a co-creator of artistic texts today, can the theoretical framework proposed by Lotman be applicable to elaborate effective descriptive methodologies?

In 1969, in the article "People and Signs," Lotman (2001) portrays semiotics as a complex science – formulating it as an ordinary science that aims "to discover the

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1 <https://www.youtube.com/watch?v=iE39q-IKOzA> (accessed 20 September 2023).

2 <https://www.youtube.com/watch?v=AN8FnobhJcw> (accessed 20 September 2023).

incomprehensible and complex aspects of clear and simple things” (Torop 2010: 11). This is the beginning of Lotman’s discussion concerning aspects of artificial intelligence. In this article, Lotman defines semiotics as a science dealing with the communication systems and signs used by humans, non-human animals and machines (Torop 2010: 11). This seemingly equal status that Lotman ascribes to creatures and machines alike does not, however, necessarily mean that he saw machines as possible sign users. In several of his later works, he explicitly outlines the dangers of the computalisation of culture. The non-discriminating metalanguage is more reasonably attributed to that background of cybernetics and the importance of cybernetic metalanguage for Lotman’s theory in general.

In her analysis of the complexity of Lotman’s thinking, Merit Rickberg argues that researchers often overlook the cybernetic context of Lotman, perhaps due to

the fact that the notion of ‘cybernetics’ is associated primarily with machines, computers, and technology and thus seems less relevant for Lotman’s later thought where culture is often described as a living system. While the cybernetic language was strongly influenced by mechanical vocabulary, its interests were not limited to studying machines. Still, they encompassed all systems with feedback and self-regulation capacity, including living organisms, society, and culture. (Rickberg 2023: 21)

Despite the fascination with cybernetics, Lotman remained reserved about the potential of information theory to explain the complexity of culture – even while “works of art are extremely economical, powerful, efficiently organized ways of storing and transmitting information” (Torop 2010: 11). However, Lotman proposed ways to integrate the cybernetic metalanguage in the research of culture and art, potentially leading to technological advancements:

He repeatedly discussed the idea that art as the most complex system known to humankind could serve as a model for developing artificial intelligence and even proposed that new branches of research could emerge: culturonics as cybernetics of culture and artonics as cybernetics of art, which both could open new ways of developing intelligent technology ... (Rickberg 2023: 24–25)

In the 1970s, Lotman’s encounters with cybernetics and especially the idea of artificial intelligence became more explicit. The Soviet Union was developing robotics for the moon and initially semioticians were commissioned to work on “robot language” (Rickberg 2023: 24; Torop 2010). While the collaboration between Soviet robotics and semiotics remained short-lived for various sociopolitical reasons, the topic of AI remained present in Lotman’s later works, mainly “as a heuristic figure, with the help of which to delineate the characteristics of thinking systems more broadly” (Rickberg 2023: 24). The failed collaboration nevertheless resulted in a joint article *Искусственный интеллект как механизм культуры* (‘Artificial intelligence and

the workings of culture') with Boris Jegorov and Mihail Ignatiev, which was not published until much later in 1995. One of the primary arguments in this work implies the significance of technological innovation in the double directions, *"Каждое техническое новшество может быть осмыслено в двойной перспективе: по его месту в технологическом ряду и по месту в системе культуры"* ('Each technical innovation can be understood in a double perspective: according to its place in the technological series and according to its place in the cultural system'; Jegorov et al. 1995: 278), referring to duality of the potential capacities of the technical tools like AI, in their place in technological development and their reception within the culture.

In 1973, Lotman proposed a cultural universal typology: the need for self-description as a means for culture's self-referential. "This need is realized at the meta-cultural level in the creation of self-descriptive texts, which can be considered as grammars that culture creates to describe itself" (Lotman 1973: 5).

Later, Lotman also came to see the work of art as an ideal "cultural device/mechanism," which resulted in the statement that a work of art is the ideal form of "artificial intelligence" in his 1981 article "Brain-Text-Culture-Artificial Intelligence" (1990). In this article, Lotman's criticism concerning Alan Turing's definition of artificial intelligence delineates an anthropocentric view through the psychological lens of an individual. Lotman posits that Turing's description lacks a comprehensive consideration of the distinctiveness between human and alternative forms of intelligence; thus, he advocates for an approach rooted in complementarity rather than mere similarity. This is exemplified in Lotman's communication model, wherein converging the "language space of speaker and hearer" (Lotman 1979: 87) is imperative for successful communication. Lotman argues that this convergence should not be total, as a complete overlap would make transmitting novel information between interlocutors impossible.

### 3 Methodological framework: towards AI-generated text analysis

Lotman's approach to artificial intelligence and cybernetics primarily comes from his culture studies, mainly artistic text and dynamic systems. Lotman (1988a) describes the notion of text as any meaningful message or communication that conveys information through a system of signs. He emphasizes that texts are not limited to written or verbal forms but encompass a wide range of semiotic expressions, including visual, auditory, and gestural elements. Texts are thus not isolated entities but exist within a cultural and semiotic context, interacting with other texts and

contributing to creating meanings. In this sense, Lotman's definition of a text is expansive and inclusive, recognizing the multifaceted nature of communication in human culture (see Lotman and Uspensky 1978). Lotman defines an artistic text as a broader text concept, a specific type of text characterized by its structure and based on at least two languages, primary or secondary modeling systems. He emphasizes that artistic texts often possess more complexity, ambiguity, and symbolism than everyday communication. They are not solely about conveying information but are also concerned with eliciting emotional and esthetic responses from the audience. Lotman (1977) recognizes the role of artistic text in shaping cultural meaning and its capacity to transform into models of models, presumably modeling systems, by creating signs that can become part of primary or secondary modeling systems. It can lead to a presumption that the generated output of AI-generated texts can function as an artistic text and part of a modeling system.

Analyzing AI-generated texts, like videos, from Lotman's perspective on artistic texts and semiosphere (Lotman 2005 [1984]) involves understanding how AI-generated texts can be considered as AI-generated art, if recognized as such and fit into the broader cultural and semiotic context. AI-generated art is regarded as a form of text within Lotman's framework. Just like traditional artistic texts, it can communicate meaning through a system of signs. These signs can include visual, auditory or other sensory elements generated by AI algorithms based on given datasets, e.g., the selected fragments of elements within semiosphere. Therefore, AI-generated text exists within a specific cultural context or semiosphere.

Lotman's concept of semiosphere (2005 [1984]) emphasizes that texts are situated within a larger cultural and semiotic space, where they interact with other signs and texts. Analyzing AI-generated art involves considering its role within this cultural context. Semiotic analysis of AI-generated art involves examining its structure as an artistic text.

AI algorithms utilize predefined codes and patterns to generate texts. Understanding how these codes are used and interpreted by both the AI system and social actors is essential for semiotic analysis. In the case of AI-generated text, questions arise about the role of human creators (programmers, designers) in shaping the AI's creative output. Analyzing AI-generated art should thus involve several levels, deciphering structural, textual, and contextual elements to understand the intended or perceived meanings elicited by the artistic text. It is challenging to draw the threshold between these three levels, which involve analyzing intra- and extra-textual elements working together through re-coding (Lotman 1988b) of existing texts introduced through AI algorithms and how they interact with other texts (Kristeva 1980) and cultural elements. The notion of re-coding, as proposed by Lotman to the process of artistic texts, obtains necessary descriptive capacities for AI-generated art.

Applying Juri Lotman's semiotic framework to AI-generated art involves examining the art as a type of text within a cultural context, understanding its creation process, decoding its signs and codes, and considering its role in shaping and reflecting cultural meaning within semiosphere. It highlights the dynamic interplay between human and machine creativity in contemporary culture, expressed in AI-generated arts as dynamic models. As such, they introduce a re-coding process within semiosphere through their structural, textual, and contextual elements at pre-creation, co-creation, and post-creation between AI and social actors.

Therefore, AI-generated texts are rather models, dynamic systems situated within semiosphere with the center on the AI and designer-user co-creation process. This includes:

1. Pre-creation, AI generative models and shells created by groups of IT professionals (DALL-E, Midjourney, ChatGPT3, 4, and 5, etc.) and data sets available for the algorithmic processing, preselected by a designer-user based on their individual preferences;
2. Co-creation, the decision-making between the designer and AI output through a prompt, a natural language command designer gives a generated text as a modeling system to receive the most optimal output and then chooses one based on the designer-user's reasoning;
3. Post-creation, where the AI-generated text, as in the case of our analysis video, is used to generate new texts as a model or deconstructed to understand the underlying algorithmic process and technical, social and cultural potential of these texts. The datasets, the prompts and generative models can be reused by multiple creators, implying infinite possibilities for various outputs. Therefore, AI-generated texts can be received differently by audiences, forcing changes in the dynamics of culture.

AI-generated texts are dynamic elements within the culture that can be used as modeling systems to bridge various elements within semiosphere, allowing interpretation and new meanings through their reception.

## 4 Case study analysis

Faces were generated using Midjourney and voices using ElevenLabs AI. The faces were animated using D-ID. But only the faces are animated. The bodies are rigid and lifeless; the voices, staccato and flat.

—(Joshi 2023: 24), in “Harry Potter by Balenciaga”

This section analyses two videos AI-generated videos like “Harry Potter by Balenciaga” and “Harry Potter but in Italy” focusing on the use of faces within them. To do

so, the first part (4.1) uses three theoretical tools described above: creation and meaning-making process, modeling system, and cultural dynamics. The second part (4.2) focuses on textual element analysis and face representation.

## **4.1 Different levels of analysis of AI-generated videos “Harry Potter by Balenciaga” and “Harry Potter but in Italy”**

The analyzed AI-generated videos unfold within the intricate web of signs, cultural codes, and AI capacities. This section delves into the complex process using the terminology and framework laid out by Lotman. AI generative models and designer-users rely on central to semiosphere signs that indicate the relation between characters and their surroundings. In this way, the videos represent recognizable traits of facial features and expressions commonly represented in high/fashion stillness and mafia-themed movies to stereotypical South Italian architecture and landscape.

### **4.1.1 Text within the text: the creation process and meaning-making process**

Within Lotman’s theoretical framework, users as participants of the communication process represent active agents who formulate and interpret texts within semiosphere. These users are not passive recipients of meaning but dynamic contributors to the semiotic process. In crafting the videos, users encompass a spectrum ranging from AI programmers and designers to the receptive audience that engages with these videos. Lotman’s theoretical framework acknowledges the dynamic nature of semiotic systems, as in the case of crafting AI-generated videos, an array of signs and codes that are harnessed to give rise to a semiotic entity. This creative process entails deliberate choices by the creators, encompassing decisions concerning character selection, representation techniques and the fusion of the Harry Potter universe with the world of Balenciaga fashion or within the stereotypical South Italian context expressed in used linguistic components.

### **4.1.2 AI-generated videos as modeling systems**

AI-generated videos stand as distinctive signifiers within semiosphere. Crafted by AI algorithms, these videos combine visual and auditory elements to create texts as modeling systems through contents that are not unique but available to AI processing texts within semiosphere, as presented in Jiang et al. (2023). Rapidly growing AI-generated art integrates into the culture, reinforcing already central elements of semiosphere. The cases of “Harry Potter by Balenciaga” and “Harry Potter but in Italy” likely embody the AI-generated reimagining or reinterpretation of the Harry



Potter franchise, imbued with central elements of the selected language system. The title becomes a noteworthy sign within semiosphere, implying cultural significance and intertextuality, hinting at the video's profound cultural resonance and semiotic complexity for their audiences through reception practices.

#### 4.1.3 Contribution to cultural dynamics

Lotman's semiotic theory strongly emphasizes the role of text in the dynamic processes within semiosphere. The analyzed AI-generated videos can become integral participants in the cultural dynamics through users sharing, dissecting and interpreting them. Their impact may reverberate through how individuals perceive the Harry Potter narrative within different recognizable contexts, as well as how they perceive the role of AI as a dynamic model and social actor, creating new texts.

## 4.2 Textual elements analysis: why AI focuses on face and location

The key element used in most AI-generated videos aiming to convey particular meanings to their audiences is based on face generation. AI can generate human face representations, which, on the one hand, look very realistic and convincing and, on the other hand, are the faces of individuals that does not exist. A similar effect is produced by deepfake videos where a person's audiovisual likeness can be "hijacked" by a concealed other, who delivers their message using the "trusted channel" of the apparent visual (Viidalepp 2022: 121). One of the first viral examples of such persona hijacking was a video by Jordan Peele titled "You Won't Believe What Obama Says In This Video!"<sup>3</sup> The typical dangers of deepfake technology are believed to be related to this type of hijacking of the persona of an existing person.

However, the two cases analyzed in this article differ from the Obama deepfake. One difference is at the level of the author's intentionality. Although the videos use the likeness of the Harry Potter actors, they do not seek to impersonate these actors (or characters) fully. Another difference works at the level of evoking two socio-communicative functions of a text (Lotman 1988a): the context and the cultural tradition. The faces are perceivable as uncanny and funny because they parody the movie's characters, merging them with the stereotypical runway model who is very thin, has hollow cheeks and a severe and unemotional gaze, as in the case of "Harry Potter by Balenciaga." The video maker has chosen to use images resembling face close-ups rather than a full-height model, but presumably, either type can be

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3 <https://www.youtube.com/watch?v=cQ54GDm1eL0> (accessed 20 September 2023).

generated by adjusting the prompt. Every character is shown briefly, without names, so the viewer is expected to recognize the likenesses.

The likenesses of the characters are displayed at various “mimetic distances.” Some faces are very similar to the characters portrayed by actors in Warner Brothers movies (such as Harry Potter and Prof. McGonagall). In contrast, others are barely recognizable (such as Hermione) or quite distinct (Ron, Draco). Here, the video maker’s choice is critical. According to the reception within tutorials, generating the result for each character frame takes a few times. Then, the author picks one among many according to their preference.

The contextual surprise of “Harry Potter by Balenciaga” also works because two cultural traditions are brought together that were not linked before runway models and children’s movies. Tutorials and many other videos mimicking the video’s structure or “story type” have since been posted on various YouTube profiles. Notably, Demon Flying Fox has posted earlier videos on the channel, for example, reimagining various famous series as 1980s Yakuza films – mixing different styles or genres but in the same context – a regular movie genre. However, the new, unexpected combination of the runway model and the Harry Potter franchise has gained 10 million views (at the time of writing).

In “Harry Potter but in Italy,” additional layers of cultural context are added – such as the Italian mafia representation used in Hollywood cinematography language and scenic background views with mountains, narrow streets and architecture typical of a stereotypical Italian landscape. Additionally, the faces in this video are generated as merged with yet another actor’s likeness, so the mimetic distance from Harry Potter characters is greater. Overall, all the generated videos display and evoke various intertexts, activating cultural codes at many levels.

## 5 Discussion: AI-generated text or a dynamic model

The concept of the explosion, discussed by Lotman (1990), can be applied to AI-generated art to examine the recent reception among audiences’ rising concerns about whether AI will replace creative professionals (Joshi 2023). Although a significant part of this question lies in the dimension of ethics, Lotman’s theoretical framework explaining explosive processes within semiosphere can give possible answers. The principles of AI generative models used in AI art creation are specific as a self-referential system based on semiotics analysis of computational systems (Andersen 2002). AI is less sensitive to the elements that can be called explosive, based on Lotman’s terminology. AI is rather sensitive to the elements that form the

center of the semiosphere, repetitive elements that may indicate patterns and correlations, lying in the center rather than the periphery. Indeed, any AI dataset primarily analyses repetitive elements that form groups and can be united based on some logical or mathematical regressions. This is also one reason why AI is incapable of innovative or creative *per se* operations. It generates new texts using already existing texts within an operative dataset. Dataset is often pre-selected by designers and found within semiosphere of a given culture, the culture of a designer-user, for example. AI as an agency introduces a higher probability of highlighting repetitive elements within these selected sets, selected elements of semiosphere and producing an output that promotes already pre-set bias, which later can be confirmed by designers and audiences.

Based on these premises, analyses of “Harry Potter by Balenciaga” and “Harry Potter but in Italy,” AI-generated videos highlight the prevalence of the dominant cultural codes, which can also be considered stereotypical from users’ cultural perspectives and therefore easily recognized. Creating new AI-generated videos dwells on alteration within the semiosphere’s center, which is reinforced by algorithmic models and crystallized by the audiences’ reception.

## 6 Conclusions and future research

This paper offers a perspective on how the cultural significance of AI-generated art, particularly AI-generated videos, can be analyzed with the tools of Lotman’s framework concerning artistic text and dynamics of culture. The collaborative creative process between AI generative models and human designers or users, marked by the seamless integration of textual elements, plays a pivotal role in driving dynamic processes within the semiosphere. This collaboration yields dynamic models that are imposed by textual elements, including facial representations, motion articulation, and contextual settings, which are accessible to AI through datasets carefully chosen by the human designer.

The analysis of the case study confirms a human agency as a primary agency in decision-making for AI-generated art, which involves composing the prompt (defining the task for algorithmic models), selecting the output to be included in the final version presented to audiences and exerting a significant influence on the structural aspects of the artistic text. However, most texts commonly referred to as AI-generated art exhibit algorithmic biases, particularly those that have garnered substantial audience reception (going viral, being widely shared and serving as models for generating other AI-based artistic texts). These biases are inherent from the algorithmic perspective and embraced as central characteristics valued by both the original author and subsequent recipients of such art.

These conclusions lead to presumptions that can be explored in future research regarding algorithmic reinforcement of the central elements of semiosphere, which is most likely to result in an algorithmic output that can be recognized within the culture as stereotypes that are accepted as central values. This connection between biased AI-generated artistic text and their reception among users as a dynamic model is conveyed through several levels of AI-generated arts (pre-creation, co-creation, and post-creation) and textual elements, such as identity cues, like facial representations.

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