THE CULTURAL EXPLOSION OF AI: NAVIGATING THE INTERSECTION OF ARTIFICIAL INTELLIGENCE, SOCIETY, AND CULTURE FROM A SEMIOTIC AND INTERDISCIPLINARY PERSPECTIVE

Kristian Bankov &
Federico Biggio

This issue of *Digital Age in Semiotics and Communication* is dedicated to the cultural explosion of artificial intelligence. Drawing on Lotman's notion of "explosion," it aims to describe the "rise" of generative AI by retracing its cultural evolution and highlighting the features emphasized by the Russian semiotician: the sudden crossing of "boundaries" by extra-cultural or extra-semiotic entities, the tensions it generates between centre and periphery, conflicts among heterogeneous elements and systems, and the undeniable sense of unpredictability and destabilisation it produces. From this perspective, it focusses on the ways in which media technologies for the automatic generation of multimedia content have crossed the "laboratories" of computer science and entered the "pop" media ecologies of digital societies.

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Explosion is a phenomenon that is both exceptional and cyclical. Lotman (1992) explains it through the image of a pendulum swinging between a state of explosion and a state of organisation, the latter unfolding through gradual processes. Media history and sociology of technology teach us not to take techno-cultural explosions too seriously. The development of movable-type printing in the sixteenth century, or the emergence of the Internet in the 1980s, for example, marked large-scale sociotechnical innovations. Nevertheless, even if on various occasions they have been defined as "disruptive," they represented simple culminating points of gradual events which culture has always undergone while evolving over the centuries. In this view, the cultural explosion of AI could reasonably be placed within this trajectory, and its revolutionary scope reduced. However, reducing its flagrancy would not be productive for grasping the meanings generated by the unpredictability and destabilisation that AI produces.

The Lotmanian explosion, in fact, is both a temporal and topological dynamic, but also a thymic one. This needs to be taken into account, in order to maintain a semiotic approach, insofar as a science of signification must be able to produce descriptions "from within." From this perspective, however, the "signs of cultural explosion" must be able to account not so much for collective emotions (of fear, anxiety, or excitement) but for the collective processes of textual production and autocommunication. They will explain how, in a given historical period, these explosive dynamic entities will be governed by "filtering" operations. Indeed, for Lotman the cultural explosion precisely describes the translational operations of autocommunication which "domesticate" the new, translate it and filter it. Then they will ferry culture toward a new stability which, although precarious, is capable of restoring that holistic equilibrium necessary to semiosis. Thus, if, on the one hand, it is true that the sense of "explosion" varies according to perspective (it changes depending on whether we live it from within, immersed in change, or from a historical distance), on the other hand, we must understand how we pass from one state to the other. We must comprehend how we come to objectify lived experience, to take one's departure from it. This was precisely, as Torop notes, the programmatic task of the Tartu-Moscow School: to define the semiotics of culture as a science which investigates the functional correlation among different sign systems.

However, even if this approach is certainly useful for deflating the market's sensationalist rhetorics, it is difficult to enact, as assessing the scope of the effects at the different strata of society which AI commercialisation has produced remain hard to detect and interpret. Therefore, the real question of the cultural explosion of AI is not to determine whether it is a truly dis-

ruptive technology (this can be taken for granted, albeit that the expression "Artificial Intelligence" is "catchy" coinage by McCarthy for the Dartmouth workshop), but rather how do we detect and describe the processes of rationalisation, through which culture normalises the role of AI in the different sectors of society. This is a process described by Lotman as a passage from explosion to subsequent gradualness, which we can reformulate by considering the various ways society is trying to make sense of processes of automatic generation by AIs. Sometimes they are highly abstract, as in the case of the so-called "latent space," and at times not even explicable to insiders, such as the hidden layers of neural networks. Other times they resort to metaphors and sociotechnical imaginaries from before 2022 (the release date of ChatGPT), while simultaneously trying to produce translations with minimal error.

These processes are, ultimately, interpretive processes.

On the one hand, interpretation seems to characterize the actual functioning of generative AI, in the "mathematical" (and yet not unbiased) translation of media texts produced in verbal and multimedia language into a digitized vector-matrix encoding. On the other hand, interpretation enacts filtering processes of an interpretive nature also in broader forms of self-communication, in which the explosion of AI itself becomes the object of discourses and explanatory trajectories in different epistemic fields which continuously attempt to give shape to unpredictability, identify specific causalities, and therefore coherent predictions. Outlining trajectories is essential to prevent getting lost. So, the discourses of critical media studies, for example, will outline trajectories relevant to big tech, while for producers they will model the choice (and imposition) of developments and the persistence of techno-capitalist and postcolonial paradigms in "click work". Those in the discourses of the humanities, on the other hand, will seek to make sense of the quantitative explosion of the aesthetics and styles of communication of LLMs by going back to the history of creativity and making possible to denounce the biases and the illusion of heterogeneity, denying that peculiar explosion of informativeness which characterises this kind of phenomenon. Media history, finally, will trace a trajectory linking the cultural explosion of AI to that of the Internet, allowing us to distinguish images of "AI slop" from memes in user-generated cultures, and practices of "distant writing" (Floridi 2025) enabled by LLM-assisted "cognitive artefacts" (Norman 1991) from the participatory writing cultures of Wikipedia.

To do this, it is important to select the right "samples," in order that the trajectory respect certain "felicity conditions" of the "mode" of existence

(Latour 2012). Lotman, for example, warned us to distinguish between authentic explosion and imitative explosions. The "dandy", as a typical case of cultural explosion, acts by destroying accepted norms and creating new ones. He differs from someone who simply dresses badly but is still perceived by those around him as a "dandy" who destroys established norms. Likewise, Narayanan and Kapoor (2024) warned about the dangers of "snake-oil AI," low-performance AI which mimics the aura and the metrics of truly functional AI (in tasks such as pattern recognition in texts and images) in order to legitimise very different tasks. These tasks are typically the prediction of individual social outcomes (personality, job success, recidivism, "trustworthiness," etc.) where the intrinsic predictability is low.

However, the choice of the right sample does not mean, only, choosing the "best." There is no absolutely "best" AI. AI is heterogeneous. The information systems which implement it are organised according to that "compartmental" logic of software culture. This is in turn inspired by "traditional" media. If it is true that the explosion of AI follows a topological extension (each country develops its "own" general AI), then it is also true that this also follows intensions: at different levels of society different AIs are used for different purposes.

This fact, on the other hand, leads to questions of a more epistemic nature (which are then the same to which Narayanan and Kapoor arrive). What are the implications of adopting artificial computation (and mediation) tools in environments of knowledge generation and validation such as psychology, education, or ethology? Critiques of the reductionism of the socio-economic sciences and of the digital humanities certainly constitute stock arguments. What are the consequences of the diffusion of these tools on a global scale? The cultural explosion of AI, in this sense, risks being an explosion of Western knowledge and its epistemic practices (Natale et al. 2025).

The multifaceted functions performed by one and the same technology are continually threatened by the "generative creativity" which makes AI not just a single, indissoluble and inevitable entity but also a "universal", all-purpose one: indeed, generative AI is implemented from financial forecasting to protein design, from recommendation systems to autonomous driving. With such heterogeneity as a starting point, we can speak of a "general AI", drawing a distinction with the "narrow" one, specialised in specific domains.

The question becomes even more complex. AI is a techno-cultural product which emulates, imitates, inspires human intelligence (or at least what we know about it), and produces a series of short-circuits in the process of

interpretation (Paolucci 2025). In this sense, the introduction of AI in the context of knowledge work seems to be much more striking, and worrying, than in mechanical ones.

This contrast between narrow AI and general AI is naturally accentuated by the recurring claim that artificial intelligence could be a "creative" technology. The recent contribution by Manovich & Arielli (2021–2024) endeavours to redefine creativity as something essentially regulated and "technicalised", leaving little room for that individual genius to which Western culture has traditionally assigned the creative faculty. However, it is undeniable that the effect of sense generated by any "little machine" response activated by a prompt is that of the naturalness of communication between humans, based on the creativity of speakers and the indeterminacy of ends. For Lotman, creativity is anything but a negative phenomenon. The explosion acts as a stimulus for creative activity, unprecedented connections, making translatable what until a moment before was incommensurable (the case of the "Italian brainrot" is paradigmatic in this sense).

Nevertheless, the problem of the explosion of AI creativity lays not in defining whether and why the contents generated are more original or less than those in the history of "human-generated" culture, but rather of understanding the value of a generalised creative competence. On the one hand, the explosion of AI creativity has prompted a rapid wave of new laws regulating the use of copyrighted works, alongside new editorial practices in education and research, as well as an increased demand for prompt-focused roles in cultural and creative industries, fostering new professions and skill sets aimed at keeping "up with the times." This is reminiscent of how the Enlightenment spurred the rise of the Encyclopaedists in France. Taken together, these developments pose both a priority and a challenge for institutions as they decide which direction to pursue. On the other hand, however, it also brought emerging concerns about the status of "expert competences" (Marrone 2021). Most "specialists" indeed are concerned about the apparent "expert" status of general AIs such as ChatGPT, Perplexity, or DeepSeek. Many authors, including Montesanti, in the article in this volume, question the pragmatics of the LLM communication in generating effects of authoritativeness and trustworthiness. Still, it could be asked whether AI is not perhaps the result, rather than the cause, of an older phenomenon. This is a phenomenon which passes through disinformation and so-called fake news feeding the digital archives which have been used to train models.

All this is leading the human to grapple with another kind of creativity. This is no longer "textual" or "operative" creativity, relating to the shaping

of matter, but metatextual and metaoperative in nature, relating to the manipulation of procedural parameters which will determine how the machine will do what it will do autonomously. Manovich (2013) had already brought this to light when he spoke of a "cultural interface" as an object and tool used to design cultural media contents by performing discrete and mathematical operations rather than continuous ones. However, interaction with AI is not just a matter of calibration, although in its more professional uses this constitutes an indispensable element. Prompting techniques such as those used to delimit a semantic context, or those used to design of AI agents, are in effect an entire series of technical calibrations, which, however, are mediated through a human-computer language that is not "operative" in the strict sense (one does not manipulate parameters by entering numerical values), but rather through instructions expressed in natural language. Used in full continuity with what has been defined as "remix culture" (Navas 2022) such as the orchestration of automated creations according to a more general logic, we could call this "narrative."

The contributions gathered in this volume examine this turn from multiple angles: linguistic, biosemiotic, educational, aesthetic, technological, and economic. They offer a panoramic view of how AI not only produces new signs, but reshapes the conditions under which signs operate. Across domains as diverse as language acquisition, animal communication, social media, facial recognition, XR, and fashion, the authors converge on a shared insight. The emergence of AI as a semiotic actor necessitates a reconsideration of what counts as communication, interpretation, and creative agency.

In their panoramic paper "A Step-by-Step Semiotic Understanding of LLMs and Chatbots" **Thibault & Allois** bridge semiotics and machine learning to provide a structured account of the evolution of large language models. By examining perceptrons, neural networks, and transformer architectures, the authors clarify the technological processes behind generative AI and counter the tendency toward anthropomorphisation. They propose conceptual tools, including the idea of an AI semiosphere, a generative mode of sign production, and *Intentio Machinae,* in order to situate LLMs within semiotic theory. The study reframes AI as a support for human textual activity rather than an autonomous interpretative agent.

In "The Peircean Theory of AI", **Friedman & Thellefsen** apply Peirce's triadic semiotics along with speculative grammar and methodeutics, in order to reassess the interpretative limits of large language models. They argue that AI's statistical foundations hinder its ability to capture relational meaning essential for human communication. Integrating Claudio Paoluc-

ci's theory of machinic enunciation, the authors propose a functional reinterpretation of AI-generated texts within a Peircean framework. Their analysis demonstrates how classical semiotic theory can inform attempts to enhance contextual awareness in AI systems and illuminates the persistent challenges in modeling genuine semiosis computationally.

In "On the Edge of Understanding: ChatGPT and the Limits of Artificial Sense-Making", **Montesanti** examines the semiotic limits of generative AI by contrasting the adaptive, context-sensitive practices of human speakers with the mechanical training logic of large language models. Drawing on Saussure, Jakobson, Hymes, and Lotman, he argues that AI replicates communicative exchanges without participating in the situated, relational pact which characterises human dialogue. Through the analysis of selected interactions with ChatGPT, the paper explores whether artificial systems can meaningfully partake in sense-generation, suggesting that the notion of "sense" itself may require semiotic redefinition in the age of generative machines.

In "The Semiotic of AI Images" **Schneider** applies Susanne Langer's distinction between discursive and presentational symbolic forms to the analysis of text-to-image generation. She argues that AI-generated images arise from the collision between linguistic prompts—linear and discrete—and images which communicate meaning in a simultaneous and relational mode. The paper explores how these symbolic tensions shape the structure and communicative function of AI imagery. Rather than evaluating their aesthetic value, the study investigates whether such images contribute to clarifying ideas, drawing on Langer's and Peirce's theories to read AI imagery as a new medium of conceptual expression.

In "The Janusian Face of Facial Recognition, Part 1" which will be followed in the next issue of the journal by Part 2, **Schiller** conducts a critical semiotic "deblackboxing" of facial recognition technologies. It examines how computational, representational, and relational components converge in these systems. Positioned within Peircean and pragmatist computational semiotics, the paper interrogates whether AI-driven facial recognition possesses genuine semiotic agency or merely produces quasi-sign processes. By distinguishing between subface, interface, and surface, Schiller reveals the multilayered nature of facial recognition systems and situates their functioning within broader debates on artificial intelligence, sign processing, and technological agency.

In "Are We Human or Are We Dancer? – AI Creativity in XR" **Alexiev** investigates the underexplored semiotic and cultural consequences of integrating AI into extended reality environments. While current research

emphasises technical efficiency and user interaction, this paper highlights the lack of attention to AI's artistic and social impact within XR. Drawing on both theoretical studies and cutting-edge XR productions, the author discusses how AI is reshaping creative practices and networking potentialities in immersive spaces. The analysis calls for a renewed understanding of AI-XR entanglements as emergent topologies of meaning within the contemporary semiosphere.

In "Humans as Natural-Born Cyborgs: Scrutinising AI's Narrative Intelligence within the 5E Cognition Framework", **Livytska** examines the narrative limitations of large language models, arguing that their capacity to generate coherent text is often mistaken for intelligence. Drawing on the folk narrative hypothesis, the paper highlights storytelling as a uniquely human mechanism for memory, identity, and sense-making, which AI can mimic structurally but not inhabit experientially. Through an analysis of ChatGPT-4's prompting processes and its handling of textual categories within the 5E Cognition framework, the study shows how AI-produced narratives gain meaning only through human interpretative engagement. The seeming intelligence of generative models thus reflects not machine understanding but our innate drive to impose coherence and treat communication partners as intentional agents.

In "Needle in a Needle Stack: Semiotic Inflation and Experiential Devaluation", **Champagne** introduces the concept of "semiotic inflation" to describe how AI's escalating production of signs risks devaluing human experience. Drawing analogies with monetary systems and scarcity-driven value, he argues that oversaturation of linguistic and visual content may undermine evolutionary and cultural balances in sign-object ratios. Rather than focusing on what AI allegedly cannot replicate, the paper identifies systemic negative experiential effects as evidence of counterfeit semiosis. The argument highlights the need for conceptual limits on sign proliferation, in order to preserve the integrity of human meaning-making environments.

In "Translating the Wild: AI, Semiotics, and the Future of Animal Communication", **Zengiaro** critically evaluates AI-based attempts to decode animal communication, focusing on aquatic species such as dolphins and whales. Grounded in biosemiotics, ecosemiotics, and Umwelt theory, the paper shows how projects such as DolphinGemma and CHAT risk reducing embodied semiosis to computational patterns. Instead of transparent translators, these systems should be understood as technosemiotic infrastructures which can enable new forms of interspecies resonance when embedded in relational and critical frameworks. The article advocates for an

ecotechnical semiotics which resists reductionism and reconceives communication as emergent and materially grounded.

In "ChatGPT in Higher Education: Between Cultural Explosion and Encyclopedic Knowledge", **Petrassi** explores ChatGPT's transformative impact on academic knowledge production, framing generative AI as a catalyst of Lotmanian "cultural explosion." Mobilising Eco's encyclopaedic model, the study examines how ChatGPT mimics human interpretative processes while lacking intentionality, thereby challenging traditional epistemic norms. Through mixed-methods research combining qualitative inquiry with a student survey, the paper analyses perceptions of trust, bias, and critical engagement. The findings reveal cautious yet widespread adoption, positioning ChatGPT as a semiotic mediator that reshapes pedagogical practices and demands new forms of critical AI literacy.

The paper by **Ingrao & Mirsonbol** "AI, Semiosis, and the Future of Language Acquisition" continues the same topic by evaluating the implications of AI-driven tools for second-language acquisition, aligning the discussion with EU 2030 educational goals and semiotic theories of learning. The authors propose a semiosis-based pedagogical model informed by Barthes, Eco, and Lotman, emphasising personalisation, ethical considerations, and the dynamic interplay between student, teacher, text, and AI. Through a critical review of current practices and a theoretically grounded model of personalised learning, the study argues that AI can support deeper engagement with L2 content when embedded within culturally and semiotically informed frameworks.

In "Consumer Attitudes to AI Content Generation in Social Media", **Varshev & Marinov** offer an empirical study which investigates how social media users perceive AI-generated content. Based on a large survey across diverse demographics, the results reveal a high level of awareness but predominantly negative attitudes toward AI-produced posts which many respondents deem inauthentic and unengaging. Concerns about privacy and a strong demand for transparency shape consumer expectations, with most participants advocating the clear disclosure of AI use. A case analysis of Coca-Cola's AI-generated advertisements illustrates this tension, showing a preference for human-made content. The findings highlight the need for marketing strategies which integrate AI without undermining trust or authenticity.

In "Use of AI in the Context of Fashion and Related Industry", **Orlova** explores how AI transforms both the technological operations and cultural dynamics of the fashion industry. Drawing on Lipovetsky's consumer theory, the semiotics of Barthes and Lotman, and contemporary analyses by

Manovich and Arielli, the paper situates fashion as a dynamic semiosphere where AI enhances personalisation, efficiency, and aesthetic innovation. While AI expands creative possibilities and diversifies cultural expression, the study underscores the continued relevance of human sensibility in shaping fashion's symbolic forms and experiential dimensions.

Taken together, these contributions trace a landscape in which AI is emerging as a tool, an interlocutor, a sign-producer, and a catalyst of cultural change. While none of the authors grant AI human-like interpretative agency, all recognise its expanding role in reshaping semiotic environments, broadening communicative possibilities while raising new tensions around authenticity, embodiment, and saturation. Rather than defining what AI "is," this volume highlights how it intervenes – materially, symbolically, and institutionally – in the ongoing evolution of semiosis. It invites readers to reconsider their assumptions about semiotics, language, representation, and cultural production at a time when artificial systems are increasingly intertwining with human meaning-making.

Finally, the gathering in Sozopol on the occasion of the XXVIII EFSS marked an important step for the ERUA alliance and its research agenda. The event brought together at least 20 participants from the eight partner universities and provided the setting for the initiation of the research cluster Artificial Intelligence and Creative Industry Employment Disruption (AICIED).

We wish you engaging and thought-provoking reading.

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