

## Future Fictions

How will stories be told in the future? *frieze* asks nine artists and writers to reflect on how narrative structures will change as technology advances

### IAN CHENG

I'm nine years old watching *Jurassic Park* (1993) at the cinema for the third time. The velociraptor is hunting the kids in the kitchen when the edge of the scene suddenly bursts into white lava. I don't remember this happening before. I lean forward in my seat, excited to discover a new detail. The effect blooms everywhere. Humans and dinosaurs erode into abstract bleeding blobs. Someone screams up at the dysmorphic raptor, then back at the projectionist. I look back at the booth – the fucking film is on fire. Projectionist and flames jumping around up there. House lights come on. Ushers guide us to emergency exits. Outside in the parking lot, everyone stands searching, squinting. No one knows what to do or how to behave. There were no plans to be anywhere else right now.

Narrative is itself an intuitive technology for normalizing change, for cohering the experience of reality into a sequence of measured consequential developments – a kind of user experience (UX) design for organizing the look and feel of reality.

But sometimes random, unscripted, unforgiving, unmotivated, inexplicable shit happens. Contingency is change happening faster than a human being can immediately narrate, when the UX can't keep up in real time.

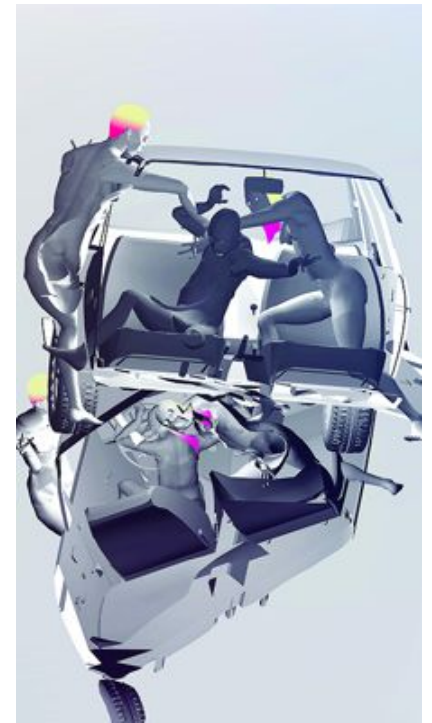
The degree to which human beings can deploy narrative as a format for cohering the cameos of reality's contingencies is related to the frequency with which we have to deal with those contingencies. An isolated cinema fire in 1993 can be UXed in its retelling.

But now it's 2013, and there's the feeling that the straight story can no longer normalize the complex, unpredictable forces of reality that intrude with greater and greater frequency, let alone the incessant stream of big data reporting on these complexities. What is the intuitive story of climate change? Shifts in the market? Mutations in your brain? Your browsing history?

Specialists turn to non-intuitive technologies like quantitative analysis, simulation modelling and probability in order to trace narratives that account for the present and make

## About this article

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Ian Cheng, *This Papaya Tastes Perfect*, 2011, still from motion capture animation

[Back to the main site](#)

predictive narrations of the near future. But for the rest of us, this kind of non-human storytelling is counterintuitive to our intuitive UX. We receive it, but we don't feel it, so we can't embody it. Anxiety takes hold when embodied narration fails.

The evolution of the narrative form necessitates mutating our intuitive ux for storytelling with a coefficient of persistent anxiety. Anxiety is a condition that cannot be eradicated, but can be managed. Is it possible to shift from a culture that wallows in anxiety towards the creation of narrative tools that contain and manage a bug of anxiety within them?

Imagine a narrative format that has probabilistic outcomes.

Imagine a narrative format that can simulate unscripted contingencies against scripted choreography.

Imagine a narrative format that requires its authors to embrace contingency and irreversibly change during its making.

Imagine a narrative format that doesn't promise a scheduled time to end.

Imagine a narrative format that erodes as you erode.

Some formats are already technically here. Recent treatments for post-traumatic stress disorder deploy virtual reality simulation – brimming with contingency and algorithmic anxiety – as a complement to classic therapeutic narration.

But that's just the tip. To be ready for the future is not to imagine outlandish cure-all technologies, but to do the work of developing formats to integrate intuitive and non-intuitive technologies towards unnatural normalization.

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## **TIMOTHEUS VERMEULEN**



Yael Bartana, 'And Europe Will Be Stunned', 2007–11, installation view at Petzel, New York, 2013

Ian offers an intriguing and inspiring account of the

correlation between narrative innovation and technological development, which I find myself mostly agreeing with. There are a few thoughts I would like to develop further: I agree that narrative is our intuitive technology for making sense of change. Each new narrative development, whether it is a (inter)medial progression or one within a medium, allows us to make sense of new kinds of changes – changes that may have previously seemed contingent. (What we mean when we say something is contingent is, after all, not that it is simply random or meaningless but that its meaning is dependent on a variable.) The 19th-century novel, for instance, by devoting as much attention to the working classes as to the higher echelons of society, enabled people to contemplate changes pertaining to democratization. Modernist art, flattening and fragmenting, did much the same for Structuralist notions of identity.

To be sure, this relationship between narrative and change is not causal. New narrative forms or techniques emerge from new social and technological configurations, which in turn arise from new narrative forms. It's a chicken-and-egg kind of thing.

What people call art, or have come to call art since Romanticism, is often a practice that develops such a new form. Jacques Rancière praised Gustave Flaubert's ability to turn literature from a hierarchical medium into a more egalitarian discipline, where not only king and pauper are equal, but also plot and detail, foreground and background. Similarly, Gilles Deleuze admired the way Francis Bacon developed painting from representation into potentialization. Often such developments show what the medium is capable of *and* signal its limitations. Surely Flaubert's strategies would be better suited to photography, just as Bacon's operations appear to presuppose the medium of film. So here the function of 'art' is simultaneously to deconstruct the existing rules of narration and to devise alternative, as-yet-unimaginable models.

In this respect, I think Ian is right to suggest that new narrative technologies can integrate the intuitive and 'non-intuitive', and can create hopeful narratives that contain 'a bug of anxiety within them'. I believe this is already happening. Ian's own work, *Entropy Wrangler* (2012), is a case in point, as are Ragnar Kjartansson's *Sorrow Conquers Happiness* (2006), Guido van der Werve's *Nummer acht, Everything is going to be alright* (2007), Yael Bartana's work on the Jewish Renaissance Movement in Poland (2007–11) and Mariechen Danz's *Cube Cell Stage* (2012). Kjartansson, for instance, sets out to change the meaning of the titular sentence even though its meaning is semantically fixed. Bartana calls for the foundation of a Jewish state in one of the most anti-Semitic countries on earth. The Postmodern specialists Ian mentions asked 'What if?' But this question is not a question of development. It is a question of stagnation. When you ask 'what if?' you close down possibilities: you

calculate all the paths you could logically take from your current position. What Kjartansson and Bartana wonder about is 'as if'. Let's act, they say, as if it is possible to do something we know it is not. Pretending opens up possibilities: it imagines alternative routes without regard for logic or reason. Ian, Kjartansson, Bartana – they all contemplate the possibilities that new technologies may offer for narratives, simply by pushing a particular kind of narration beyond its own limits.

If it is true that Web 2.0 and the blogosphere have returned the people to the public sphere – producing debate, participating in the narration of our times – then it is the people that can best answer how digital media will influence storytelling. Silly as it may seem, my answer is: DIY, probe your own narrative forms, and find out.

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## FATIMA AL QADIRI



Fatima Al Qadiri and Khalid al Gharaballi, *Mahma Kan Athaman (Whatever The Price)*, 2010, a novella published by *Bidoun magazine*

What if the 'what if' that Timotheus proposes were transmogrified to posit the question, 'What if Arabic writing were to accommodate technological mutations in the future?' Will this orthographic mutation affect Arabic narrative structures?

What if, via the blogosphere, as Timotheus speculates, Arabic were returned to the people to participate in the narrative of their times – that is, revolutionary times? For those unaware, Arabic is a triglossic language – meaning it exists simultaneously as the Classical Arabic of religion, as the journalistic and literary Modern Standard Arabic, and as the various regional spoken Arabic languages – the orthography of which has scarcely altered in centuries. But a large-scale

mutation appeared in the 1990s with the advent of text messaging, when people started using the Latin alphabet in conjunction with a set of numbers, to represent consonants that exist in Arabic.

There have been a few names coined to refer to this Arabic 'chat' alphabet, such as Arabish, Arabizi and Araby. However, Arabish and Arabizi, for instance, only refer to their combination with the English language – but what of Arab Francophone and Arabic variants of other Western languages? I would propose we re-frame this orthography as 'Arabix', in order to avoid the limited linguistic spectrum associated with said terms and to highlight the textual aspect of the alphabet. For instance, my name is spelled 'Fa6ma', in Arabix. The '6' represents a consonant that does not exist in English, hence the need to transliterate it via a numerical symbol. I adopted the Catholic 'Fatima' as a Latinate spelling to accommodate the disorientation of non-Arabic speakers.

Arabix was born as a technological necessity at a time when mobile phones and computer keyboards did not accommodate the Arabic alphabet – something they later did via Smartphone technology, keyboard design and alphabet switching software. This mutation effectively allowed any dialect of Arabic to be written and pronounced – provided the user was able to comprehend the Latin alphabet – which previously had not been possible on such a widespread and functional scale. In the past, Moroccan, Lebanese and other Arab artists and nationalists had attempted to write publications in their dialect, as a way of escaping Classical Arabic, the only accepted orthography, as works of linguistic revolution. Now that Arabs can write in any dialect using Arabix, will this give birth to an industry of new Arabix narratives? Will publishers of books and magazines accept this transgression and recognize the validity of Arabix?

I have been admittedly shy of reading Arabic narratives due to my British and American education from an early age. Arabic seemed needlessly stuffy and outdated, a reminder of Latin in the Middle Ages belittling a hearty buffet of European vernacular. I embraced English novels, magazines and newspapers with blind vigour as I deemed English to be alive in the present moment – particularly in articulating my teen angst in ways that Arabic never could. With age and higher education, I realized that this harsh dismissal reflected a youthful ignorance of the complexity of Arabic, and its rare linguistic situation as triglossia.

Just as the blogosphere is being used to topple governments in the region, will Arabix ever be recognized as a language capable of rich narratives, in conjunction with Arabic – living side by side as two sides of the same expressive coin? Borne of chat and text, will Arabix spiral to novel-length aspirations? Will we read Arabix texts in the near future that incorporate unnatural normalization, as Ian envisions? Arabix is exciting because it's a fairly recent orthography that

will feasibly grow with the number of bilingual Arab speakers – speakers who abandoned the language in their youth to learn a Western lingua franca, but now yearn for Arabic narratives in adulthood (myself a prime example of a person in said linguistic limbo). I know I'm not alone in embracing Arabix.

There is tangible change across perennial systems of the Arab world. Perhaps Arabix will be a long-term and recognized orthography that will alter narrative structures in present and future times. Having made this speculation, the probability of a published or digital Arabix narrative(s) available now is very high. But an Arabix library, whether digital or irl, is hopefully not far away.

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## ALEXANDER PROVAN

Do we want a new form of narrative made in the crucible of Web 2.0? Or do we simply want narratives that capably represent the experience of life in the early 21st century?

If the former – if we want to 'disrupt' narrative – I have some suggestions. A company called Narrative Science promises to inaugurate 'the new age of storytelling' by employing algorithms to process big data into stories. The pitch: 'With spreadsheets, you have to calculate. With visualizations, you have to interpret. *But with stories, all you have to do is read.*' Meanwhile, the start-up Summly aims to condense all news into 'algorithmically generated summaries'. As the company's 17-year-old founder avers, thanks to Natural Language Processing, the world's information will conform to 'my generation and their style of content consumption; fast and to the point'. And then there are the 'human curators' – the best kind! – at Project Webster, who assemble Wikipedia entries and non-proprietary textual pap into print-on-demand books with Google-optimized titles like *Classical Children's Stories and Their Influence on the World's Culture: Orbis Pictus*.

If we want to do the latter, well, how about the novel? None of the new narrative formats that Ian proposes seem alien to the novel – if one considers the life of the novel over time, in relation to readers now and in 300 years, whether in New York or on colonized Mars. I resist the notion that a form as durable and capacious as the novel must be supplanted by some new narrative technology that seems bred by our particular – and patently exploitative – social, historical and

technological configuration. (Statements about Web 2.0 and the blogosphere having 'returned the people to the public sphere' reek of Silicon Valley Kool-Aid.) Flash back to 1992, when novelist Robert Coover published a paean to hypertext entitled 'The End of Books'. 'With its webs of linked lexias, its networks of alternate routes (as opposed to print's fixed unidirectional page-turning), hypertext presents a radically divergent technology, interactive and polyvocal, favouring a plurality of discourses over definitive utterance and freeing the reader from domination by the author,' Coover gushed. 'Hypertext reader and writer are said to become co-learners or co-writers, as it were, fellow travellers in the mapping and remapping of textual (and visual, kinetic and aural) components, not all of which are provided by what used to be called the author.'

Epic fail. Hypertext may have enabled intriguing literary experiments and satisfying on-screen realizations of Poststructuralist theory, but have you ever tried reading *GRAMMATRON*, Mark Amerika's putatively groundbreaking 1997 hypertext narrative? In 50 years, how many people will think of such works as anything but technological novelties?

Even in the age of industrialization, the novel must have seemed like an anachronism to some. But Victorian literature managed to register and respond to the new regime of production and the accompanying psychological conditioning. Authors like Anthony Trollope and Charles Dickens – for whom the onset of factory time felt 'as if the sun itself had given in' – filled their novels with time-sensitive mechanical processes attended to by members of a nascent managerial class constantly checking their pocket watches; efficiency meant productivity, leisure was tantamount to revolt. Literature functioned to process – and often combat – the fragmentation wrought by industrialization, even while capturing some of its dynamism.

I don't mean to argue for the supremacy of the novel, or to discount bleeding-edge aesthetics, but rather to assert that traditional narrative forms can represent contemporary experience just fine (depending on the author). We don't *need* algorithmic literature or refresh-ready tweet-books. In fact, it seems important to maintain some distance from the world of apps, some tension between our hyper-mediated daily experiences and the forms we use to represent them, if we are to maintain some lucidity in the face of the onslaught. Which is to say: I don't need my text-messaging proclivity relayed back to me in the form of a never-ending sms epic written by a robot in China generating chapters in response to my online shopping habits and geolocation data. What we *do* need – and this is why I find Fatima's contribution so compelling – is a way to process the spectral standards that buffet us; new languages, or at least styles of speaking, to describe the invisible infrastructures and technological protocols that order human interaction, so as to avoid submitting to their dictates.

Perhaps this means incorporating the networked chat-language described by Fatima and the corporate uncreative writing outputted by Narrative Science, Summly and Project Webster into a novel – an Arabix *Bartleby* set in a Natural Language Processing lab.

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## CHRISTIANE PAUL



The 'Cave' at Granoff Center for the Creative Arts, Brown University

Bartleby is safely settled in the Natural Language Processing Lab and prefers not to do the writing demanded of him.

The future of writing has always been written collaboratively, a linked document. In 1934, Paul Otlet envisioned a global network of 'electric telescopes' that would allow people to browse through, share and 'write' millions of interlinked documents, images, audio and video files. People would send each other messages and form social networks. In 1945, army scientist Vannevar Bush described a device called the Memex, a desk with translucent screens that would allow its users to browse books, periodicals and images, to create their own trail through a body of documentation and insert their own story. Samuel Taylor Coleridge contributed, writing his ode to Kubla Khan's palace Xanadu in 1797. During the 1960s, Theodor Nelson developed his vision for the hypertext system Xanadu, a space of writing and reading where texts, images and sounds could be electronically interconnected in a non-linear environment that allowed readers and writers to choose their own paths.

In the 1980s and '90s, hypertext software was developed as a narrative format that, as Ian proposes, 'requires its authors to embrace contingency and (irreversibly) change during its making'. A narrative format that 'doesn't promise a scheduled time to end'. In 1992, I encountered a narrative format that 'eroded along with my reading': a floppy disk storing William



Gibson's 300-line semi-autobiographical poem *Agrippa (a book of the dead)* (1992) encrypted itself after a single reading. The letters and words in Dennis Ashbaugh's artist book, in which the poem was embedded, started fading upon exposure to light.

In the 1980s, Jay David Bolter and Michael Joyce wrote Storyspace, a software programme for creating, editing and reading hypertext fiction. Joyce wrote *Afternoon, a story* (1987), the 'granddaddy' of all hyperfiction. The future of writing moved to the web and, as projected interactive installation, into the physical world. Online, Mark Amerika's *GRAMMATRON* (1997) told the story of a digital creature encoded in a magic sorcerer-code called Nanoscript. I read *GRAMMATRON* and *Afternoon, a story* and will always remember them as more than technical novelties. In 1999, The Electronic Literature Organization was founded to promote the future of writing in the digital environment. A few years later, the 'liberatory hype' surrounding hypertext was declared to be a narrative in itself, but experiments with hypertext fiction still thrive and have their fanbase.

One day in the early 2000s, Robert Coover led me into the 'Cave' at Brown University, where a story started writing itself onto the walls. Once the walls were covered, the words started peeling off them, falling towards me in 3d. I tried to catch them, throw them back at the wall, put them in their destined place of the story, but they kept disintegrating, memories of a story beyond reconstruction. The story seemed to know that it was unstable – it openly talked about it. Around the same time, I found an online portal to Yael Kanarek's *World of Awe* (2000–ongoing), a parallel world that took me on a search for lost treasure. In a desert terrain, I found a graveyard of hardware and software, the lost files of a traveller and love letters. I had to construct realities, the love letters started arriving in my inbox, the story entered my hardware and my life.

In the 2000s, I encountered a narrative format that simulated (almost) unscripted contingencies against scripted choreography. In 2005, I started visiting Trip and Grace behind the *Façade* of their home and marriage that Michael Mateas and Andrew Stern had written for them. This artificial-intelligence based animated story made use of language-processing software. It cast the player in the role of a close friend of Grace and Trip who visits their home for cocktails and, talking to them, has to deal with their marriage troubles. The intelligence of Trip and Grace may have been artificial, their world virtual, but the narrative was real. It was different every time I entered their home.

I don't enjoy playing games *per se*; I prefer not to stick to rules for winning and losing. I love wandering through game worlds and exploring their territories and hidden narratives, without shooting and stealing cars. I love meeting Non-Player or Non-Playable Characters (npcs), non-human artificial

intelligences written by humans for humans, and creating stories with them. A YouTube video entitled 'Top 5 – Worst NPC in games' declares Navi, Beggars, Mr Rosetti, Sticky and 'any NPC that has to be escorted' as the worst. I like escorting NPCs through stories.

The future of narrative is already here, we just have to continue nailing its moving targets.

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## **JAMES BRIDLE**

Alex, I think, is half-right when he says that the novel is an extant technology capable of representing the experience of life in the early 21st century. Text is mutable, capable of encompassing worlds and of endlessly reviving itself – as in Fatima's Arabix texts, and as has already been done in Verlan, in Hinglish and in a multitude of argots. These are new languages produced by the intersections not only of people and cultures, but by new modes of experience and the technologies that mediate them.

New Sapir-Whorfian realities emerge not only between languages across technologies, but out of those technologies as well. Technological fluency shapes an understanding of the physical world, sometimes for the better – when the global push towards transparency and freedom of information emerges from a Computer Science mode of thinking; and sometimes for the worse – as in the all-too-common engineer's denial of the human morality and politics inherent in their tools. These differences are also reflected in the particular vocabularies of engineers and programmers, who form new cultural groupings around their specialities (a comparative anthropology of Ruby and php programmers would be an enlightening exercise). Softwares are made of language too; they are narratives, written by hand, and they shape the quotidian world more forcefully, perhaps, than any novel.

The argot that for me best represents the affect of this mediation is not to be found in the melding of human languages, but in the sometimes broken, sometimes poetic vernacular of machines. The algorithmically generated mutterings of spam comments on blogs and Twitter feeds. Narrative Science and Summly's daemons are the house slaves of the new House of Wisdom, but a more creative collaboration is to be found in the charming rhythms of Google Poetics ('I had this hate that I lost in September / i had a heart and it was true') and The NY Times Haiku blog ('Before, you could hear / the platforms creak and the faint / slap of hoops on skin') – lines of human language rescued from oblivion by the attentive archivism of machines. Or the radiant, endless non-sequiturs of the Twitter feed @Horse\_ebooks ('we shall and we will and we will and we

shall and we do and we care and we live and we love and we care and we shall and we care and we') – the truest disciple of Tristan Tzara's exhortation to 'organize prose into a form that is absolutely and irrefutably obvious'.

As softwares shape the world they shape language, too. We share the network not just with the high-octane stealth algorithms embedded in stock exchanges – the coked-up city boys of botworld – but with the bookish automated editors of Wikipedia: 20 of the top 30 contributors to the online encyclopaedia are pieces of software, quietly shaping our systems of knowledge alongside us. As we come to understand the role these other authors play in narrative and reality, our sense of the reliability of text, of authorship, thins and shakes.

As Ian rightly says, reality is a narrative, but admitting non-humans as co-creators of that narrative is not counter-intuitive, it is the most necessary step in resolving our contemporary anxieties. The text has always been interactive, and unstable; reality has always been complex, overloaded and prone to collapse. The network, laying all of this out to us across a grand atemporal plane, merely throws these contradictions into sharp relief. What has changed is not the form of the writing, but the form of our reading of it, and our understandings of what constitute authorship, culture and collaboration. The network is a narrative, too: the truest telling of contemporary experience, if we can learn to read it.

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## ORIT GAT



David Gatten, *The Extravagant Shadows*, 1998–2012, digital film still

In 2011, Bill Keller, the former executive editor of *The New York Times*, published a piece in the newspaper's magazine titled 'Let's Ban Books, Or at Least Stop Writing Them'. It was a cheeky polemic about the fact that his employees kept taking leave in order to write books, which would stack shelves packed with too many books about too many topics.

There's more information available to us today in more forms than ever before. Does that mean that we need to reconsider what we call narrative?

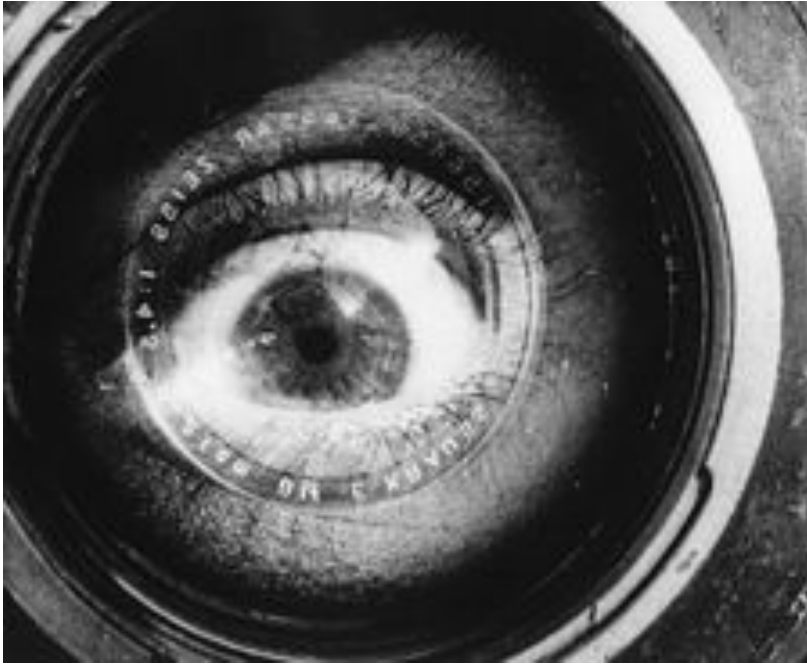
A lot of the responses so far bring up the novel as the narrative structure par excellence, and I find that oddly comforting. But I wonder if our consideration of what narrative is should focus more on the technological structures we developed in order to share information and – yes, Ian, Timotheus – make sense of the present. A lot of what we do online is observing and commenting on the present in real time, constantly patching it, adding to it, documenting it, taking away, then chipping slowly at the foundation that we have just built. I like Ian's idea that our browsing histories are a narrative in their own right. But I also like Alex's assertion that traditional narrative formats remain useful in contemporary society.

The way we consume and produce narratives today is a layered structure that allows for different systems of storytelling – or sharing information – to exist horizontally. On the one hand, there's nothing like the writing techniques of 19th-century novels – which a number of the previous contributors have referred to – as an organizing scheme. On the other, I think of my immaterial library, and the way my email account is full of messages from myself to myself, where the subject line is a link to an article or essay that I haven't finished reading and where Gmail asked me 'Send this message without text in the body?' With reading lists, bookmarks and rss feeds, we all have our ways of organizing the information we search, find or stumble upon online (and the possibility of sharing it): those systems are also narratives. They can reveal anything from the practice of research and the process of thinking to the view outside one's window. Both are ways to look at the present and, with it, speculate on the future.

The gap between the ways that we produce and consume narratives in what we may consider traditional formats like novels and what we still refer to as new mediums seems too productive to be ignored. If we feel the need to untangle something within the changes we experience, peeling at layers of narrative and its presentation could be a constructive process, a kind of solution to the over-availability of information today. In keeping with the idea that 'journalism is the first rough draft of history' and if a lot of the content we produce online could be considered a kind of reporting, then we need to spend more time with things, just the way a novel allows. Maybe the narrative of the future will set forth some possibilities for some good old-fashioned, take-your-time reflection.

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## HOLLY WILLIS



Dziga Vertov, *Man with a Movie Camera*, 1929, film still

As Christiane says, the future of narrative is here, and has always already been here. Cinematic narrative exists in an ever-changing state of flux that is not productively periodized, least of all by technological ruptures. Rather than fetishize pre- and post-lapsarian paradigms for thinking about narrative, we might look forward by looking back.

Take Raymond Bellour. He explored the future of cinema and narrative in a 1990 collection of provocative essays titled *L'Entre images* (an English translation of which, *Between-the-Images*, was published last year). The book investigates the transformation of cinema as it mingles with television and computers, as it moves from theatres to museums and galleries, and as it undergoes 'an unprecedented expansion of intermediate operations'. Bellour is fascinated by the 'confusion' and 'impurity' of these in-between images at the crossroads of cinema, video, language and painting, and so am I.

Peter Weibel and Jeffrey Shaw's terrific book *Future Cinema: The Cinematic Imaginary After Film* (2003) unites an interest in pre-cinematic forms with what might be called post-cinematic forms, with attention to immersive, interactive and net-based projects. Lev's book, *The Language of New Media* (also more than a decade old) explores the database impulse of Dziga Vertov in the 1920s to better understand the database as a contemporary cultural form, while Andrea Zapp and Martin Rieser's anthology *The New Screen Media: Cinema/Art/Narrative* (2002), looks at cross-media narrative structures. And there are many other books, older and newer, in an ever-growing bibliography dedicated to describing and imagining cinema's futures.

But why the emphasis on 'the future of cinema'? Paul Dourish and Genevieve Bell instructively took up a similar question in

the context of ubiquitous computing in a 2007 essay titled 'Yesterday's Tomorrows: Notes on Ubiquitous Computing's Dominant Vision', in which they explore a 'proximate future', or a future that's just around the corner, a future 'infinitely postponed'. But the construction of this near-future negates that the future imagined in the past is already here; it's just not as dazzling as we imagined.

But our 'future' cinema, present now, is dazzling. Bruce Isaacs in *The Orientation of Future Cinema: Technology, Aesthetics, Spectacle* (2012) points to just one example: 'When Nolan's Parisian streetscape in *Inception* transforms before our eyes, we contemplate the image not of the city, not of a Paris we may have visited, but of cinema and its capacity to astonish the senses.' This, says Isaacs, is what contemporary cinema can and should do.

But that's just one way to go. For me, David Gatten's monumental three-hour digital video *The Extravagant Shadows* (2012), in its layering of off-screen space, onscreen space, painting, music, text and digital manipulation, captures the concatenation of spaces, times and layers of reality that embody what it means to be alive today in a digital culture. Leos Carax's 2012 film *Holy Motors*, in a very different manner, represents a similar experience.

Generally, I'm intrigued by the array of projects that experiment with time and space, that rupture the temporal and spatial codes of classical cinema and the illusion of coherence they engender. There's a dispersal of screens, stories, performers and viewers, all of which are reconsidered and re-mobilized toward new ends – some good, some bad and some wonderfully illustrative of our current state of being in the world.

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## LEV MANOVICH



Mark Hansen and Ben Rubin, *Listening Post*, 2001–2,  
installation view at Science Museum, London, 2003.

Photograph: Graham Peet

The design of the 1990s World Wide Web and graphical web browsers emphasized a particular information form: hyperlinks between separate pages, meaning that the logical model of the web and the interface view became closely aligned. Indeed, in many popular illustrations of the web at that time, it was shown as a network of single linked documents.

Users were free to link documents in whatever way they preferred. This led to the emergence of certain common patterns for organizing the data that were not originally planned by computer scientists. Rather than a set of pages all linking between themselves, the actual websites created by users and companies often followed a different organization: a single page presenting a large collection of linked documents, i.e. a curated catalogue of data objects. Examples include the list of ‘favourites’, a collection of personal photographs or separate radio shows archived on the site of a radio station. In my 1998 essay ‘Database as a Symbolic Form’, I called this information form a ‘database’ and opposed it to the historically dominant way of organization information – the narrative. I used ‘database’ to describe a catalogue of objects that does not have a single default sort order, calling it the symbolic form of our time.

In the 2000s, the web was reshaped by new economic, social and technological forces: web commerce (e.g. Amazon, iTunes), blogs, social networks (e.g. Flickr, YouTube, Facebook and Twitter, as well as those in other languages), and mobile computing (smart phones, tablets, ultra-portables). So what happens to the database form in this decade? Does the opposition between narrative and database still define digital culture? Does it, for example, describe our experience with social media or mobile apps?

I want to suggest that in social media, as it developed between 2004 and now, the database no longer rules. A new form has instead been brought forward: the *data stream*. The data streams of Facebook and Twitter are perfect examples of this. In the centre of Facebook is News Feed, featuring an updated list of user’s friends’ activities: conversations, status updates, profile changes and other types of events. Even more immediate is Facebook Ticker, which displays these updates instantly.

Rather than browsing or searching a collection of objects, a user experiences the continuous flow of events; new events appearing at the top push the earlier ones from the immediate view. The most important event is always the one that is about to appear next because it heightens the experience of the ‘data present’. All events below immediately become ‘old news’ – still worth reading, but not in the same category.

In the Facebook and Twitter interfaces, individual broadcasts from spatially distributed users are formatted into a constantly growing montage. We can't, however, compare this with Surrealist-era juxtapositions of unrelated objects; if you have many friends with similar backgrounds and interests, at least parts of your stream are likely to refer to similar topics and experiences.

The data stream could be called a quintessential modern experience ('Make it new'), only intensified and accelerated. But comparing data streams simultaneously generated by hundreds of millions of people to, say, navigating a metropolis in 1913 is as useful as comparing today's movies (shot at 4K and put through the software where you can adjust every pixel) to the first films of Thomas Edison and the Lumière brothers. What the two types of experiences share pales in comparison to the differences between them.

In retrospect, the first artistic representation of the collective web data stream was *Listening Post* (2002), an amazing installation by Mark Hansen and Ben Rubin. In this work, bits of conversations pulled from multiple Internet chat rooms and forums were displayed simultaneously across a large wall of more than 300 small screens. *Listening Post* anticipated the data flow interfaces of Facebook and Twitter by about five years – and today it keeps reminding us that these interfaces are not the only possible ways to format data streams.

Sent from my iPhone.

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Page 1 of 1 pages for this article

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**Frieze**

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