Critical Digital Humanities: texts, code and algorithms[1]

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Abstract

Writing is a technology and technology is never neutral. Furthermore, in the digital environment everything is writing: behind every piece of content “is a written system of protocols and controls” (Seymour, 2019). Digital technologies, including the software used in Digital Humanities, help researcher all around the world with new tools and new approaches, but what do we know about these software? About how they are built and structured? About the codes and algorithms they contain? Some researchers have argued that we can bring the critical approach we use in Humanities to the Digital (Berry, 2014), also with the trans-disciplinary help of Modern Languages studies (Pitman - Taylor, 2017): Critical Digital Humanities. But there are other ways to participate “critically” in DH. First, we can consider electronic literature as DH on the basis that “a computer is not a tool or prosthesis that helps us to accomplish our work; rather, it is the medium in which we work” (Grigar, 2021). Second, since we are in a digital environment, we can use the concept of “hacking” as a method (Klein, 2011; Saum-Pascual, 2020;), not limiting it to the software world. If this approach is workable, it can help to overcome the postmodernist “naive trust in the screen which makes the very quest for ‘what lies behind’ irrelevant” (Žižek, 2008). Codes and algorithms are languages - “the ur-writing of contemporary civilization” (Seymour, 2019) - and, as languages, shape our experience of reality: understanding them, especially in the research field, is a necessary step to build an approach that is, at the same time, theoretical, practical and critical.

Introduction

This article does not pretend to map the entirety of the critical debate that characterizes the vast field of Digital Humanities - it would be an impossible task - but it will rather address the main issues that seemed to be left open to questioning in Digital Humanities as I was (and still am) approaching the discipline as a doctoral candidate. In particular, I will focus my analysis on three main thematic areas:

- first, the relationship between humans and the digital machines with a special attention to what lies behind the screen on which we interact with those machines, following the works of Marcello Vitali-Rosati, Laura Tripaldi and Justin Joque

1 This article is an updated and revised version of the paper I presented at the conference “Humanités numériques dans et sur les Amériques” (Avignon, april 21-23 2021).

- second, the practices of digital writing and e-literature as a creative form of Digital Humanities, building up from concepts elaborated by N. Katherine Hayles and on the examples proposed by Alex Saum-Pascual
- third, the concept of hacking as a method that can (and should, I will argue) go beyond the software world and be applied to different domains and inquiries inside the humanities, using – as a case study from the literary field – *Personne ne sort les fusils* by Sandra Lucbert.

To tackle these issues and search for possible (even if not exhaustive) answers, it must be clear that we need an interdisciplinary approach: as I will try to argument, there are so many "touching points" (or "interfaces", as Laura Tripaldi calls them as we will see below) between different disciplines in the form of reciprocal influences but also of methods and practices that can be borrowed.

As a first step to introduce the complexity we are facing when we talk about digital technologies and, specifically, the three themes I will cover in this article, I would like to take a step back and bring the attention to the very roots of the theory that led to informatics. In 1948, Claude Shannon wrote a paper called "A mathematical theory of communication" about the conversion of natural language to numbers, that is to say about how linguistic symbols can become mathematical ones. Based on the assumption that in a given language "some messages are statistically more likely than others, and there are concrete ways to delimit the random factor by studying the frequency and the sequences of letters in natural language"[2], Shannon worked on translating English language into numbers. To do so, Shannon proceeded by different stages of approximation based on the analysis of an English text (could we think of it as a form of Digital Humanities *ante litteram*?). But what was the text Shannon chose for his analysis? It was Dumas Malone's *Jefferson the Virginian* (1848), the first of the six volume biography of the third United States president. It is, as Jonathan Beller points out, a book written by "a highly distinguished historian who served on the faculty of Yale, Columbia and the University of Virginia, who was also director of Harvard University"[3]. Hence Beller argues that the content of Shannon's code is actually Malone's world, its views and values and laws. Provocatively, Beller then asks: "If Shannon's order had not been drawn from that new world order, would the autocorrect in you iPhone work differently?"[4]. We must take this into consideration because, and I quote Beller's words again, "rhetorical difference and indeed social difference, both in terms of the form of the original text and in terms of the 'good subject', affect the mathematical outcomes"[5]. What Beller tells us – and what I argue with him – is that technology

2 Jonathan Beller, *The Message Is Murder: Substrates of Computational Capital* (London: Pluto Press, 2018), p. 59.
3 Beller, p. 72.
4 Beller, p. 73.
5 Beller, p. 74.

is not neutral or, to say it in a different way, “a technology is historical and social before it is technical”[6].

The relation with the machine

I mentioned earlier the word “interface”: even if it is a common term in the digital technologies debate, I am borrowing this concept from Laura Tripaldi’s book *Menti parallele* (Parallel minds). Tripaldi is a researcher in chemistry and materials science and she writes that “our dialogue with technology happens in an hybrid territory, in which our tools influence our behaviors as much as we influence them”[7]. When we think of an interface in the digital world, the screen is the first to come to mind and we can say that it embodies even more the idea when it is a touch screen[8]. I argue here that we should consider the interface more than a physical and graphical surface on which we interact with the machine. As Laura Tripaldi suggests, deriving it from the materials science field, the interface is a “material region”, a “border zone”, a “space of encounter”: these definitions remind us of the “zone indécise” that Genette proposed for the paratext, underlining its characteristics as a space in between the inside and the outside, as an area of transition and transaction[9].

When we think about this for the relationship we have with computers (and tablets and smartphones), we can imagine our interaction with the machine as a way to trespass the boundaries that have been set before and for us. I am not thinking of this as a need for all humanists to become cyborgs (even if this could be an interesting line of thought and research) but more as a way to understand the machine better, to get to know it in a deeper way, to look for what lies behind the screen (in this way breaking the postmodern paradigm, as Slavoj Žižek argues[10]) because, as we’ve seen with the foundation of the mathematical theory of communication, what lies behind the screen is key to what the machine does.

It is not only because it is important to know how the machine works (so we are not to be used by it, we can add) but also because “the relation between the text of the program and its action in the world is governed by play, *différance*, and the impending possibility of deconstruction”[11]. Justin Joque, from whom I took this quotation, is writing about cyberwar and not Digital

6 Beller, p. 101. As Vitali-Rosati writes, “we can think about and understand a tool only by situating it in the social context in which it is used” (Marcello Vitali-Rosati, *On Editorialization: Structuring Space and Authority in the Digital Age* (Amsterdam: Institute of Network Culture, 2018), p. 49.

7 Laura Tripaldi, *Menti parallele. Scoprire l’intelligenza dei materiali* (Firenze: effequ, 2021), p. 18.

8 When talking about screens it is impossible not to mention the work of Mauro Carbone, in particular the focus on our relationship with them, from cinema to the digital revolution and the notion of arche-screen, “understood as a transhistorical whole gathering the fundamental conditions of the possibility of ‘showing’ (*monstration*) and concealing images on whatever surface” (Mauro Carbone, *Philosophy-Screens: From Cinema to the Digital Revolution*, Albany: State University of New York Press, 2019, p. 66).

9 Gérard Genette, *Seuils* (Paris: Editions du Seuil, 1987), p. 4.

10 Slavoj Žižek, *The Plague of Fantasies*, New ed. (London: Verso, 2008), p. 168.

11 Justin Joque, *Deconstruction Machines: Writing in the Age of Cyberwar* (Minneapolis: University of Minnesota Press, 2018), p. 73.

Humanities, but Joque applies the Derridean concept of *différance* not just to human writing but also to code and programming. Especially at a time when programs grow in complexity beyond any possible complete mastery, there are glitches, bugs, errors, latencies in the way software runs on computers and other devices and their networks and interconnections. If we do not write in a language of which we are in complete control, the same seems to go for the machine.

It could not be stressed enough that "the digital is modifying every aspect of our lives (…)" and "the technologies that are present in our lives have a tremendous influence on our way of inhabiting and interpreting the world"[12].

Does this mean that every researcher in the Digital Humanities should be able to code and to understand algorithms? Not really or, better, not to a full extent. But we must consider that "code is not just a list of instructions for the computer. It is a layer of discourse, a text to be accessed by computers, programmers, and many others, and more important, code is a text with connotations that are in conversation with its functioning"[13].

That's where Critical code studies can come in hand because their aim is to investigate "what forces, social and material, shaped the development of the code"[14]. Since code is not neutral because, as a technology, is first historically and socially situated, this approach of Critical Code Studies can help build a bridge between computer science and the humanities, as Mark C. Marino pointed out: "It [the critical stance] explores the rhetoric and semiotics, the connotations and contexts, uncovering histories and assumptions as well as consequences and implications of the choices made in developing code, programming languages, and programming environments"[15]. In order to apply this critical approach, one needs to know how code works.

> At the level of the code, the work of the digital humanist is to interpret the significance of these particular choices against the paradigm of possible choices and within the context of their social and material traces. The danger is to pretend that the code 'just works' – that the code's construction lacks intention and, therefore, that we can avoid interpretation. Choices are made throughout the process of programming – choices made by people in complex social situations – and those choices are informed by a perspective on the world and will impact the world. This impact is registered not only explicitly, as in the case of code that models terrorist movements or climate change, but also subtly, as it communicates ideas and world-views to those who read it. Humanists reading code are doing more than merely changing their own oil; they are learning the hieroglyphic systems that are the lingua franca of the digital age. Their ability to trace and explicate meaning will enhance the understanding of code and identify the messages encoded in each program.[16]

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12 Vitali-Rosati, p. 33.

13 Mark C. Marino, 'Why We Must Read the Code: The Science Wars, Episode IV', *Debates in the Digital Humanities*, p. 139 <https://dhdebates.gc.cuny.edu/read/untitled/section/879bc64b-93ba-4d9a-9678-9a7239fc41e4#ch13> [accessed 17 March 2021].

14 Marino, p. 144.

15 Idem.

16 Ibid., p. 149.

Or, as Benjamin M. Schimdt wrote, “the first job of digital humanists should be to understand the goals and agendas of the transformations and systems that algorithms serve so that we can be creative users of new ideas, rather than users of tools the purposes of which we decline to know”[17].

Algorithms are “complex social symbols” (Angèle Christin[18]) and nowadays they are everywhere in our societies: if we take a broader look at our devices, the searches we do on the web, how we use social networks and other services we connect to, algorithms are an underlying and hidden presence. These algorithms are, in most cases, proprietary and kept secret by the tech companies who own them. As scholars and as humanists, we should have a say on the power that algorithms have in our societies and the harm they can make, reproducing and reinforcing prejudice and bias as they actually do. A few critical analysis have been produced in recent years, with a focus, for example, on the need of democratic control over algorithms[19]. If we conceive Digital Humanities in a broader sense – that is, a critical approach to humanities and the digital – this concern about algorithms seems to fit properly in the Digital Humanities field, as does a pedagogy of computer code, as pointed out by David M. Berry:

> perhaps we are beginning to see reading and writing computer code as part of the pedagogy required to create a new subject produced by the university, a computational or data-centric subject – or ‘computational agent’. This is, of course, not to advocate that the existing methods and practices of computer science become hegemonic, rather that a humanistic understanding of technology could be developed, which also involves an urgent inquiry into what is human about the computational humanities or social sciences.[20]

Marcello Vitali-Rosati, likewise, writes about digital literacy as “one of the most important issues of our time” because understanding the digital space is “necessary for being a free and aware citizen, it is on the same level of studying history or political science”[21].

Digital writing, electronic literature and Digital Humanities

If our knowledge of reality is shaped by the tools (and the materials) we use to create a relationship with it and if we consider the text as a form of reality, then we can think of the Digital Humanties as the field where this interaction can be defined not just in analytical ways but also in creative ones. In this sense, we can consider electronic literature as (a form of) Digital Humanties on the basis that

17 Benjamin M. Schmidt, ‘Do Digital Humanists Need to Understand Algorithms?’, *Debates in the Digital Humanities*, p. 553 <https://dhdebates.gc.cuny.edu/read/untitled/section/557c453b-4abb-48ce-8c38-a77e24d3f0bd#ch48> [accessed 17 March 2021].

18 Christin, Angèle, *Les algorithmes en pratiques : de l’éthique à l’ethnographie* <https://gaite-lyrique.net/plein-ecran/contenu/les-algorithmes-en-pratiques-de-lethique-a-lethnographie> [accessed 17 October 2021].

19 I am thinking here at the work that has been done by the researches of Data & Society (https://datasociety.net/), an independent nonprofit research organization.

20 David M. Berry, ‘Introduction: Understanding the Digital Humanities’, in *Understanding Digital Humanities*, ed. by David M. Berry (London: Palgrave Macmillan UK, 2012), pp. 1–20 (p. 9) <https://doi.org/10.1057/9780230371934_1>.

21 Vitali-Rosati, op. cit., p. 98.

“a computer is not a tool or prosthesis that helps us to accomplish our work; rather, it is the medium in which we work”[22]. That is to say that the creation and the experimentation of forms that are native to the digital environment – as electronic literature is – could be considered as a practice of Digital Humanities. The first consideration we can make, with Katherine Hayles, is that in a way, every writing of our time is digital (except for our handwritten notes, but only if we do not take a digital picture of them) so we can think of the printed literature as a “particular output form of electronic text”, but we must underline that “electronic text remains distinct from print in that it literally cannot be accessed until it is performed by properly executed code”[23], being it a web page, an app or another format. Furthermore, “code must be considered as much a part of the ‘text’ of electronic literature as the screenic surface”[24].

In the digital world everything is writing, because even images, audio and video files are translated into numbers and code (and that started in 1948 with Shannon’s paper on the mathematical theory of communication). Richard Seymour has a radical critical take on the subject of writing in the (digital) present, stating that “we are not so much writing, as being written”[25]; he refers specifically to social media. He also calls “computer programs and internet code and script the *ur*-writing of contemporary civilization”[26], which somehow resonates with what Hayles says about electronic text. But what is electronic literature and why practicing it can be important for Digital Humanities? First of all, apart from the fact the e-lit is something native to the digital and not just a digitization of print literature, electronic literature “is difficult to categorize and clearly describe”[27]. But we can nonetheless agree on the definition given by Scott Rettberg: e-lit “is most simply described as new forms and genres of writing that explore the specific capabilities of the computer and network – literature that would not be possible without the contemporary digital context”[28].

According to Hayles, we can define a first generation of electronic literature, pre-web, whose distinctive feature was the use of the hypertext, and a second generation that uses “a wide variety of navigation schemes and interface metaphors that tend to deemphasize the link as such”[29].

22 Dene Grigar, ‘Electronic Literature as Digital Humanities: An Introduction’, in *Electronic Literature as Digital Humanities. Contexts, Forms, & Practices* (New York: Bloombsbury Academic, 2021) <https://www.bloomsburycollections.com/book/electronic-literature-as-digital-humanities-contexts-forms-practices/>.

23 N. Katherine Hayles, *Electronic Literature: New Horizons for the Literary*, The Ward-Phillips Lectures in English Language and Literature (Notre Dame, Ind: University of Notre Dame, 2008), p. 5.

24 Idem, p. 35.

25 Richard Seymour, *The Twittering Machine*, 2019, p. 23.

26 Idem, p. 41.

27 Giovanna Di Rosario, Nohelia Meza, and Kerri Grimaldi, ‘The Origins of Electronic Literature: An Overview’, in *Electronic Literature as Digital Humanities : Contexts, Forms, & Practices*, ed. by James O’Sullivan, 1st edn (New York: Bloomsbury Academic, 2021), pp. 9–26 (p. 9) <http://www.bloomsburycollections.com/book/electronic-literature-as-digital-humanities-contexts-forms-practices/ch1-the-origins-of-electronic-literature-an-overview/> [accessed 13 December 2020].

28 Scott Rettberg, *Electronic Literature* (Cambridge, UK ; Medford, MA, USA: Polity Press, 2019), p. 2.

29 Hayles, op. cit., p. 7.

Even if the two forms coexisted, Hayles locates the break between first and second generation around 1995. Then the web as we knew it changed, and a third generation of electronic literature is considered to have appeared; Flores sets 2005 as a starting point for a wave that "uses established platforms with massive user bases, such as social media networks, apps, mobile and touchscreen devices, and web API services. This third generation coexists with the previous one and accounts for a massive scale of born-digital work produced by and for contemporary audiences for whom digital media has become naturalized"[30]. This third generation's production may include all that is written on social media, for example in the form of a meme, even if the author is not conscious of the fact that she is producing (a form of) electronic literature. Flores defines it also as "e-literary popular culture"[31] that is "less interested in originality […] and more willing to create remixes, derivations, copies, and outright plagiarism of works, frequently adding personal touches and customizations"[32] of which memes are a great example (in the sense that writing on images can be considered a "step toward a deeper engagement with digital media"[33]). Its formats and publication models are not just born digital but thought digital and this can mark a difference with the first two generations of e-lit, since they stand without a close reference to traditional forms of (printed) writing.

This short excursus about e-lit can help us introduce a broad approach to Digital Humanities that includes electronic literature, as we have seen, but also critical code studies and other research field (I am thinking about racial and post-colonial studies, for example): this could help us to situate the Humanities of our turbulent times with the help of the digital not just as a tool but also as a perspective to better be able to analyze reality. That is to say, with the words of Scott Rettberg and Roderick Coover, "contemporary electronic literature and media art are providing us with new toolsets for processing the significant shifts, from the digital turn to the Anthropocene mass extinction, that are defining our contemporary society and our relation to the planet"[34].

As Alex Saum-Pascual argues – with other literary critics (like Johanna Drucker and Jerome McGann) –, it is important to 'make things' "as a way of doing theoretical works"[35], in a sense that combines *gnosis* and *poiesis*. Following some of her examples when she talks about "critical creativity", we can see how teaching e-lit as Digital Humanities allows students to learn the literary theoretical framework and, at the same time, to practice it and to learn the digital tools used in

30 Leonardo Flores, 'Third-Generation Electronic Literature', in *Electronic Literature as Digital Humanities: Contexts, Forms, & Practices*, ed. by James O'Sullivan, 1st edn (New York,: Bloomsbury Academic, 2021), pp. 26–43 <http://www.bloomsburycollections.com/book/electronic-literature-as-digital-humanities-contexts-forms-practices/ch2-third-generation-electronic-literature/> [accessed 13 December 2020].

31 Idem.

32 Ibid.

33 Ibid.

34 Scott Rettberg and Roderick Coover, 'Addressing Significant Societal Challenges Through Critical Digital Media', 2020 <https://doi.org/10.7273/1MA1-PK87>.

35 Alex Saum-Pascual, 'Digital Creativity as Critical Material Thinking: The Disruptive Potential of Electronic Literature', 2020 <https://doi.org/10.7273/GRD1-E122>.

electronic literature and Digital Humanities[36]. "Without theorizing, practice can be reduced to technical skills and seamless interpolation into capitalist regimes; without practice, theorizing is deprived of the hands-on experience to guide it and develop robust intuitions about the implications of digital technologies."[37] This is inherently more specific to electronic literature than the literary in general, because, as we've seen in the beginning, in e-lit code is part of the text and without code there can be no work of literature (or other form of digital art). This leads us back to the need for humanists to become more familiar with code and to a special declination of making that comes directly from the software world: hacking.

From making to hacking

Even if in the media and popular culture hacker is often considered a synonym of cybercriminal[38], hacking, in hacker culture, can be more precisely defined as a practice of applying technological knowledge to overcome the limitations of software and software-based objects in order to allow new uses and outcomes that were not featured in the original product. We can say, in a broader sense, that hacking is a method of dealing with technology: just to make a quick, everyday example, rooting your smartphone can be seen as hacking because it allows you to overcome the limitations that were built in the device by the producer. "It is the clever gaming of complex systems to produce an unprecedented result"[39]. Hacking is somehow obsessed with how the machine works and what we can do differently with it, but also with the idea that tools should respond to human needs and, if the industry is more focused on its own interests, hacking is a way to put back the technological tools in the hands of the people who really use them. This idea of taking back the tools is even more evident in hacktivism, which combines hacker culture with the struggle for human rights, access and freedom. Hacking is thus more a method than a theory. And that's the interesting aspect of it, because it can be taken from the software world and brought to the humanities.

The concept of hacking is used, in this sense, across different fields and with different aims that share one attitude: changing something (a discipline, a practice, an institution…) from a use that's common, coded, normal to a different way of thinking about it and managing it. Digital Humanities can indeed be one of the preferred fields to experiment this practice, going as further as

36 Without forgetting the materiality of the digital, because "e-lit is both a literary expression *and* a digital object bound to its material and performative body" (Saum-Pascual, op. cit.).

37 *Comparative Textual Media: Transforming the Humanities in the Postprint Era*, ed. by N. Katherine Hayles and Jessica Pressman, Electronic Mediations, volume 42 (Minneapolis ; London: University of Minnesota Press, 2013), p. XVII.

38 Tad Suiter, 'Why "Hacking"?', in *Hacking the Academy*, ed. by Daniel J. Cohen and Tom Scheinfeldt, New Approaches to Scholarship and Teaching from Digital Humanities (University of Michigan Press, 2013), pp. 6–10 <https://doi.org/10.2307/j.ctv65swj3.4>.

39 Suiter, op. cit.

“hacking the academy”, as Daniel J. Cohen and Tom Scheinfeldt suggested in 2013[40]. In the last decade at least, a lot has been said about those different forms of hacking in different fields and disciplines and the debate is ongoing, so I’d like to focus on a very specific case that, in my opinion, is an interesting application of the hacking method, through the literary, to the language: I’m talking about a book, *Personne ne sorte les fusils* de Sandra Lucbert. Why do I consider Lucbert’s work as a way of hacking the language? The book is about the France Télécom trial and it is a critical reflection about the language used by the economic and political power and, in the end, by society itself. The result of Lucbert’s work is of course interesting, but what’s even more interesting is the method: as Lucbert dissects what she calls the “newspeak” (following George Orwell’s traces, sure, but even more the work of the German philologist Viktor Klemperer) we are reminded of the hacking practices that take place in the software world: she studies this newspeak as a hacker would study the code, she then exposes its limitations (especially the fact that “les mots d’une société ne contiennent qu’elle”[41]) and she puts in evidence the real meaning of the words and sentences that she heard in court during the trial and that we hear everyday in the news, pronounced by politicians, economists and CEOs. In a form of hacking that is also a form of *détournement*, she turns this newspeak inside out, using it to expose the ideology it carries within (instead of reinforcing it, which is the actual role of this language). This newspeak, Lucbert argues, is used as a tool of concealment: it hides its ideology (neoliberalism), its goals (to free the economy from the state, to cut social and political rights for the people) and, while subsuming every other possible discourse, it discards all political and economic alternatives. If this is the language that dominates our societies, one of the critical roles of the humanities is to address it in a way that is at the same time theoretical (analyzing it to highlight its structure, features and goals) and practical, to show in a tangible way how it works, how it shapes our way of speaking, of representing reality and of understanding it. And that’s exactly what Lucbert does, “par littérature intérposée”[42], using a “quantité d’états de langage”[43] as tools and switching between literary genres (narration, journalistic reportage, critical essay, monologues in free verses). But there is another reason for which it can make sense to talk about hacking for this book: Lucbert uses the metaphor of the machine when she writes about the social order enforced by the (neoliberal) newspeak. In the France Télécom trial, she writes, the world being judged is the same world that judges, so it’s the whole of our social mechanic that should appear in court[44] but that’s, of course, impossible. If looked at from the outside, this (social) mechanics “ressemble souvent à une torture énigmatique”[45], hence the need, through the tools

40 Daniel J. Cohen and Tom Scheinfeldt, ‘Preface’, in *Hacking the Academy*, ed. by Daniel J. Cohen and Tom Scheinfeldt (University of Michigan Press, 2013), pp. 3–5 <https://doi.org/10.2307/j.ctv65swj3.3>.
41 Sandra Lucbert, *Personne Ne Sort Les Fusils*, Fiction & Cie (Paris: Seuil, 2020), p. 33.
42 Idem, p. 21.
43 Ibid., p. 19.
44 Ibid., p. 19.
45 Ibid., p. 25.

offered by the literary, to locate oneself slightly outside of it to be able to see it as it really is. That is to say, a way to think out of the box, to hack something (the language) with the tools that the language itself can still offer to us[46].

Conclusions

There are open and ongoing debates about what Digital Humanities are and what they could (or should) be. From the analysis of the three main topics this article is focused on, we can underline, as a first attempt to draw conclusions, the importance of an interdisciplinarity that could keep together theoretical, practical and critical approaches from many different fields, even outside of the Humanities. "Digital forensics, critical code studies, platform studies, game studies, not to mention work with linguistic data and large corpora of texts, data visualization, and distant reading"[47]: these are just some ways in which Digital Humanities already apply. And they all seem to be very important aspects of an approach to digital technologies that entails a critical sense-making process about how these technologies keep bringing changes in everyday life, in societies and political systems: Digital Humanities are indeed a privileged observation point.

Science fiction author William Gibson has talked about "eversion" as the present condition of the cyberspace he was writing about in the Nineties: "Now cyberspace has everted. Turned itself inside out. Colonized the physical."[48] It makes no sense, nowadays, to mark a difference between "real" and "virtual/digital". Eversion, writes Steven E. Jones, is "a term for a complex process of turning. As a metaphor, eversion calls attention to the messy and uneven status of that process, the network's leaking, spilling its guts out into the world. The process is ongoing, and the results continue to complicate our engagements with humanities archives and new media"[49].

This approach responds to a need of critical understanding of what the digital has brought about in our lives, not just as a tool for scholars but also as a technology that is central in creating culture and in many aspects of our daily living. And we should not forget the real and heavy materiality of the digital (the raw materials needed for the functioning of computers and networks, the submarine communications cables, electronic pollution), the systemic inequalities that algorithms reproduce and enforce and even the wider implications of the convergence and confrontation between human and machine cognition. Digital Humanities are already engaging with

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46 For a more detailed analysis of Lucbert's work through the lenses of hacking, refer to Roberto Laghi, 'Sandra Lucbert, Personne Ne Sort Les Fusils (Paris: Seuils, 2020)', *Sphères*, 5 Objectivité dans la recherche scientifique, 2020.

47 Steven E. Jones, 'The Emergence of the Digital Humanities (as the Network Is Everting)', *Debates in the Digital Humanities* <https://dhdebates.gc.cuny.edu/read/untitled/section/09efe573-98e0-4a10-aaa3-e4b222d018fe#ch01> [accessed 11 March 2021].

48 William Gibson, 'Opinion | Google's Earth', *The New York Times*, 1 September 2010, section Opinion <https://www.nytimes.com/2010/09/01/opinion/01gibson.html> [accessed 21 March 2021].

49 Jones.. As Marcello Vitali-Rosati writes, "it is therefore no longer appropriate to separate the discourse on reality from reality itself: the two are completely hybridized." Vitali-Rosati, p. 72.

all of this, giving back to us a more complex and richer understanding of the world we live in: as technology keeps evolving and impacting societies, an ongoing, broad and deep critical engagement of Digital Humanities will be more and more needed.

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