The Artist as Interface

Art as subroutine

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The Interview

During the 2015 holiday season I interviewed 35 people, with 6 questions about technology and society. The holiday season is usually a time when I meet people outside my bubble and this allows me to hear the thoughts of people with different backgrounds. The interviewees come from different places, but most are now in the vicinity of Rotterdam. The age span is quite large with the youngest 9 years old and the oldest 78.

Here are the questions asked in the interview, together with a short summary of the results and some remarks:

Question 1:
What is the biggest world event that happened in your life?

The majority (17) consider 9-11 to be the biggest event that happened during their lifetime. This was not a complete surprise, but I hadn't expected people in their twenties also to name this as the world changing event.
It also surprised me that four people answered 'internet', as I had not even gotten to the technology part of the interview yet.

Question 2:
How was it mediated to you?

Most people (23) were informed about the event via national television, of which a few (4) also followed the news on CNN. Only five people got their news via internet. A meagre six people learned about events in the newspaper, while seven people found out via face to face contact. There was also someone who heard it on the radio..
Before the interview I had expected more variation in the answer to this question. Because I had also expected more variation in the timeframe of the event answered to question 1 I started to suspect the answer was time related. Later in the season I started to question on about how people get their news these days, and without a doubt tv is still the main source.

Question 3:
What is the most important technological invention in your lifetime?

18 people said the Internet was the most important technological invention in their lifetime.
If I hadn't put the 'in your lifetime' limit, some of them would have said that the car was the most important one. The home computer was answered by seven people. Only one person mentioned Big Data, and also only one person considers Artificial Intelligence the most important technology to have an impact on the world.

Question 4:
What technology has made your life easier?

The Internet has made life easier for nine people. Three persons think the mobile phone improves their life, and eight people said it is not just the mobile phone, but the smartphone, of which two stated it is specifically the iPhone, and no other smartphone. Also software comes in the picture here, as one person is grateful for Google Search, and another one for Google Maps.
One person answered that technology only complicates life.

Question 5:
What tech has made your life more complicated?

Thirteen people blame the smartphone for complicating their lives, and four think the internet is the cause for complications. One person is convinced all tech makes life more complicated, and another man said it's the tsunami of innovations that is causing him trouble.
Though different technologies were named, the reasons are overlapping. The compulsiveness and distraction caused by the smartphone was also mentioned in relation to the internet, with a total of nine people who said this about either their own behavior, or about other people.
Five people worried about their privacy and surveillance. Three people stated that they can't keep up, and another three worry about a loss of self-reliance.
Only one person said there is no technology that complicates things for them. There was also someone who said technology is always supposed to be a solution to a problem, and therefore can only be an improvement, but later on he came back to say that he is worried about the security of our networked systems, and surveillance.

Question 6:
What change in society has been big during your lifetime?

During a x-mas diner I forgot to ask this question. I also thought the question was not fit to ask the two children I interviewed. The people I did ask had an interesting mix of answers. Quite a few people think individualization is intensifying (5 times), a decline in tolerance was mentioned as was a decline in solidarity. Again surveillance, and the police state were mentioned (5 times). Some mentioned a growing fear and paranoia that they think is directly fed by Social Media.
One person named extremism (on all sides) and thinks it is caused by recommendation systems.
Only five people mentioned positive changes, of which two said there is no hunger anymore in the Netherlands. One expat compliments that it is much easier to communicate. Another interviewee celebrates the fact that we start to experiment with a base income.

Introduction

Now that networked technology is ubiquitous, and we spend most of our waking time online, one must be in denial not to recognize that this must have some impact on how we live our lives. Almost all of us walk around with a smartphone that enables us to instantly look up any information, and we are able to communicate with anyone, anytime, anyplace.
Isn't it a paradox then, that the more interconnected we are via technology, the less we seem to be able to relate to each other, or to what happens in the (physical) world?

In order to validate this assumption, I conducted the interview about technology and society with 35 people of different ages and professions. I may worry about how technology enables mass surveillance, but is that bothering someone who works at a bank? Is everybody getting their news via push messages from news sites or twitter these days, or are people still watching national television? What technology do people consider to be useful? Of course the results of the interview are very coloured: 35 people aren't that many. The questions I asked were about events and developments that happened during the interviewees lifetime, so answers became age related. But the open style allowed me to bring up additional questions during an interview and I had some interesting conversations. Some answers surprised me, shedding new light on the assumption.

I am fully aware that the results of these conversations are no solid proof of anything, but they did strengthen some of my ideas. The majority of the people I talked to consider the internet to be the most significant technology that was developed in their lifetime. And when asked about what change in society they have observed, many talked about the intensifying individualisation and polarisation in society.
This does not mean that there is a direct causal effect between networked technology and individualisation, but is it really that far fetched to think there is some correlation?

When investigating the cultural and aesthetic impact of digital networked technologies over the past 25 years or so, I still see the bright potential of openness and knowledge for all as it was envisioned in the beginning, while the darker side of that same potential manifested itself in the form of mass surveillance, and the self fulfilling prophecies of recommendation systems.
I have to admit that back then it was me who was in denial about this dark side. Partly because I truly believed in the internet's promise of open culture and people power, but for another part it seemed just so much more exciting to think about the crazy possibilities these new developments were offering, than about, say, security issues.

In the next pages I will describe some of the important developments that have taken place since the conception of Web 2.0, and I will pinpoint some of the (unintended) side effects that have surfaced as a consequence. As the paradigm shifted from 'the computer as a tool' to 'the

computer as media' I will highlight the role of the interface as it provides our only access to the digital world. The art works I have included, are works that in my opinion are either visionary, critical, offer relief, or a combination of these three. I strongly belief that art can provide inspiration and direction, not only to the general public or other artists, but also to engineers and scientists.

In 'Simulation Confusion' I will set the stage back to 2004 to give a sense of the thoughts and ideas about interfacing digital environments just before Web 2.0.
'Data Driven Existence' will describe how we moved from 'life on the screen', to 'the world is the screen', and explore the underlying systems and their impact on our lives.
The section 'Gamification' zooms in on life becoming a video game and questions how interaction and interface design change our behavior and habits and give a shallow, and most likely false, sense of control.
'Reconfigure' reflects on how interfaces can reconfigure our perception of reality, and why interface design is a valid art form.

Simulation Confusion

> “Thus the hyperrealism of simulation is expressed everywhere by the real’s striking resemblance to itself”
> --- Jean Baudrillard

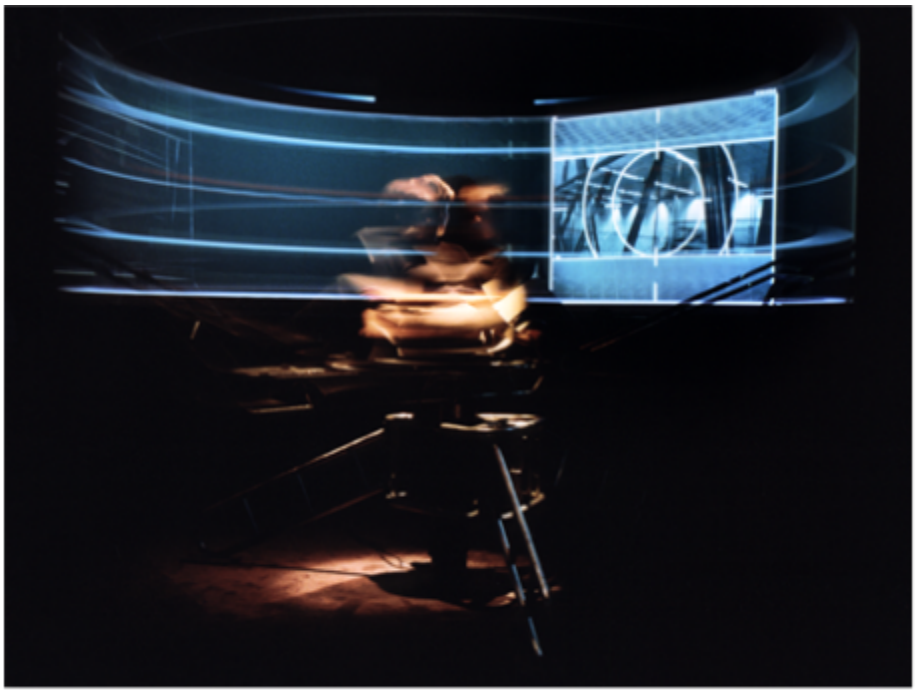
Back in 2004 I organized, together with Anne Nigten, a seminar for DEAF04, called “The Art of Immersive Spaces”. In its description it said:

> This seminar tries to get a grip on the mediated human experience in immersive environments. It wishes to explore and discuss the issues concerning 'the body and the extended mind' in digital environments, and its applicability in Human Computer Interfaces.
>
> The intersection of virtual and physical environments is associated with returning philosophical debates dealing, most prominently, with interfacing and disembodiment issues. One could argue that disembodiment is the main motivation and attraction of immersive environments, because it reflects an escapist desire to leave reality behind and immerse in an illusionary world. Other opinions reflect upon the central role of the body as placeholder for perception and physical memory. How do the diverse theories about body, mind, consciousness and reality hold up in the current digital age?
>
> The last few years, an increasing number of researchers, artists and designers studied the effects of (dis)embodiment through interfacing and its influence on the immersion experienced by the user. But although our bodies are utmost important for our perception, a large portion of the bodily capabilities seems to be ignored in most interface designs. Shouldn't we take advantage of our sensory system and become more actively, physically engaged in the virtual reality? What will be the consequences of multimodal interfaces when trying to seamlessly bridge these two realities?

For this seminar we invited the artists Maurice Benayoun and Marnix de Nijs, professor of visual culture Anneke Smelik, neuropsychologist Wijnand IJsselsteijn, and art historian and media theoretician Oliver Grau.
I will briefly summarize parts of what was presented and discussed, but for a more thorough overview please read this report by Celine Pourveur and / or the reader that accompanied the seminar.

A part of the seminar was about immersion, as in the feeling to be ‘there’. From a historical perspective Oliver Grau puts virtual reality in the tradition of frescos, panoramas, Trompe-l’oeil, and Imax, and pointed to an old human desire to be “in the picture”.

Anneke Smelik, who talked about the depiction of VR in Science Fiction movies, pointed out that this desire is coupled with a fear to get lost. Either the fear of dying in VR resulting in death in Real Life, the fear of not being able to return to the physical body, or, my favorite, the fear of not being able to distinguish what is real and what is not.
When it comes to interfacing Virtual Reality, Wijnand IJsselsteijn showed that devices can naturally and comfortably work together with the human sensory system, and said that the fluid integration of technology in the human body blurs the distinction between the 'unmediated' body and the 'mediated' technology.
This ‘blur’ is clearly experienced in Panoramic Acceleration, a work by Marnix de Nijs, which consists of a rotating chair on which a big screen with moving images is attached. He found out that if the immersive quality of the image is taken away (if the participant doesn't 'connect' to the image), then the person experiences nausea from the rotation. So immersiveness into a visual/virtual reality is needed to forget the rotating reality.



Panoramic Acceleration, Marnix de Nijs, 2000

After all this talk about technology, immersiveness, and interfaces, Maurice Benayoun, who has often made use of Virtual Reality technology in his work, stated that VR is not about technology at all, but about introducing a fiction into the physical world. It is about creating a situation, a set of predetermined parameters/conditions/rules for an environment, and wait and see how the visitors will react. This virtual world, to him, is a place of collective memory, where people gather and where they can share memories. Interacting in this world means that the visitor leaves traces, and changes the world. What is needed to create such an environment are the illusion of reality, the illusion of communication, the illusion of participation and the illusion of action.

He also said that the ‘real’ world is more and more becoming a fiction, which provoked an interesting discussion with the audience.

It is this discussion that I want to pick up, now that we are 12 years further on the road, and some of those ‘consequences of multimodal interfaces when trying to seamlessly bridge realities’ have become clear.

Data Driven Existence

> “The microscope, invented four centuries ago, allowed people to see and measure things as never before---at the cellular level. It was a revolution in measurement. Data measurement is the equivalent of the microscope. But rather than viewing things previously too small to see, now we view things previously too big.”
> ---- *Erik Brynjolfsson*

Around the time of the seminar the buzzwords to put in any new media art proposal were ‘multi-user participatory environment’ and ‘user created content’ and ‘Web 2.0’ which implied both. Second Life was gaining popularity because of its virtual economy, that could ‘materialize’ in real dollars via the lindeX (how is any money not virtual?). That other huge virtual environment World of Warcraft was launched, but for WoW it was considered controversial that virtual goods (gold, and character level services) would be sold in the real world.
Most people had a computer, and access to internet. And most people had a mobile phone, but could still hardly conceive of the idea that soon they would have, or even want, a smart phone.

A couple of years before (in 2002) Dirk van Oosterbosch presented his concept for the Friend-browser at V2_. He started with:

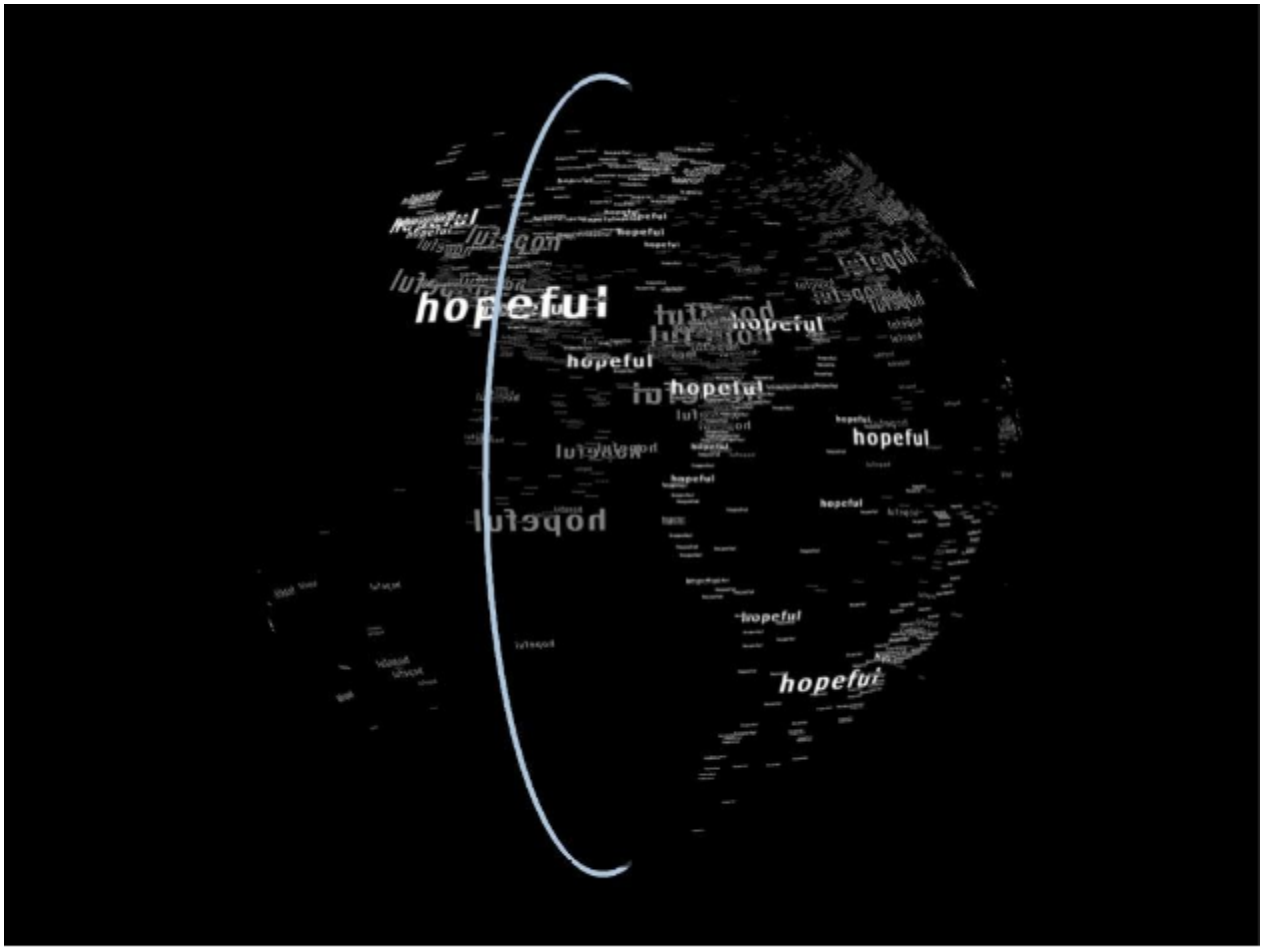
> “Well, I sincerely believe that our modern technology is a real threat for one on one communication with your friends. That's why I developed the idea of the FRIEND-browser. The FRIEND is a concept of a mobile computer system that results in an electronic friend. Like a real friend it knows you and knows what you like, like a real friend it knows what you do and why you do it. And -like a real friend- from knowing your preferences, attitudes and interests it gives you advice and suggests you what to do. Or -if you let it- it will also surprise you or play with you.”

He went ahead, and basically described the system we all carry with us today.
The funny thing is, that when he asked the quite disturbed audience who would want such a friend, nobody raised their hand.

Around the time of the seminar I started working with Maurice Benayoun on the software for The Mechanics of Emotions, an art opera in 15+ parts, in which the Web is considered as the world nervous system.

> “With today's communication networks, the world is equipped with an extensive virtual nervous system. From anywhere in the world one can feel what's happening anywhere else in real time as long as it is connected to the Net and is English speaking. Internet is the first self-organised worldwide language-and-socially filtered observation system.”

By scanning the web, a real time image of the state of mind of the world is acquired, from which dynamic maps of the emotions of the planet are built by displaying words smaller or bigger depending on the search results (World Emotional Mapping). This data forms the basis of each part of the mechanics, that can be a statement, an event, an installation, an object, a concert, a performance, a website, a business…



World Emotional Mapping, Maurice Benayoun, 2004

It is easy to see how his view on the virtual world being a place of collective memory, where people gather and where they can share memories, fits the internet as a glove.

For the technical part, it worked by using the Google Search engine to search for an emotion per world city. (e.g. fear + amsterdam, fear + paris, fear + baghdad …). The hitcount was then used to determine the scale of the emotion.
Actually the algorithm to determine the strength of the emotion was a little bit more advanced. The scalar was calculated by using the hitcount of the results for the emotion as they were

returned by querying Google News in relation to the hitcount returned by a regular Google search, and the hitcount returned by the same search engines for each city in combination with a neutral term (2004 + amsterdam, 2004 + paris, …).
That way we hoped to somewhat correct the skewed results for, say, some African sub saharan cities, that hardly ever make it in English language news because we don't care.
For example, now searching Google news for 'Paris + Fear' returns 4.730.000 results, while 'Bujumbura + fear' returns only 2,950 results, even though there is a genocide going on "Rwanda style".
The distorted maps we got were fascinating and it was never the aim to get correct numbers, but we did want Bujumbura to at least show up.

These results were first used to make visual maps (World Emotional Mapping), but that same data was also used for musical compositions, where Maurice and Jean Baptiste Barriere would play the emotions of the world (eTraffic), and for generating sculptures to sell in a gallery (frozen feelings), a vending machine which enabled people to select emotions to generate an mp3 (eVending), emotional weather forecasts, and an emotional stock market.

The different parts of the opera interrogate the world we live in, and offer a critical view, not only on how we use technology, but also on politics, economics and the arts. Many of them are meant as a joke.
However, taken out of the art context it's not that funny anymore.
In 2009 Eric Gilbert and Karrie Karahalios published a paper called Widespread Worry and the Stock Market. It's abstract reads:

> "Our emotional state influences our choices. Research on how it happens usually comes from the lab. We know relatively little about how real world emotions affect real world settings, like financial markets. Here, we demonstrate that estimating emotions from weblogs provides novel information about future stock market prices. That is, it provides information not already apparent from market data. Specifically, we estimate anxiety, worry and fear from a dataset of over 20 million posts made on the site LiveJournal. Using a Granger-causal framework, we find that increases in expressions of anxiety, evidenced by computationally-identified linguistic features, predict downward pressure on the S&P 500 index. We also present a confirmation of this result via Monte Carlo simulation. The findings show how the mood of millions in a large online community, even one that primarily discusses daily life, can anticipate changes in a seemingly unrelated system. Beyond this, the results suggest new ways to gauge public opinion and predict its impact."

Now imagine you are a broker trading on the stock market, and your "facebook predictive analytics software" has detected an anomaly: Anxiety levels are rising, stock prices may drop! You quickly short you (facebook?) stock, and so do many other brokers.
Shortly after, we get the news that the economy is not doing well, leading us to feel more anxious. And there we have it, a self-fulfilling prophecy!

So Monte Carlo simulation confirms that there is a correlation between seemingly unrelated social and financial systems. Interpreting data, detecting causality and influence is probably the hardest thing to do in our information age. It is, however, exactly the stuff we try to get out of our Big Data.

> "Everythings is connected to everything else---if only indirectly---and this is reflected in data. Data always speaks. It always has a story to tell. Data is always predictive."

writes Eric Siegel in his book Predictive Analytics: The Power to Predict Who Will Click, Buy, Lie, or Die. In that same book he also says

> "Machine learning's task is to find patterns that appear not only in the data at hand, but in general, so that what is learned will hold true in new situations never yet encountered. At the core, this ability to generalize is the magic bullet of Predictive Analytics."

Isn't it funny that as humans beings we are always told not to generalize, but we create our Artificial Intelligence to do just that? (Are we creating superstitious machines?)
One young man I interviewed blamed recommendation systems for increasing extremism, and intolerance. Whether systems are recommending books, youtube videos or friends, it is always more of the same, and with that people's viewpoints are becoming more narrow, plus the constant confirmation of your already narrow viewpoint may lead you to believe it is the only truth. At least the FRIEND-browser could also lead you to people with whom you seem to have nothing in common.
Isn't it just as funny that in human-computer interfaces this generalization is called "personalization"? One last quote from Eric Siegel:

> "The machine actually learns more about your next likely action by studying *others* than by studying *you."*

According to Eric Devaney one of the reasons people crave personalization is because it gives them the illusion of control. Apparently people who feel a sense of control tend to be healthier and more successful, and don't we all want that?

Talking about the question "What technology has made your life more complicated?" One man I interviewed told me about how he has been running (as a sport) since he was a child, just for the fun of it. Now he is using runkeeper to track his performance and share his results with his colleagues at work. He said that now whenever there is some problem with the functioning of his runkeeper, he just won't go. If it isn't logged, it didn't happen.
It reminds me of Warren Beatty's remark in "Truth or Dare". After Madonna declines to talk to her doctor off-camera he says: "She doesn't want to live off-camera, much less talk. There's nothing to say off-camera. Why would you say something if it's off-camera? What point is there existing".

At the time (1990!) Madonna's compulsion to document everything about herself was considered an extreme case, but it seems to have caught on. And this obsession to archive everything is accompanied with the urge to measure and rate everything.

> "As people move toward more data-driven existences where points are accumulated from health apps and status is accumulated in identifiable quantities on social media, gamification becomes so total that it can sometimes mask whether what we're doing has any inherent utility outside the game that surrounds it."
> ---- Andrew Thompson

Gamification

To the question “What technology has made your life more complicated?” quite some people answered “Smart Phone”, or “Internet”, due to the compulsive nature of these media.
Not only to be always on, but also the addictiveness of it in general. Some told me they are constantly and almost obsessively “googling” everything, and others are constantly checking notifications, or to see if they got any ‘likes’ or ‘retweets’. Though they find these technologies useful, they complain about the dependance and the constant distraction they create.

Dirk Oosterbosch already warned us about the dependence effect of the FRIEND-browser

> “However, the dangers of this computopian concept cannot be neglected: The friend provokes dependence to such an extent that it becomes unhealthy: when you would loose it for instance, or it gets broken, or the batteries go down without a warning, you will be com-plete-ly lost.”

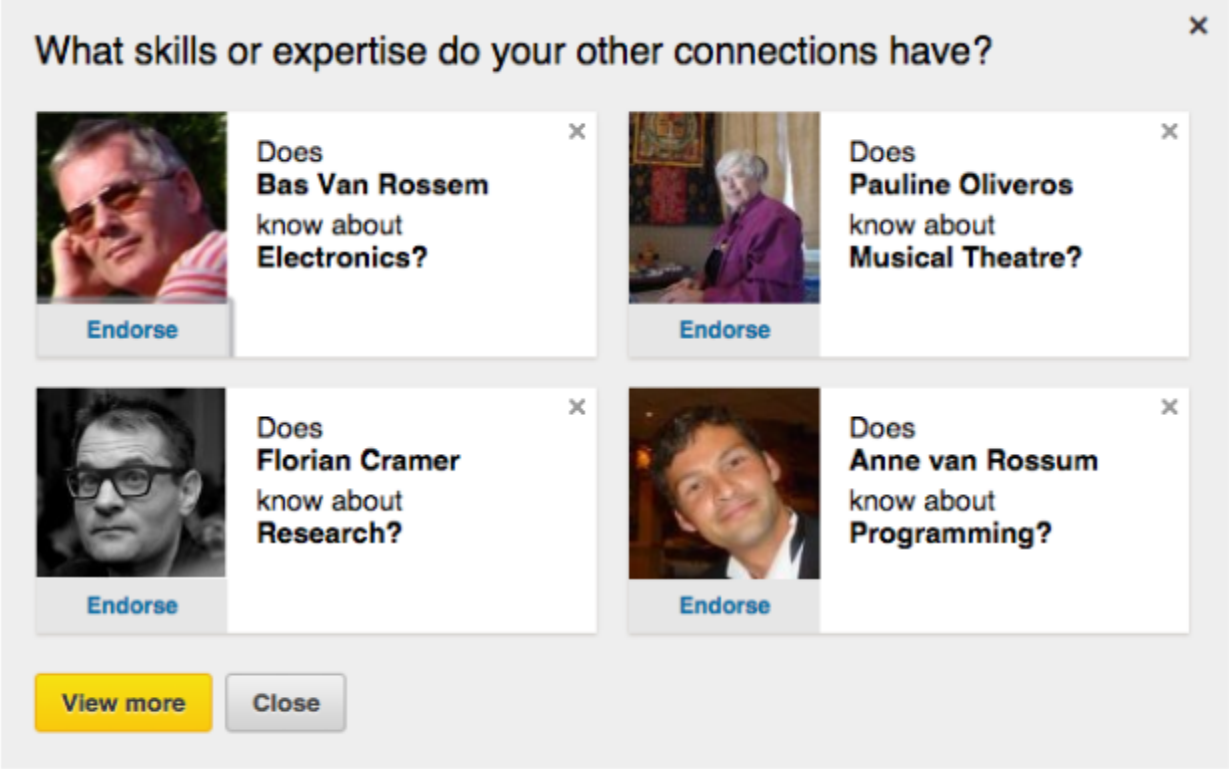
But what about the addiction effect?
Since The center for Internet Addiction was already founded in 1995 it is safe to say that internet addiction is as old as the internet itself, but the way gamification elements are incorporated in the interfaces we daily use goes beyond playing Farmville, or shopping on eBay.
In her book “Addiction by design: Machine Gambling in Las Vegas”, Natasha Dow Schüll talks about “the machine zone”. She explains:

> “Rather than a space, the zone is a state in which you lose worldly being. You lose a sense of clocked time, a sense of physical space, a sense of yourself as a subject in the world in social relation to others. It’s pure process, just being in the game. People in the zone experience a sense of merging, where it’s not clear even to them where agency lies, who’s really taking action, where it starts and ends.”

And

> “It’s this ludic loop of, open and close, open and close; you win, you lose, nothing changes. We slay an endless procession of monsters with no progress of narrative, mine endless digital coins for no other reason than their aggregation, hit spin on the slot machine with no big payoff.”

This concept of the ludic loop has been used to explain the inextricable entrancement of flipping through Facebook photos, or LinkedIn endorsements: you push a button over and over, primed for an eternally fleeting informational reward.



LinkedIn Endorsing Slotification Style

Addicted or not, research conducted in 2014 showed that dutch people spend an average of 77 hours online (excluding Internet usage at work)! How many of those hours were spent in ludic loops?

A hilarious game that could suit like a withdrawal cure is Pippin Parr's The Artist is Present, a game about contemporary art, that does not challenge you, is extremely slow, and isn't fun either. Owen Good announced it as: New Video Game Delivers the Immersive Realism of Waiting 5 Hours in Line at a Museum.
The game is a simulation of the famous performance by Marina Abramovic at MoMA and can only be played at the hours the MoMA is open in Real Life. It will get your extended mind right back to the here and now.

The Artist is Present, Pippin Barr, 2011

But all kidding aside, is the addictive effect of these gamified interfaces as we see them on the web or in apps an unintended side effect, or is it designed?
The Verge published an article that followed up on Schüll's research with the telling title "Engineers of addiction: Slot machines perfected addictive gaming. Now, tech wants their tricks". In this article Andrew Thompson points out that although Schüll's research points to the dark side of habit (users get 'hooked' into a habit that is ultimately not beneficial to them), tech companies have adopted it as a how-to guide.
Harrah's, Las Vegas hotels and casinos, pioneered the now industry standard Total Rewards player tracking system, first with a punch card program introduced in 1985, then with a digital program and magnetic cards in the 1990s. Slots were easy to track, and stood at the very center of the program.

> "Player tracking systems revealed more than a pit boss ever could: over time, Harrah's can create a portrait of the person's risk profile, including how much money a player typically loses before they stop playing and what kinds of gifts to give them to keep them on the gaming floor. Sometimes, that can be a penthouse suite; other times, it can be as little as giving a player $15 in cash. In 2012, This American Life charted the lurid and unsettling extreme of how these systems can be used in a story about a Harrah's in Indiana that enticed a woman to keep playing with unlimited hotel suites, diamond jewelry, and free trips to the Kentucky Derby. The perks fueled her gaming habit until she was $125,000 in debt."

(And in case there is still any doubt that data is the new oil, the value of Harrah's customer data was estimated at $1 billion).

When looking at gamified interfaces as they are implemented in MOOCs, health apps, social media, driver feedback signs, and what else it is hard to see the borders between behaviour and habit, and between being given control, or merely the illusion of control.
This becomes even more troubling when considering what is probably the most controversial gamification project to date: China's Social Credit System.
Yes, China is implementing a plan to utilize Big Data to hold all citizens accountable for financial decisions as well as moral choices. According to this plan every Chinese citizen will have been assigned a credit code by 2020.

> "Our country is in a crucial period of economic and social transformation. Interest subjects are becoming more pluralized, various social contradictions are prominent, and social organizations and management methods are seeing profound change. Completely moving the construction of a social credit system forward is an effective method to strengthen social sincerity, stimulate mutual trust in society, and reducing social contradictions, and is an urgent requirement for strengthening and innovating social governance, and building a Socialist harmonious society."

The game here is not only about mass surveillance, but actually aims to create a new citizen.
But as Jay Wright Forrester, the founder of system dynamics, wrote in Designing the Future:

> "Games connect quickly with [people]. Games achieve immediate emotional involvement. Games give the illusion of learning. But games fall far short of yielding the deep insights that are needed for the design of social systems."

As outraged we might be about China's plan, isn't the west doing the same thing?
The Snowden revelations have exposed that the NSA aims to 'collect everything', and the role of the superstar tech companies in this story has been questionable.
Just the fact that we know we are living in a new sort of panopticon changes our behavior, in the same way the Chinese Social Credit System would.

Reconfigure

And so copyright laws, advertising and sponsored content, user tracking, and closed services like facebook, have changed the web as we once knew it, casting doubt on the internets initial promise of openness and freedom of information.
Some say it is being killed, while others say it never existed, and then there are those that gave up.
However, networked technology is relatively young. Browsers, websites, and social media platforms are all 'just' interfaces, and interfaces can be redesigned.

Take Dead Drops by Aram Bartholl for example.
In all its simplicity it reclaims public space, and redefines peer to peer networks by taking it offline and on the street.

> "Dead Drops' is an anonymous, offline, peer to peer file-sharing network in public space. USB flash drives are embedded into walls, buildings and curbs accessable to anybody in public space. Everyone is invited to drop or find files on a dead drop. Plug your laptop to a wall, house or pole to share your favorite files and data. Each dead drop is installed empty except a readme.txt file explaining the project. 'Dead Drops' is open to participation. If you want to install a dead drop in your city/neighborhood follow the 'how to' instructions and submit the location and pictures."

Dead Drops, Aram Bartholl, 2010

So far I have been discussing mostly the effects of 10 year Web 2.0 developments (either browser based or apps). Some engineered with purpose, and some as unintended side effects. Next up is the Internet of Things, which will allow everyday objects to send and receive data, and according to wikipedia It is expected that in the next couple of years 50 billion objects will be connected! To speculate on the consequences of any object as an interface is beyond the scope of this thesis, but I find it important that artists, and media theoreticians are involved.
I actually find the idea of everything being connected to each other beautiful, and humbling as long as we can get passed the Internet of Shit.

It has been almost 20 years ago since Steven A. Johnson wrote the following words in Interface Culture: How New Technology Transforms the Way We Create & Communicate:

> "The most profound change ushered in by the digital revolution will not involve bells and whistles or new programming tricks. It will not come in the form of a 3-D Web browser or voice recognition or artificial intelligence. The most profound change will lie in our generic expectations about the interface itself. We will come to think of interface design as a kind of art form --perhaps the art form of the next century. And with that broader shift will come hundreds of corollary effects, effects that trickle down into a broad cross section of everyday life, altering our storytelling appetites, our sense of physical space, our taste in music, the design of our cities. Many of these changes will be too subtle or gradual for most people to notice --or rather, we'll notice the changes but we won't perceive their relationship to the interface, because the various elements will appear to belong to different categories, like so many aisles in a grocery store. But the history of technoculture is the history of such interminglings, the unlikely secondary effects of new machines rippling out to transform the society that surrounds them."

In the previous pages I have tried to point out some of those secondary effects, and to make a case for how interfaces not only change how we interact with computers, but also how we interact with each other, and even reconfigure how we perceive and interact with reality.
And I may very well have said nothing new or original, but I want to at least add my voice to the choir, as it is not loud enough.

If, like Domenico Quaranta says, "art should force us to think about the world we live in, and the new meanings acquired by concepts like identity, body, space, time and society, rejecting the facile truths dished out by those who'd prefer us not to think", then isn't interface design a perfect art form? Or even, isn't an artist an interface?

And it isn't always necessary to create new infrastructures, architecture or interfaces, as the existing platforms can be re-purposed as well. Something like the flashmob for example, that uses existing communication technology to organize a group of people to perform an unusual and seemingly pointless act. Silly as flashmobs may be, I find it heartwarming, to see a group of completely random people perform for another random group of people just to surprise and entertain them.

Yes, the same mechanism can be used to organize riots, group robbery, and even group rape, but that's not the point. The point is there is also the flashmob that shows us, that those kids in hoodies and those straight faced ladies, that we normally wouldn't even talk to if they were sitting right next to us (because we are scared, or because we think they wouldn't want us to, or because we are too busy with our phones?), are just lovely people.

Because in the end, to me, art is about reminding us who we can be.
And art in digital art, is what is left when the power is off.

Conclusion

In the same time that I was happily pondering the best ways to immerse myself in the next virtual illusionary world, the opposite occurred and digital media immersed themselves into physical reality. Life on the screen became real and it has become nearly impossible to keep worlds separate. Not only is everything we do online tracked, predicted upon, and stored forever, but this is increasingly true for our actions in ‘real’ life as well. Everything is being measured and kept score off, leading to some sort of total gamification of life.
The constant flow of notifications, tweets, and email has turned communication in a to-do list and I now find myself in a weird confusing situation in which any escapist desire I may still have, can no longer be acted out in a world where there is no place to hide.

It is a fascinating situation. In my opinion the power of networked technology is still as exhilarating and terrifying now as it was 25 years ago. And 25 years is really not a very long time. We are still in the early chaotic phase, where things just aren’t sorted out yet. Nothing is written in stone, and there is still plenty of room for rebellion and dissent. Of course it can also become much worse.

This is why I think it is important for artists to be involved with digital technology. Not just artists that present themselves online (though that is totally fine of course, and they should), but those artistic souls that scrutinize the systems that influence our behavior, that show us a different view of the world then my current interface shows me. This vision may still show an illusion, but let it be the most beautiful illusion. The kind of illusion that shows the beauty of human beings. Because what I came to understand is that art is not about forgetting who you are, but about reminding us who we can be.

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Appendix

Interview Results Table

What is your name, profession, age, and where were you born?	What is the biggest world event that happened in your life?	How was it mediated to you?	What is the most important technological invention in your life time?	What tech has made your life easier?	What tech has made your life more complicated?	What change in society has been big during your lifetime?
Bob, scientific programmer 46, Rotterdam	1. dissolution of the soviet union (change power realtions), 2. 9-11	1. tv, 2. tv + internet	internet	internet (fast information, but thanks the laundry machine and such for having time)	internet (enabled mass surveillance by governements)	wonders about lack of change. change in society behind on change technology
Rene, accountmanager Robeco, 46, Rotterdam	9-11	tv. (was on Rhodos at the time, and watched it on CNN now and then)	internet	smartphone	smartphone (does not go jogging when runkeeper is not working)	
John, Design Medical Appliances, 36, Sidney	9-11	national tv, ongoing reporting	internet	mountainbike	mass production cigarettes	
Loes, 10, Rotterdam	refugee crisis	tv kids news	laptop with touchscreen	iPhone (can always get in touch with family)	anything that is still not wireless	
Pascal, owner dating site, 46, Asten	Internet	At work there suddenly was a pc with internet (1995)	iPhone (apple got it right)	iPhone (communication, navigation)	iPhone (compulsive)	
Mark, software engineer, 46, The Hague	9-11	internet and spanish tv. (Was in Barcelona, watched tv in shops and sportcentre)	internet	mobile phone (didn't need to stay at the house anymore)	internet/phone (right now no problem but is worried about privacy loss in the future)	

Pamela, teacher Dutch/journasm 46, Goes	9-11	f2f, national tv, newspapers	home computer (otherwise no internet)	1. vacuumcleaner, 2. laundry machine	smartphone (distracts.. not just her, but also her students)	obsession with security, paranoia caused after 9-11
Henk, logistics army, 42, Heerlen	9-11	national tv	home computer (speed)	mobile phone (mobiliy)	automobile electronics (dependence)	
Emma, communication manager,45, Sneek	9-11	national tv, cnn	internet	smartphone (no need to be that precise.. adjust on the go)	smartphone (compulsive)	
Roel, 9, Rotterdam	Paris Attack	school	tv	1. tv, 2. iPad	any gadget that is broken	
Stefan, logistician, 43, Dordrecht	9-11	Turkish tv, CNN (was on holiday in Turky)	smartphone	internet	none	doesn't know
Diana, 42, shipping clerk, Rotterdam	Violence towards animals (whaling, Greenpeace)	national tv	internet	computer (mostly work related, speed, effinciency, can do anything from 1 spot)	smartphone (a-social behavior, others that are constantly busy with their phone)	hardening society, more violence
Matthew, 52, prosthodontist / photographer, Ansterdam	Fall of Berlin Wall	national tv	1. personal computer, 2. digital photography	i.m.o. tech made things more complicated	hahaha see above.. so, tech itself made life more complicated	the increasing degree of observation and control.
Isabella, 75, Eindhoven	Fall of Berlin Wall	newspaper, national tv	home computer	microwave	computer (can't keep up)	no more real poverty
Sigmund, 73, Nasswald	moon landing	national tv (ongoing.. prep, landing, getting back, Kennedy politics)	computer, internet, Big Data	mobile phone	no real complications, but it is getting more complex for regular people to understand, and do something themselves	overpopulation is major threat for the future

Maria, 45, teacher elementary school, Boxtel	9-11	national tv	internet	1. computer, 2. internet	1. computer, 2. internet (filing reports, illusion of quality)	individualism, hedonism, less tolerance
Jochem, 43, network engineer / dive instructor, Gorinchem	9-11	live, internet, CNN, tv, alternative media	smartphone	1. dive computer, 2. internet	internet (complex to filter information, takes a lot of time)	tiranny,police state, polarisation
Martijn, 39, work-shy, Rotterdam	Tschernobyl	national tv, newspaper	Oosterscheld e kering	snooze	everything (tsunami of innovations)	individualisati on
Eveline, 40, Doula, Melbourne	1. Port Arthur, 2. Ash wednesday bushfires 3. Death Lady Di	national tv, newspapers	cd walkman, internet	1. internet, 2. Google maps	mobile phone (always on standby, accountable)	easy to communicate social media
Mario, 50, entrepeneur, Rotterdam	1. 9-11, 2. Free energy	1. internet, all tv channels, 2. internet, f2f	free energy	computer	computer (overload)	end of hunger, efficiency in agriculture because of tech, expects us to go to mars
Ingrid, 45, PR Consultant, Noodorp	murder Pim Fortuijn	newspaper, f2f	No Fake	smartphone	smartphone (always accountable)	decline of solidarity
Raymond, 26, unemployed, Rhenen	internet	f2f	internet	lasercutter	smartphone (always accountable)	fear politics
Jan, 36, software + hardware developer / teacher, Terneuzen	1. 9-11, 2.Breivik	1. national tv, 2. national tv	miniaturisatio n electronics	1. google search engine, 2. ad blocker	lock-in models of the tech companies (apple)	people more distant abuse digital freedom
Martin, 23, student Graphic Design, Hardenberg	internet	school	internet	internet	mobile phone (always accountable)	maintenance social media contacts at expense of contacts that are really close

Paul, 56, Designer, teacher, Rotterdam	Vietnam war	tv (endless)	home computer	internet	Big Data (surveillance)	mix of cultures
Johan, 39, mac admin, Schiedam	9-11	national tv	internet	internet	1. network (security issues), 2. surveillance	less social in public
Remi, 21, student product design, Rotterdam	1. Snowden revelations	1. books 2.Citizen Four	AI (will make labour obsolete)	wifi	clumsy bureaucratic systems	first experiments with basic income
Hans, 36, Interaction Design, Geldrop	internet	f2f (local nerd)	internet	laptop	social media (miscommunication)	individualisation
Sonia, 22, student spatial design, Bologna	hole in the ozon layer	school	wifi (actively search for place with wifi to get route maps etc.)	digital camera	identification / passwords	capitalism, can't fight, out of control, difference speed / scale technology and society
Jeroen, 42, coordinator publication station, Rotterdam	9-11	cnn, internet, cnn internet, radio 3, phone	internet	networked computer	suveillance	individualisation
Marja, 24, student graphic design, Wageningen	9-11	national tv, school (nonstop)	Internet	smartphone	smartphone (dependence, dumb)	individualisation
Ans, 22, student fashion design, Goirle	Fritzl case	national tv, magazine	internet	internet	infrared file transfer	more freedom in choosing a study
Lisa, 22, student lifestyle design, Gouda	9-11	national tv, f2f	wifi	smartphone	smartphone (compulsive, leading to physical complaints)	more fear (police state / terror) also because of social media
Astrid, 21, student lifestyle design, Nijmegen	Paris Attack	Social Media + news app	internet	smartphone (fast search)	1. smartphone, 2. social media (accountable)	more fear (police state / terror) also because of social media

Rafi, 28, student, audiovisual design, Java	9-11	Newspapers on the wall	1. smartphone 2. internet	internet	internet (distraction)	extremism (caused by technology personalisation-onesided)

Names have been changes