Ewriting Prospectives: Hybridity as a Tool for Human Thought

Artur Matuck, MFA, PhD

Alterscience and Intercommunication Research Center, USP-Brazil
The University of São Paulo, São Paulo, Brazil
The University of Miami, Florida, USA

ABSTRACT: E-writing is a field of inquiry generating theories, practices, and applications that continuously redefine our perspective on writing. Traditionally considered as final objects, texts can now be seen as sources for re-information and matrixes for interrelation and reconstruction. E-writing tools challenge deep-rooted cultural habits forming the foundation of our language and thought processes. E-writing reconceives individual authorship into a multi-dividual, socio-machinic, planetwide process. Writing, and by extension, thinking, science, design, expression, artmaking, architecture, economics, and philosophy will be understood as a dialogical process between human actors and intelligent computer applications allied to giant data banks. Collaborative web-based writing and machine-generated authorship will be investigated as human-developmental tools. Nevertheless, present instituted legal theories and systems act as insurmountable obstacles, restraining collaborative and interactional authorship models and practices and advances in human creativity, authorship, and invention. Thus, current intellectual property values and legal theories will readapt to new forms of authorship involving human-machine planetary integration. Each new writing, invention, design, or proposition is now reconceived through its web presence as a potential element in extensive textual constructions. Information, considered as re-information, as data-in-flux, will be increasingly analyzed within parameters such as availability, interconnectivity, formatability, translatability, and disseminability. Texts will have to be fully interconnectable and legally free to interact so that new statements and propositions can be automatically constructed. Then, the full potential of presently available or yet-to-be-created communication technologies will be achieved.

KEYWORDS: E-writing; Web-based Writing, Computer-generated Writing, Human-machine Interactions, E-authors' Rights, Intellectual Property, Re-information, Intelligent Systems

1. E-writing as a developing field of inquiry

E-writing (electronic writing) is a developing field of inquiry generating theories, practices, and computer applications that evolve and continuously redefine our perspective on writing. Computers have definitively transformed writing. When first created, they were seen as purely mathematical tools, with no relation to language, only to calculations. This perception has dramatically changed over the years, but the broad culture may still need to finish the reperception process. Computer-based writing has yet to attain its full potential because computers are still felt to oppose certain human qualities and abilities. Some of us still believe computers to be intrinsically anti-human. At the same time, writing is seen chiefly as essentially human, as an activity in which human beings connect to their inner selves. Traditionally, writing has been perceived as a humanizing activity that should never be corrupted, for instance, by human-machine interactions.

Nevertheless, technological change is constantly disrupting well-established perceptions of what it is to be human, what a machine should be or do, the acceptable frontiers between humans and their tools, and how human-machine interfaces should be structured, designed, and implemented.

In the 21st century, the conjunction of natural language processing and artificial intelligence research has led e-writing to leap to higher strata of linguistic performance. E-writing, a human-machine dispositive, has now assured a place as a tool for thinking and

invention in contemporary times. Writing applications can mimic human expression and eventually surpass human writing abilities. They can collect information from myriad digital sources and access an artificially-conflated memory unavailable to human beings, writing only with their minds.

We can imagine, however, that the further development of e-writing may devise an intelligent method to institute a difference that would create a more autonomous non-human form of computer-generated writing.

2. Telecomputational and interactional language-related tools

The computer as a writing tool has become associated with telecommunications since the inception of the Web in the mid-90s. Thus, since e-writing cannot any longer be isolated from networking, telecomputing will provide the medium for e-writing technologies.

E-writing has thus become a multi-dividual activity, even if individual authors still do not acknowledge the fact. Writing today is undoubtedly an activity in which the individual and the social are strongly intertwined. Thus, a writing system integrating the human mind, the keyboard, the screen, the software, and the Web implies that the resulting information resonates within more extensive networks.

Presently, individual authors are or could be permanently in contact with social networks, a diversity of writing applications, and almost infinite resources distributed throughout the Internet. Nevertheless, an e-writing design must endeavor to provide for the writer's simultaneous or alternate interaction with text-processing applications, large data structures, autonomous machine-writing, and distant or local co-writers.

The improved functionality of those applications, and the human-machine dialogue, will foster a culture of hybrid textuality. Humans will learn new abilities and tools for reading, writing, analyzing, thinking, inventing, and interacting with machines that can synthesize long, well-structured texts. Authors would be redefined as e-authors, writers as e-writers, and writing as e-writing.

3. Human-machine hybrids as an expansion of the human mind

As we approach the concept of e-writing and understand the potential for techno-induced writing tools, we will inevitably face the prospect of changing human identities due to the ongoing process of hybrid human-machine co-evolution.

This process will have consequences well beyond writing and thinking. It will affect identity formation since we may not see ourselves any longer just as traditional individual authors but evermore as system designers, producers of complex generative processes, and co-authors interacting with automated writing machines. As an authorial entity, the human mind is acquiring a different nature. The mind becomes translocal as writing fills cyberspace, as networks interconnect. As human-machine co-writing develops into widespread practice, our minds become cyborganic authorial entities. Innovative technologies are taking over human functions. We are being surpassed as creators of texts, programmers of codes, inventors of tools, and eventually as decoders of information and even perceivers of meaning.

According to Bruce Mazlish, this perception is due to "… a major discontinuity or dichotomy ... between humans and machines ..." caused by "… the human need to be special, to feel superior in regard to the machine." He envisions, however, a possibility for re-integration: "… we are now coming to realize that humans and the machines they create are continuous and that the same conceptual schemes that help explain the workings of the brain also explain the workings of a 'thinking machine.' Ultimately, this distrust rests on the refusal by humans to understand and accept their nature - as beings continuous with the tools and machines they construct. Once the discontinuity is overcome, we will be in a better position to

decide more *consciously* how we wish to deal with our machines and our mechanical civilization" (Mazlish 1993).

Following the argument, we conceive the process of human-machine hybridization as an expansion of the human mind. The explanation provided by James Pulizzi reinforces this possibility: "Computers have been programmed to decrypt enciphered messages, convert text to speech, parse, and act upon human speech, generate fonts, and even design patentable electronic circuits. There remains, however, much computers cannot do and may never be able to do without a body. Despite such limitations, the computer is an excellent extension of some deficient areas of human cognition, such as sorting large lists, mathematical calculations, memory and retrieval, and error correction. If one combines those skills with human superiority in pattern recognition, adaptability, natural language processing, and the ability to distinguish irrelevant from relevant information, the computer and the human have a potentially powerful symbiotic relationship" (Pulizzi 2009).

4. The text as a matrix and the Web as a tool for concept formation

The text can be printed, digital, translocal, virtually absent from the screen, or potentially present as a writing system output; texts are available to be read, duplicated, circulated, and disseminated, but also abstracted, altered, calculated, mathematized, or rewritten, revised, preconceived, and then entirely produced by machine agents. The text, especially in its printed format, has been considered an enclosed object, the conclusion of a strenuous thinking process fixed in many copies. Still, it can now be seen as an evolving entity, a potential source for re-information, an elementary matrix for further reprocessing.

The new dimensions of texts indicate multiple unheard possibilities for human-machine fusion, e-writing, and e-imagining. The reconception of the text as a mindtool, an object embodying potential, valuable information, and an indispensable social instrument will lead us to perceive and conceive a new horizon for human thought processes. At the basis of this evolutionary process lies the reperception of information as a matrix. Texts will be seen as more valuable as they interconnect, trigger generative processes, perform as codes for e-tools, and become active agents for hybrid constructed informational clusters.

In an idealized e-world, texts would always be available to be analyzed, transformed, translated, utilized, transduced, reformatted, or aggregated. Such re-conceptualization will prompt us to design tools and processes to re-inform texts, images, art, culture, society, and science in unimaginable ways. Seeing information as a matrix of potential interrelations - not as an isolated, proprietary entity encircled and immobilized by restricting property treaties, regulations, and obligations - will promote collective human evolution.

The acceptance, understanding, and support for the concept of the text-as-matrix will propel our tools, writing practices, and cultures to a differentiated mind frame. We must readapt, de-script, and re-script our institutions, certitudes, and habits so that individual knowledge becomes collective and available to individuals and societies, not only to private companies.

In this envisioned writing environment, intelligent agents would not only interact with textual propositions returning complete statements, but also perform and provide for many textual operations designed to empower individuals and collectivities.

Texts could be automatically interlinked, aggregated, and mutually enriched so that new multi-authored content is generated and communities formed along interests, styles, abilities, or customs. A political movement could be instituted to demand that the planetary collective digital memory becomes a more democratic tool. Sites would facilitate encounters, interactions, and collaborations. They could, for instance, tell users about other users' identities, locations, and interests. The technology could then be a tool for community formation and intellectual collaboration.

Although the necessary technology is already available, it has yet to be widely used. Technological design should be more democratic, shifting worldwide power structures to a more multilateral orientation and empowering people through their interconnections. However, the unstated objective of power hierarchies is undoubtedly to ensure that horizontal communication does not become one of the Web's main features, as hundreds of planetwide communities would wish.

5. E-written authorship as a planetwide socio-machinic process

E-writing reformulates individual authorship into a multi-dividual, socio-machinic, planetwide process. Once e-writing becomes widespread and acknowledged in theory and practice, collective web-based writing, machine-assisted and machine-generated authorship will be increasingly investigated as human-developmental tools.

Writing will no longer be a solitary endeavor. Traditional writing methods, in which an individual's mind conceives sequences of words and phrases, will be blatantly obsolete. Our culture will understand writing and, by extension, thinking, science, design, expression, artmaking, architecture, economics, and philosophy as emerging from dialogical processes between human actors and increasingly intelligent computer applications allied to enormous data banks.

New writing practices involving group integration, specialized role-playing, machine agency, and different levels of creative involvement will instantiate emerging theories of authorship. Thus, the reality and potential of human interaction with machine-mediated practices and collective memories should be considered whenever authorship philosophies are conceived and designed. In a foreseeable scenario, writing would proceed through netbred language interactions so that every word sequence or newly conceived phrase would immediately reverberate through databases, causing responses and forming aggregates, actualizing an infinitude of texts which were virtually present but still in a potential state, as if hidden inside digital mechanisms.

Newly released writing software introduces features that make writing an easy and automatic task. In the process, writing can become an automated, depersonalized activity implying textual standardization and normalization. However, if e-communities are formed and empowered, they could use improved yet-to-be-invented writing tools to their own needs. Language systems with semi-automated writing capabilities can also favor a socially-oriented purpose, enabling re-information, connectivity, aggregation, co-invention, and e-communion.

Now that some e-writing technologies are becoming widespread, we will be gradually better positioned to discern newer venues for individual and collective expression and evolution.

6. Netbred writing processes challenging Intellectual Property theories and statutes

As we let our imagination delve into these future forms of e-thinking, we conclude that instituted theories, enforced by legal systems, act as insurmountable obstacles to the advancement of creativity, authorship, and invention. The problem is that legal traditions and legislation, ingrained in almost unchangeable statutes, restrain emerging collaborative authorship models and practices.

However, if the vision of writing as a socio-machinic planetwide process prevails, current intellectual property values and legal theories will need to be readapted. They should not remain obstacles to writing, authoring, and thinking.

The use of e-writing for societal evolution will result in the confrontation of juridical obstacles in their ideology, assumption of large-scale control, and imposed authority. They would be proven obsolete tenets of an old mentality and have to be definitively rethought and

eventually erased. They will be critically contended and obliged to readapt so that newer forms of authorship involving inter-human and human-machine integration could emerge.

7. Information as an interconnectable entity

As planetary net integration evolves, e-writing processes will use digital data repositories so much that invention will typically be thought of as, and realized through, reinvention or co-invention. E-writing will then naturally challenge the present theoretical basis of intellectual property and authors' rights since it must use proprietary material thoroughly and on a large scale. We are currently on the brink of a new conception of information that will demand a reconsideration of the underlying philosophies of creative acts, technologies, and related rights. Each new writing, invention, design, or proposition is now being sensed, perceived, and reconceived through its web presence as a potential element in a more extensive textual construction.

Information should then be considered as re-information, as data-in-flux. New parameters, such as availability, interconnectivity, formatability, translatability, and disseminability, will be increasingly utilized to evaluate, assess and disseminate informational entities. Consequently, hardware, software, communication protocols, and file formats will be redesigned to augment, improve and facilitate interconnectivity, aggregation, knowledge formation, and co-evolution.

Texts as informational entities will have to be fully interconnectable and legally free to interact so that new statements and propositions can be conceived or automatically constructed. Then, the full potential of presently available or yet-to-be-created communication technologies could be achieved.

Conclusion

A new form of inequality could gain force in the coming years unless we can design and promote an equitable informational system, providing extensive access to information, knowledge, hardware, and software.

Large companies building intelligent computer systems able to access massive databanks and synthesize human-like textual statements will gain an undue advantage over the information-poor of the planet. Those companies will argue for exclusive rights to software and databanks, enabling them exclusive rights to an emerging knowledge construction system. They will form a monopoly, owing and controlling not only collective informational systems but also the intelligent machines that can capture this knowledge and recreate it into new formulations and formats. Those private companies and their intelligent machines will be in a far more favorable vantage point regarding the technoless populations who need more time, investment, and capital to use those emerging intelligent systems.

The technoless, the majority of the world's population, are forced to be in poverty, kept without education, knowledge, or foreseeable evolution. They will need the recourses and the cognition to enable them to take advantage of knowledge machines.

Those digital, artificial, intelligent systems can create textual statements far more rapidly than human beings and will certainly substitute human agents in the immediate future. Those systems access the collective informational memory, accumulated over centuries by hundreds of cultures and civilizations across the globe, to perform as knowledge synthors, e-authors, and e-scientists. Notwithstanding, this giant repository must be considered as the common property of humanity, protected to be totally or partially appropriated by private companies.

Therefore, to avoid a new form of slavery based on information scarcity, in knowledge disparity, it becomes necessary to proclaim that all knowledge belongs to humanity as a

universal entity and not to those who can collect, classify, order, and artificially synthesize it. More than ever, we need to demand complete access to information, still controlled by strict intellectual property legislations, but also to computational systems forming software, applications, and their derivatives.

References

Mazlish, Bruce.1993. *The Fourth discontinuity: the co-evolution of humans and machines*. New Haven: Yale University Press.

Pulizzi, James J. 2009. "Machine Intelligence and Electronic Literature, in About Electronic Literature." *New Horizons for the Literary*, http://newhorizons.eliterature.org/essay.php?id=9, accessed April 12, 2022.