Introduction: Life in the Web

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Abstract
The article serves as an introduction to the current journal issue on Online Lives. It discusses and connects the research papers here under three different rubrics: the hopes and fears raised by a world where information is inescapable, the potential and risk of online identities and, finally, the forms of knowledge and participation that define the current architecture of a Web dominated by user-generated content.

Keywords
Information, identity, sociality, network, Web, new media

Anticipation

> In the spontaneous unfoldings of history, the imaginative expression of a trend precedes its conceptual-critical counterpart.
> Kenneth Burke (1984: 75)

It is certainly a cliché to promote the value of science fiction literature in anticipating new media or technologies. Yet it is also the case that sometimes the future overtakes fictional scenarios with surprising rapidity. When it comes to the Internet or World Wide Web,[2] such stories of retrospective validation are perhaps more famous than

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[2] I am aware of the distinction between the *Internet* as the computer communication network based on a suite of protocols collectively referred to as TCP/IP and the *World Wide Web* or *Web* for short as the system

others. Cyberpunk fans will immediately light on William Gibson's *Neuromancer* (1984) or Neal Stephenson's *Snow Crash* (1992), while SF connoisseurs will plead for John Brunner's *The Shockwave Rider* (1975) as an origin point for the imagination of informational webs and virtual worlds *avant la lettre*. A more recent addition to this register is Charles Stross' *Halting State* (2007), a brilliant exploration of online gaming, virtual currencies, and the security vicissitudes of a (very) near future Internet-mediated world. I use some tropes in his novel to point to several critical connections discussed in this introductory article between the hopes and fears raised by a world where information is inescapable, the potential and risks of online identities and the forms of knowledge and participation that define the current architecture of a Web dominated by user-generated content. These three rubrics also serve to organize and put in conversation the nine research papers in this issue.

Halting State opens with the unusual heist of the valuables vault in a massively multiplayer online role-playing game (MMORPG) by a band of orcs with their pet dragon. It then unfolds as a police procedural featuring the forensic insurance investigator called in by the financial institution backing the MMORPG assets in offline life, a gaming geek and virtuoso programmer as well as a host of rather unsavory characters bent either on world domination or indecently rapid financial accumulation. Stross' stroke of genius is the invention of a live action role-playing game (LARP) that capitalizes on the glamour of spying and intelligence gathering and is aptly called Spooks. What makes Spooks different from the games we know is its uncannily clever knowledge infrastructure that relies on the unwitting recruitment of human intelligence agents who go about performing what they believe are game tasks while at the same time fulfilling the intelligence or surveillance needs of various powers that be. As one character, part of an unnamed yet pervasive intelligence agency, puts it: "'Would you believe it used to cost us ten thousand Euros a day to put a full surveillance team on a suspect? Now we've got volunteers who'll pay us to let them do our leg work!' It's all mediated through artificial reality and live-action role-playing games like SPOOKS."[3]

Just as in the non-fictional world, the surfeit of information has undeniable payoffs as well as unanticipated drawbacks. Stross imagines clever solutions for the latter: those who can afford it can pay for the services of specialized cleaning companies who manage, remove or re-prioritize the kinds of information that aggregate into your online identity profile, protecting you from the lasting consequences of harmful bits of data. This future turns out to be already here: online identity clean-ups are now available from a multitude of various companies that emerged in the last couple of years. A better known one is *ReputationDefender* which, by its very name, acknowledges the crucial

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of interlinked hypertext documents supported by Internet infrastructure. Whenever possible, I try to keep the two notions separate but sometimes stylistic and other reasons intervene to make them interchangeable.

[3] It is perhaps a sign of the Zeitgeist that William Gibson's novel of intelligence games *Spook Country* (2007) came out the same year as *Halting State*. See Thompson (2006) on US intelligence agencies plans to switch to open-source spying and use Web 2.0 tools in the creation of an *Intellipedia*. See also the 2006 design project *Rewiring the Spy* by Lisa Strausfeld and James Nick Sears (http://pentagram.com).

importance of online reputation as a resource, form of property and increasingly so, a new type of virtual currency (but more on this below). [4]

Throughout the novel, the reader is drawn into a world where the real and the virtual are almost seamlessly integrated: the loss of virtual currency bankrupts offline banks, real life villains hide behind MMORPG characters and information is not only pouring out of various handheld devices but is automatically projected on any kind of tangible flat surface, allowing you to inhabit a space where the online/offline distinction is becoming meaningless. If such a digitalized reality seems far-fetched, think again. Just last year, Pranav Mistry with the MIT Media Lab developed *Sixth Sense,* a wearable device which, prompted by natural hand gestures, turns walls and other physical objects into instant digital interfaces, projecting on them all the information that was previously confined to the screen. As Mistry claims, "it makes the entire world your computer."[5]

In this sense, *Halting State* is significant because it combines, and plays with, two different visions of what 21st century computer networks could become (toying also with the limits of a universal Turing machine as the title pun shows). In a 1991 special issue of *Scientific American,* Mark Weiser at Xerox PARC articulated this difference as one between virtual reality and embodied virtuality. The first is the most familiar to nowadays Internet users: it is the world built within the computer network, one of online communities, MMORPGs and Second Life(s). The second is the world of ubiquitous or invisible computing, which Weiser promoted as a way of "disappearing technology" or making it "ready-to-hand" in phenomenological terms.[6] One can also discern the beginnings of ubiquitous computing in the increasing portability of communication devices, location-based applications such as Google Latitude and Facebook Places (that prefigure theorized context-aware pervasive systems), wearable interfaces like Sixth Sense or hypothetical applications of nanotechnology such as smart dust.[7] The Spooks game is, in effect, the marriage of virtual reality with embodied virtuality.

Ultimately, the distinction itself is not important. When Internet technology becomes pervasively integrated, the notion of virtuality itself needs to be rethought. For the moment, we can use it in a temporally inflected narrative, as a future in the present, a mode of anticipation that, paradoxically enough, trains us to deal with the unexpected.

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[4] http://www.reputationdefender.com/ (Last visited October 2010). In fact, ReputationDefender was started up in 2006 and was already running by the time Stross' novel was published. Online identity management companies operate by tweaking the complex algorithms used by search engines (primarily Google) in order to establish how web sites are ranked. The goal is to decrease the visibility of sites containing negative publicity for an individual or company and inversely to bring up to the top of the search those sites with positive content.

[5] http://www.pranavmistry.com/projects/sixthsense/#ABOUT (Last visited October 2010).

[6] Weiser (1991) further develops this idea: "ubiquitous computers will help overcome the problem of information overload. There is more information available at our fingertips during a walk in the woods than in any computer system, yet people find a walk among trees relaxing and computers frustrating. Machines that fit the human environment, instead of forcing humans to enter theirs, will make using a computer as refreshing as taking a walk in the woods."

[7] For science-fiction readers, the contrast between the world within the computer and the world made into a computer could well be that of William Gibson's *Neuromancer* (1984) versus Philip K. Dick's *Ubik* (1969).

All the papers in this issue confront, in one way or another, with this shifting configuration of media, story, identity and knowledge.

Information (social) and Web 2.0[8]

> Information used to be the scarce resource. Now attention
> is the scarce resource. Whodini (2001)

Digital technology has made it infinitely simpler to acquire, store, classify, manipulate and retrieve information. Yet, this very abundance raises its own problems of design, selection and control (Huberman 2001; Warner 2010). The above Whodini motto comes from the elusive and protean author of *The Information Inferno*, which is a "designer book," that rare species that tries to blend print and digital technologies to invent new forms of graphical expression, and by doing so to draw attention to the new "economy of attention" (Lanham 2006) governing the digital age. The current supply of information is indeed staggering in its breadth, diversity, and temporal persistence. Scott Lash (2002: xii) has already put it famously: the "information order is inescapable" and it "gives us no longer an outside place to stand." The shortage now is in attention structures adjusted to digital rather than print forms of design and expression – or so at least goes the argument formulated by media historians (Crary 2000) and even a professor of rhetoric like Richard Lanham.[9]

To begin with, the rapid and dynamic pace of information growth on the Web makes it increasingly difficult to search: by the time a search is completed, content or links might have changed into something different. Already in 1945, Vannevar Bush (2003 [1945]) imagined the computer (the *memex*) as a revolutionary tool of information retrieval, but it wasn't until the late 1990s that this promise was realized with the design of search engines. The Web before Google was a labyrinth of information that inspired pessimism in those observers interested in the economy of knowledge (Dreyfus 2001). Even so, current search engines cover only a fraction of the surface Web and are more or less powerless to explore the much larger Deep Web of proprietary databases, dynamically generated sites, limited access or unlinked content (Wright 2009).

For some, such as co-inventor of the Web, Tim Berners-Lee and his World Wide Web Consortium (the main international standards organization for the Web), the solution is to move already towards the future, which would be the Semantic Web. If current search engines operate syntactically on the basis of algorithms that calculate the popularity of web sites (for instance, Google's PageRank), the ambitious Semantic Web proposes the creation of a machine-readable language, uniform and standardized throughout the Web, that would make it possible for computers to achieve at least a

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[8] I used a tag cloud generator to come up with the subtitle for this section - http://tagcrowd.com/ (Last visited October 2010). Word or tag cloud generators help one visualize the structure of a text, website or network by giving more prominence to the most frequent words or tags.

[9] Daniel Miller (2000) makes a similar point when analyzing the aesthetic form of Trinidadian websites as "attention traps" (*apud* Alfred Gell 1998).

limited understanding of the semantic content (that is, the meaning) of the information they are retrieving. "The Semantic Web will bring structure to the meaningful content of Web pages, creating an environment where software agents roaming from page to page can readily carry out sophisticated tasks for users" (Berners-Lee et all 2001). In other words, my future Semantic Web agent will be able to set up my doctor's appointment, tell me what is the most popular restaurant among my closest Facebook friends or even coordinate with my other digital devices (for instance, lowering the volume of my music when the cell phone rings). To make such intelligent agents possible, the Web needs to be redesigned in terms of a universal information architecture fostering automated reasoning. This would not only include common metadata tags (eXtensible Markup Language) and meaning structures (Resource Description Framework) but also ontologies (for instance, the Web Ontological Language), that is collections of information capable of expressing both classes of data and the relations among them, such as domain specific inference rules.[10] Bringing universality and standardization to any system of knowledge representation makes it much easier to control (Bowker and Star 1999) and so it is not very surprising that surveillance based institutions such as the Pentagon are interested in Semantic Web applications.[11] We tend to forget the extent to which modern media are suffused with war (de Landa 1991) and that the Internet itself originated with the ARPANET from within the military-technological complex of the US Department of Defense (Abbate 1999).

The difficulties of information retrieval and filtering coupled with the scarcity of attention might arguably account for some of the findings presented in Laura Nistor's paper in this issue on the role of the Internet in shaping environmental concerns. Nistor uses survey data (Special Eurobarometer 2007-2008) and statistical analysis to investigate the extent to which EU citizens are attuned to the Internet as a source of environmental information and as a guide for environmentally sensitive attitudes and practices. She discusses the common problems posed by the uneven geography of broadband Internet penetration as well as the more critical "digital divide" between post-communist countries and the rest of the EU, which in turn are related to the significant differences in environmental concern between old and new members. One of her important findings is that perceived levels of information on, or commitment to environmentalism, are not necessarily enhanced by specific Internet use (geared toward obtaining environmental information) but by regular surfing of the Internet. Everyday browsing, ordinary navigation of the Web apparently creates more opportunities for environmental sensitivity than specifically tailored searches or use patterns focused on environmental activism websites. As the author acknowledges, more research is needed on what forms specific Internet use takes, but perhaps also on how even the pathways of general Internet use are continuously shaped by the user's participation in various online social media which already act as powerful information structuring devices.

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[10] For more detailed information see the W3C website at http://www.w3.org/2001/sw/ and http://semanticweb.org/wiki/Main_Page (Last visited October 2010).
[11] http://boingboing.net/2006/06/29/pentagon_funding_res.html (Last visited October 2010).

As the understanding of the Internet as an attention economy governed by the currency of "eyeballs," page hits or "attention transactions" (which constitute the bread and butter of page ranking systems and search algorithms) came by, various observers claimed to glimpse a new shape emerging out of Internet information architecture. This is the dynamic, interactive and social Web 2.0, dominated by user-generated content, the Web of blogs, wikis, folksonomies (collections of tags that evolve into folk taxonomies), social networking sites (SNS), online games, virtual worlds, video and photo-sharing sites, tweets, etc. It is the Web where consumers are also producers, where users are not merely readers of text but collaborative participants and sharers in the expansion of a vast archive of information. It is a recent phenomenon – about five years old – that gained even more momentum through the increasing portability and mobility of communication tools: besides the computer accessible web, there are now mobile phones, PDAs, iPods, iPhones, wi-fi, etc. Here is how Wikipedia (itself a product of this collaborative landscape) presents Web 2.0:

> The term **Web 2.0** is commonly associated with web applications that facilitate interactive information sharing, interoperability, user-centered design, and collaboration on the World Wide Web. A Web 2.0 site gives its users the free choice to interact or collaborate with each other in a social media dialogue as creators (prosumer) of user-generated content in a virtual community, in contrast to websites where users (consumer) are limited to the passive viewing of content that was created for them.[12]

Web 2.0, the web of social media, is one in which "I care more about what my neighbor thinks than what Google thinks," as pithily expressed by Eric Qualman in *Socialnomics* (2009), which is (enthusiastically) reviewed in this issue by Monica Costache. In this view, information retrieval is always situated within a community of practice (network, if you will) in which the answers of friends and acquaintances are more trustworthy than the relatively generic information provided by search engines. The best bookstore is the one recommended or highly reviewed by people I know and not necessarily the one that is algorithmically placed at the top by Google. In the most obvious cases, the actual work of information retrieval is outsourced to one's friends via direct questioning as happens on Twitter or Facebook. Less obviously but more pervasively, information is accessed via the tagging system initiated by social bookmarking sites such as Delicious or Digg. Tags are user-created in order to identify and categorize various types of content in a bottom-up, non-hierarchical, decentralized configuration. Now they permeate almost all social software and have spontaneously

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[12] Wikipedia contributors, "Web 2.0," *Wikipedia, The Free Encyclopedia,* http://en.wikipedia.org/w/index.php?title=Web_2.0&oldid=394952816 (accessed November 5, 2010). While I might have quoted any online encyclopedia, I chose Wikipedia to emphasize the enormous collaborative and self-organizing work of dynamic knowledge production that is currently going on throughout the Web (see also O'Sullivan 2009).

aggregated into so-called folksonomies that provide an easily accessible (albeit overlapping) knowledge infrastructure. Social tagging and other instances of collaborative informational architectures (such as wikis) have inspired renewed discussion of the possibilities inherent in complexity theory and more particularly the features of emergent orders, self-organization, autopoiesis and even biological computing and artificial life (Terranova 2004; Helmreich 2000; O'Sullivan 2009).

Part of this collaborative culture are Internet talkbacks, explored here by Ben-Asher and Lebel's paper on competing public representations of Israeli Defense Forces (IDF) widows. What the authors identify as talkbacks are forms of written feedback posted by readers to news articles and that "read as a direct continuation of them," becoming "part of the articles themselves" (p. 24). Congruent with other Web 2.0 applications, talkbacks turn every reader into a writer who can comment, criticize, praise or oppose – in short, undercut the formation of hegemonic discourses by a continuously maintained feedback loop. Ben-Asher and Lebel use talkback statements as the basis of a questionnaire which explores reactions to IDF widows' demands for continued state support even after they form a new intimate relationship. Statistical analysis of the responses shows the articulation of two conflicting discourses – a republican-nationalist one that conditions state recognition on widows' not remarrying and a liberal-emancipated one that favors the rehabilitation of widows, treating them as individuals rather than national symbols of commemoration – as well as a third polemical discourse that underlines the incommensurability of the previous two. By the design of their research, the two authors treat talkbacks as static snippets of public opinion, de-contextualizing them from the specific setting of their production. This is important to the extent that talkbacks are highly indexical: they talk not only to the article they are posted on but also to each other, weaving their own pattern of meaning. Ben-Asher and Lebel rightly explore them as instances of "authentic" public discourse, but this authenticity is itself mediated, by the collaborative framework of the Web in general as well as by the situated conversational structures that talkbacks are embedded in. Ultimately, the question arises whether talkbacks as instances of oppositional discourse are also portable, that is capable of maintaining whatever impact they have outside their context of production.

Such issues of portability come up whenever enthusiastic supporters of social media emphasize their potential for social and political change, both online and offline. There are the already media famous "Twitter revolutions," one in Moldova in the spring of 2009, the other in Iran a few months after. To paraphrase the old Radio Erevan jokes popular in communist Eastern Europe, these were indeed Twitter revolutions, only in the absence of Twitter and without revolution. As Malcolm Gladwell (2010) points out, the revolutions were actually various forms of organized protest; as for Twitter, there were very few accounts in Moldova itself (Morozov 2009) while the Iran-related conversations were mostly carried out in English by émigré communities (Esfandiari 2010). In the words of the manager of a popular Farsi language website: "most of it is Americans tweeting among themselves" (Esfandiari 2010).

It is undeniable that social media are powerful instruments of public visibility and, even more importantly, of real-time coordination, side-stepping physical space constraints (see for instance Rafael 2005 on cell phones in Philippines). Even so, Gladwell (2010) notes with wry irony, "Where activists were once defined by their causes, they are now defined by their tools." Gladwell is deeply suspicious of the power of networks to achieve lasting change and confront high-risk situations. In his opinion, hierarchy is ultimately indispensable; loose ties and consensus-based decisions will simply not cut it in the face of real danger. And yet, his alternative activism illustration comes from the 1960's civil rights movement in the US, in a media landscape very different from the current one. From this point of view, Evegeny Morozov (2009), the initiator and defender of the Moldova Twitter revolution meme (as he styles himself), is right to point out that the low number of Twitter accounts in Moldova (around 70) is not relevant in itself; what counts is that those accounts give one access to a Twitter network that is itself connected to dozens other networks: "on a good network, you don't need to have the maximum number of connections to be powerful -- you just need to be connected to enough nodes with connections of their own." This is indeed a good illustration of network efficiency, particularly in what regards the transmission of a meme. But the rapid circulation of a hashtag within and without Twitter is in the end proof of just that: networks enable, track and reference, circulation better than most other information architectures. The extent to which they can interoperate with more hierarchical structures (especially offline ones) is still up for debate. In the Morozov case, it is doubly ironic that the meme should come back to haunt its creator: first, because the very idea of authorship ought to be theoretically irrelevant in the distributed structure of the network; second, because it shows how network connectivity is ultimately powered by self and self-referentiality.

As the 2006 Time Person of the Year (You) showed, the explosion of social media facilitates and even demands the production of self-oriented information. Laura Arosio's paper in this issue deals precisely with this emerging landscape of personal documents on the Web. Arosio distinguishes between sociology with the Internet (as a data collection tool) and sociology on the Internet (as a documentary archive), focusing on the latter and on how to better collect, contextualize and analyse personal documents such as e-mails, forums, blogs, personal sites and online visual albums. Arosio is deeply sensitive to the situated nature of such documents, reflecting on the complications that arise due to different levels of computer literacy, the temporality of production, forms of authorship that are not tied to stable identities, privacy configurations or linguistic nuances and emerging codes of online communication. In this context, it is somewhat surprising that she attempts to establish equivalence relations between traditional personal documents and web-mediated ones (such as letter/e-mail, diary/blog, autobiography/personal site). By doing so, Arosio alludes to, but narrowly misses, several important questions about the relations between old and new media.

One can imagine the multiple genealogical relations that connect print and digital documents, but equivalence downplays the situated nature of their different mediations. The question here is whether such analogies help us to better understand the

proliferation and features of personal digital documents. They might point to the persistence or even path-dependency of information design and infrastructure: with some exceptions, e-books nowadays are rather consistent replicas of traditional print books with little attempt to exploit the possibilities of digital expression (Lanham 2006).[13] Perhaps such continuities are nothing to wonder at: the first book to come out of Gutenberg's press, the 42-line Bible, was "indistinguishable at first sight from an illuminated manuscript" (Clanchy 1993: 279). Alternatively, it might be that the very process of self-memorialization on the Web is rooted in the archival imaginary first opened up by writing technology and further extended by printing, photography and mechanical sound recording (Chun and Keenan 2005; Gitelman 2006; Kittler 1999). In this sense, the digital archive trumps all others, given its virtually unlimited storage capabilities and its mnemonic potential. Finally, as Arosio notes, digital personal documents are deeply relational, embedded as they are in the collaborative structure of social media. Thus, if blogs or personal sites embody subjectivity and memorialize the self, what kinds of selves and subjectivities are we really talking about?

Ident(ification)

> The technologies of today have none of the integrity of the technologies of 1984. None are decent enough to let you know when your life is being recorded. Lawrence Lessig (2006: 209)

> Copying and reproduction produce individuality by limiting replication. Valentin Groebner (2007: 238)

Whenever you make a search on Google, it is logged and stored in a vast archive of curiosity and can be traced back to your IP address (unless you take precautionary privacy measures). Similarly, unless you disable your cookies, you allow websites to monitor and track you and even to exchange data about you with other partner websites. The old Internet network based on the minimalist end-to-end principle was designed to ensure anonymity but subsequent digital infrastructures such as cookies and cryptographic techniques of authentication make identification the default option. This is a familiar story of increasing control, inevitable identification and quasi-unlimited potential for surveillance - one which Internet law expert Lawrence Lessig (1999; 2006) traces with unusual clarity.

In 1999, Lessig declared in the first edition of his famous book, *Code*: "We will see that cyberspace does not guarantee its own freedom but instead carries an extraordinary potential for control." By the time the second edition came out in 2006, he gave free rein to his circumspect pessimism: "Whether cyberspace can be regulated depends upon its architecture. The original architecture of the Internet made regulation extremely difficult. But that original architecture can change. (...) Indeed, under the architecture

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[13] See however the ongoing projects and discussions on this topic initiated by the *Institute for the Future of the Book*, http://www.futureofthebook.org/ (Last visited October 2010).

that I believe will emerge, cyberspace will be the most regulable space humans have ever known" (Lessig 2006: 33).

This is not a promising beginning for a discussion of those papers in this issue that extol the potential of the Web for the experimental articulation of identities. Yet, I choose to frame my comments this way precisely to make up for the unbridled optimism of many of the authors here. While extremely appealing, the prevailing vision of the Web as an intrinsically safe and free space inevitably conducive to collaboration, participation, community and belonging still needs to be critically questioned. The Web is hardly an e-topia of multiple, flexible, risk-free identities.

In a different vein, and perhaps more importantly, the historicity of information control on the Web as well as in other media reveals some critical insights about the relation between identity formation and identification techniques. The question of identity became conceivable only with the emergence of semiotic technologies of mediation. The thumbprint, signature, seal, badge, coat of arms and later on identity papers – all these signaled an irreversible shift towards the technological mediation of presence. As Brigitte Bedos-Rezak (2000: 1490), a historian of medieval identity, puts it: "personal identity came to be signified just as people began to project their authority and accountability beyond their own actual, empirical presence." In other words, people acquired identities just as they learned how to be substituted by signs, to be duplicated. Moreover, these signs were for the most part not unique, individual identifiers, but serial objects produced by replication technologies. It is certainly suggestive that before he set up his famous printing shop, Johannes Gutenberg first experimented with mass (re)production technologies in 1439 by manufacturing and selling about thirty thousand pilgrim's badges (Groebner 2007: 58). What we know as the intricate modern bureaucracy for tracking individual identities was literally made possible by reproduction technologies. Seals, stamps, badges and identity papers created the double of a person in writing, which was then re-doubled by a registration system that recorded the document issued. Paradoxically then, as Groebner (2007) argues, reproduction was meant to produce identity by limiting replication: as long as one's identity was registered and bureaucratically reproduced it became more difficult to manufacture a second identity. But as happens with all administrative orders, the unintended consequence was that, by creating a paper double of the individual, bureaucratic techniques ironically produced the impostor and impersonator. These were in fact doppelgangers of administrative identity procedures who exploited the same reproduction technologies by separating the paper double from the individual or even creating new paper individuals by means of forgery, copying and so on. The same irony persists today when more secure, better encrypted identities feed into ever new forms of identity theft.

This brief foray into the history of identification techniques is meant to underline a basic yet crucial feature of the Web's digital technology, that is, the ability to create an

unlimited number of perfectly identical copies.[14] Until the transition from analog to digital media, every reproduction of information resulted in transformation, eventually creating new information (Offenhuber 2007).[15] In contrast, digital media made possible the fast, easy, (almost) error-free and cheap reproduction of identical copies.[16] Stimulated by this cult of the copy, meme theory, for instance, abstracts copying from the materiality of digital media and turns into a universal principle of cultural replication (Parikka 2008: 72). I would argue, then, that the Web enables the multiplication of identities not necessarily because it affords anonymity (ultimately, it doesn't), but because it fosters reproduction and replication at every level. Identification techniques are pervasive both online and offline and to the extent they act recursively, full anonymity is very hard to come by. Nonetheless, something like anonymity is achieved as a side effect of digital replication: the Web is where copies of originals, copies of copies and even copies without originals coexist, simulation blends into dissimulation and duplication skirts duplicity.[17]

The creative possibilities opened up by replication are explored in this issue by Iulia Cornigeanu's insightful piece on literary clones. Clones are virtual identities invented by young writers (often already established ones) in the context of virtual literary communities. They act as versatile tools for authors who want to experiment with new styles, to test the limits of their professional communities or to foster reading practices motivated by text rather than authorship. In doing so, clones enact the play between identification and replication that I discussed above. One writer cited by Cornigeanu puts the issue in a nutshell: "In order to be a clone, you need to already have an established name, otherwise it's just a pseudonym." At the same time, clones embody "anticipations that the copy will transcend the original" (Schwartz 1998: 11), reverting back into and thus transforming the author's persona when they achieve a successful career. The doubling and redoubling made possible by clones gives rise to identity games of detection ("clone-hunting") whereby new writers are suspected of being clones and vice versa. These are a funny and yet poignant virtual version of Capgras syndrome, engaging the members of the community into a constant genealogical exploration of the origins of personhood: mask and person revert to their initial etymological unity (Mauss 1985). Finally, clones are not the evil twins of fairy tales or the vengeful doppelgangers of literary fame; at the most, they are *agents provocateurs* to a more insightful understanding of artistic production and creativity. They enact in a literal sense the

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[14] However, this ability is not necessarily translated into practice. Due to storage and bandwidth limitations, the replication of digital images, for instance, relies on "lossy compression" that inevitably implies loss of information, degradation, and noise (Manovich 2001: 54-55).

[15] It was precisely by working on eliminating "noise" from transmission that the pioneers of information theory like Claude Shannon and Warren Weaver defined information as a measure of uncertainty (Ritchie 1986).

[16] This is why copyright (and digital rights management) is such a thorny issue in a Web suffused with copy and distribution routines such as file-sharing networks.

[17] The documentary *Catfish* (2010) by brothers Yaniv and Ariel Shulman on their Facebook experiences is a wonderful illustration of this. It almost turns the online engineering of fictional identity into an art form.

distributed personhood that Alfred Gell (1998) associates with the making of art in an agentive network.

In a related paper, Ioana Cărtărescu looks favorably on the potential of online communities to foster feelings of belonging, enrich identities and in general exploit creatively the temporal and spatial advantages of virtuality. Aside from blogs and artistic forums (discussed in other papers), she also introduces online role-playing games such as text-based MUDs and the more elaborate MMORPGs. These evolve into vast and complex communities with their own rules, norms, economies and social organization - all of which are based on collaboration among players who deftly navigate the world patterns provided by gaming companies (see also Bainbridge 2010; Pearce 2009; Rheingold 1994). What counts as identity in these contexts is certainly not "the obsolete notion of the unitary self." On the contrary, role-playing and the identification with one's game character give players the possibility to "'try out' lives like clothes and decide which would suit him/her best, without taking any real chances" (Cărtărescu, p. 64). A player interviewed by Sherry Turkle (1995: 13, cited by Cărtărescu, p. 65) describes this process as a mind-split ("I can see myself as being two or three or more") which translates RL (real life) into "just one more window." As in Cornigeanu's paper, replication - the One made Many – is a means to anticipate authenticity by a continuous shift of perspectives. After all, as G. H. Mead (1932: 49) put it so memorably, "sociality is the capacity of being several things at once." Similar issues of relatedness and synchronicity arise in Simona Ciotlăuş' excellent review of *Coming of Age in Second Life* by Tom Boellstorff (2008). The avatars of Second Life users are "zones of relationality" (meaning at least that one person can have several avatars or one avatar be controlled by several people) which manipulate the time lag created by too much information or practices such as afk (away from keyboard) so as to distinguish between presence and immersion or between different degrees of virtual presence.[18]

Adding to the suite of identity focused papers in this issue is Alexandra Zontea's thoughtful piece on virtual art galleries as spaces of identity building and advertising. For the photographers interviewed by Zontea, virtual galleries are part of a process of social communication that enhances the specific features of photography as an art form. In this sense, the virtual replication of photographs reproduces photography's communicative relation to reality, tying artist, artwork and audience into a web of sociality. Mediated by photography, the artists' inner feelings, states of mind and experiences can be incorporated into the identity "puzzle" that is the gallery. Indeed, "my gallery is me," declares one of her respondents. Zontea concludes that virtual galleries function like "identity cards," but her paper shows that they are more than that: platforms to package one's identity as a virtual profile and further advertise this profile as a commodity for artistic and social consumption.

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[18] But see Hubert Dreyfus (2007) for a perceptive critique of the incapacity of virtual environments like Second Life to fully communicate embodied experience and most particularly moods. His comments address the longstanding debate between proponents of disembodied artificial intelligence and supporters of situated, embodied cognition (Suchman 2007).

Greg Bowe's paper on the management of identity and intimacy within Facebook publicized relationships echoes Zontea's arguments. Bowe is concerned with the emotional register of users involved in a romantic relationship that is at least partially mediated by Facebook rituals such as altering one's status, public displays of affection or the posting of photographs. He shows how the design of the website guides and even produces the online and offline romantic practices of users: the status option can accelerate a relationship or account for feelings of possession and jealousy. Even more so, public displays of affection and online pictures construct and advertise the relationship as a public product, a commodity that escapes the full control of the couple. In this context, emotional management is carried out under the constant surveillance of one's network of friends and is thus designed to appear effortless. Complex and difficult feelings – even when occasioned by Facebook rituals – are not dissected in the semi-public space of the site, allowing one's online profile as well as the image of the relationship to take a life of its own.

One can reframe Bowe's and Zontea's insights into the advertising dimension of online identity profiles in the initial context of identification and information control of this discussion. Social media such as online communities and social networking sites stimulate the continuous production of information: users build their profiles by advertising themselves and revealing things that can identify them, often very intimate details about their lives. These accumulate into vast archives that advertising agencies would have paid dearly for only a decade ago. A site like Facebook is valued at $23 billion precisely because it provides an uninterrupted stream of such data, most recently in the form of the disturbing Open Graph. Indeed, it is difficult to know whether Facebook CEO, Mark Zuckerberg, speaks ironically (or simply parodies anthropological jargon) when he refers to his SNS as a "gift economy," a "potlatch" of information wherein users freely supplying data leads to a more transparent economy and hence to a "better-governed world and a fairer world" (cited in Fish 2010).[19] But underlying these everyday operations of social media are dozens of commercial websites whose main business is data mining: collecting, aggregating, classifying and using personal data (Beer and Burrows 2007). In turn, this wealth of information is processed back in the form of targeted ads by the efficient agents of a "knowing capitalism" (Thrift 2005). This is a bleak yet realistic scenario of the feedback loops by means of which online identity profiles contribute to, and are in turn shaped by, the knowledge economy.[20] It is easy and even liberating to accept the relational constitution of identities in the collaborative context of social media; can it be so when those who shape our identities are invisible data mining companies over whose methods we have little, if any, control? Amazon saying "hello, we have recommendations for you" might come to seem as the least intrusive prompting.

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[19] Most likely, Zuckerberg is in dead earnest. For a candid discussion of his future vision of a Facebook dominated Internet, see Vargas 2010.

[20] "…profiles will begin to normalize the population from which the norm is drawn. The observing will affect the observed. The system watches what you do; it fits you into a pattern; the pattern is then fed back to you in the form of options set by the pattern; the options reinforce the pattern; the cycle begins again" (Lessig 2006: 220). In this issue, la Rocca (99-100) is also exploring these possibilities.

Lessig (2006: 220) touches on the crux of identity when he asks: "When the system seems to know what you want better and earlier than you do, how can you know where these desires really come from?"[21]

Implicit in the operation of this knowledge economy is the temporal persistence of digital data: once posted and put into circulation, information can be stored indeterminately. The Web records everything but rarely allows forgetting: it aggregates all your posts, blog entries, status updates and online photos into a data cloud that can follow you indefinitely. Law professor Jeffrey Rosen (2010) sees this inability to forget as a threat to "the possibility of digital re-invention" and even more deeply to "our ability to control our identities." It is no wonder that Google CEO, Eric Schmidt, warns the young users of today that they will have to change their names in the future in order to escape their checkered digital pasts (Jenkins 2010). Alternatively, users might have to subscribe to the services of online identity management companies such as ReputationDefender in order to keep some control over their reputations. That such control is becoming desirable is well illustrated by the equation of online reputation to wealth. Inspired by Cory Doctorow's science-fiction novel *Down and Out in the Magic Kingdom* (2003), the Whuffie Bank created a reputation currency (the whuffie) which is calculated by detecting public endorsements and measuring levels of influence across networks such as Twitter and Facebook. By assigning a value to reputation, their aim is "to change the relation we have with our values by changing money."[22]

However, the idea that one can manage or even own one's reputation (Blocher 2009), online or offline, is ultimately impracticable.[23] In medieval Europe, when reputation served as legitimate legal proof, contemporaries were very much aware of the risk and alienation of control associated with a self defined by reputation (Fenster and Smail 2003). Just as one couldn't control the spread of rumors and gossip then, one cannot put a stop to the replication of information across distributed networks now. What is possible though is renewed attention to the privacy architecture of the Web. Spurred by the recent changes to Facebook's privacy settings (which now make the public display of information the default option, after the model of competing SNS Twitter),[24] Web users debate the design of increasingly sophisticated privacy options. Whether based on encryption technologies that literally "vanish" data or innovative

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[21] This is a conundrum familiar to anthropologists who study the impact of new media and means of exchange upon the constitution of knowledge, identity and relatedness. Faced with the intricate workings of paper and guns, the Nuer studied by Sharon Hutchinson (2000: 71) wryly observed that these "have come to know people in ways that we cannot know."

[22] http://www.thewhuffiebank.org/static/faq (Last visited October 2010). See also Daniel Solove (2007) on the future of online reputation.

[23] See Thompson (2008) for the problems of a non-hierarchical, reputation-based economy such as online auction site eBay.

[24] For a recent review of the problem see Debatin et all 2009. For a Twitter-sized thought, see the following: "Off record chat w/ Facebook employee. Me: How does Zuck feel about privacy? Response: [laughter] He doesn't believe in it." 8:30 AM Apr 28th via Twitter for iPhone. Retweeted by 100+ people. nickbilton (Twitter account of journalist Nick Bilton).

designs for the re-invention of digital forgetting (such as in-built expiration dates), these projects approach privacy configurations as a problem of machine-readable language, that is, code.

Code and creativity

A medium is a medium is a medium. Friedrich Kittler (1990: 265)
To imagine a language is to imagine a form of life. Ludwig Wittgenstein (1953, §19)

Imagine being illiterate and trying to understand the impact of alphabetic writing. It would be *almost* impossible. The almost makes all the difference, insofar as it turns the technology of writing into a black box while at the same time generating imaginative ways of putting it to use. As various studies of literacy show (Clanchy 1993; Ofrim 2001; Ong 1982), the understanding of written documents in largely illiterate societies shifts the emphasis from content to form: documents become graphic artifacts whose materiality is in itself the conduit of power, evidence or magic. The Golem is miraculously brought to life with a slip of written paper under the tongue. The same problem plagues students of new media and the various communication forms they support. The Internet is based on digital code (the famous binary numeral system) and users' experience of it is mediated by various types of software, including operating systems, programming languages and applications. Do we speak code? Most of us don't and our understanding of, and ability to fully explore, new media is thereby limited to interfaces. Michael Mateas (2005) sees procedural literacy - "an understanding of how code operates as an expressive medium" - as imperative in contemporary culture: "believing only programmers (people who make a living at it) should be procedurally literate is like believing only published authors need to learn how to read and write." Media historian Friedrich Kittler (2008: 40) puts the matter even more implacably: "Codes—by name and by matter—are what determine us today, and what we must articulate if only to avoid disappearing under them completely." He is impatient with those scholars of new media who "know higher mathematics only from hearsay" (Kittler 1999) and thus ignore the intrinsic technological logic of the medium (which is a medium and therefore untranslatable). In a similar vein, Lev Manovich (2001) suggested that the field of new media would be better called "software studies" – and he was taken up by Matthew Fuller (2008), the editor of an exquisite lexicon of software studies.

This insistence on intimacy with the medium should be right up our anthropological and sociological alleys and there are at least two ways we can approach it. First, the very idea of ethnographic research depends upon extended temporal participation and immersion in the object, practice or community of one's study. In her review of Boellstorff (2008), Simona Ciotlăuş remarks upon the author's avowed goal to study virtual worlds "in their own terms:" creating his own avatar, spending time in Second Life, participating and interacting with the other members of the virtual world.

Such forms of participation are indispensable if research is to "come from inside the information itself" (Lash 2002: vii). The ethnographer of life in the Web needs to build her own profile, make friends on Facebook, tweet and retweet along with everyone else, post and comment, tag and bookmark, play a character in MMORPGs – in short, collaborate in generating content on Web 2.0 (see also Beer and Burrows 2007).

Many of the authors in this issue are clearly participating in the Web in this sense, even if they do not make their involvement into a topic of discussion. Two of them, however, explicitly articulate their research auto-ethnographically as a trajectory of participation. Ioana Florea's paper on narrative online and offline spaces is also the story of learning how to become an anthropologist by doing fieldwork in interactive online forums and chat portals. Doing research on virtual ethnic networks while taking a class on virtual ethnicity, she becomes an example of how "academic narratives continue the personal stories of researchers" (Florea, p. 74) and thus of the online/offline recursivity of networks and their narratives. A revealing moment comes when the researcher creates a thread in a forum and gets the chance to observe first-hand the unintended effects and unexpected turns of real time participation. This serves to underline the "negotiation processes" that must continuously take place during research in order to account for the exchange of narratives between those who study and those who are studied as well as between online and offline worlds.

A similar concern with narrative, recursivity and the unexpected (what better way to frame a story?) defines Gevisa la Rocca's account of her accidentally engaging in viral marketing on behalf of the academia.edu network. La Rocca mistakenly sends an invitation to join academia.edu to 281 of her contacts, but in her relentless and amusing determination to fully narrate this event she manages to turn it into a testament to the productivity of error. Engaging with Robert Merton's notion of the unintended consequences of social action, she weaves a compelling story that, by its twists and turns, provides an image of the causality relations that tie online and offline worlds. An action that she unwittingly initiates in the virtual space ends up by rearranging her real life relations and subtly changing her real life identity: this is "what happens when the virtual, and what it contains, becomes part of daily life" (La Rocca, p. 98). The reassuring boundary created by log in and log out simply doesn't hold anymore. As in the Spooks game invented by Charles Stross, the chains of causes and (unexpected) effects are indefinitely extended by a medium that demands immediate participation while withholding immediate knowledge.

This tension between knowledge and participation brings me to the second way we can approach the study of new media. Following Kittler's and others' advice, it would imply a knowing rather than just participatory involvement, the creative manipulation of code rather than just interfaces. Ethnomethodologist Harold Garfinkel's (2002) "unique adequacy requirement of methods" describes this very well: researchers would have to become "competent practitioners" of new media, appropriating the very methods that underlie the existence of what they study. Arosio and la Rocca distinguish between research *on* and *with* the Internet – it is the latter that brings such questions of competence and literacy to the fore. Doing ethnography *with* the Internet, using it as an

instrument of research, should not necessarily be limited to the examples mentioned by papers in this issue: online interviews and focus groups or the crawling of the Web for data. Why not exploit the possibilities of the medium and design your own research software for tracing and visualizing knowledge and social network activity , the textual concatenations of online profiles, the tridimensional shapes of online identities , the indexical traces of IP addresses in databases or the real time accretion of Web data into nodes and clusters? [25] These are just a few examples of projects undertaken not by sociologists and anthropologists of the Internet, but by new media artists and experimental designers. Their work illustrates the potential of art and design to teach us about code, creativity and research (Grau 2003; Vesna 2007; Wilson 2002; Whitelaw 2004).

These forms of visualization are already part of the way users experience and interact with the Web. Widely available applications such as Fidg't, Facebook Friend Wheel and Tag Graph, Tweeter Social Collider or FOAF (Friend of a Friend) situate their users within and across their networks, map their interactional paths and provide them with a model of how networks continuously grow. In these times of "network fever" (Wigley 2001), the experience of networking is already mediated by these visualizations to the extent that the network's description becomes its own analysis (Riles 2000). These descriptions and visualizations act back on the form of the network, emphasizing its binding power or mobility potential, its relative hierarchy or open weave and even its capacity to evolve spontaneously in self-organizing patterns.[26] Ultimately, the tools that underlie this work are code and creative software design and battles over the ownership of these tools are currently shaping Web space, from movements such as open source and free software to Creative Commons and ever new models of collaborative ownership. If code is a generative language, capable of even creating artificial life forms (Helmreich 2000), it is no wonder that the project of redefining notions of copyright and intellectual property is what many scholars of new media are currently engaged with (Coleman 2009; Ghosh 2005; Johns 2009; Kelty 2008; Lessig 2004). As Marilyn Strathern (1996) reminds us, ownership cuts the network, and this caesura is well worth our attention and creativity.

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[25] Some of the artists and designers whose projects I'm referring to are Natalie Jeremijenko, *Live Wire* (http://www.nyu.edu/projects/xdesign); Lisa Jevbratt, *Every (IP)* and *Mapping the Web: Infome* (http://jevbratt.com/home_projects.html), Alex Drăgulescu, *Lexigraph I* (http://www.sq.ro); Jonas Loh and Steffen Fiedler, *Identitat - the Gestalt of Digital Identity* (http://www.digital-identities.com/concept.html); Ben Fry, *Anemone* (http://benfry.com/anemone/). A full exhibition dedicated to the vicissitudes of digital identity is the 2008 *Metropath(ologies)* by Judith Donath with the Sociable Media group at MIT (http://web.mit.edu/museum/exhibitions/connections/#metropathologies). But see also Eysenbach (2006) on how infodemiology collects and maps people's web searches for disease symptoms, in order to predict epidemic outbreaks.

[26] Ever since the first telegraph nodes, the network as metaphor and social form has been shifting its meaning and structure, adapting to new media configurations (Otis 2001; Standage 1999; Knox, Savage and Harvey 2006). Actor-network theory (Latour 2005), for instance, capitalizes on this polyvalence of the term.

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