

Love 2000

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Humans are easily impressionable. Pulling them from one side to another, emotions rule their life. The 20th century was the ground for a new genre of love, wild and unilateral : the love for the machines. Charlie Gere (2002, p.19), Director of Research at the Institute for Cultural Research at Lancaster University, talks about a 'world [...] placed under a kind of spell, an enchantment'. This had a true impact in modern and contemporary art. We will not discuss here about the paternity, where the mammal creator is inclined to a natural caring for his mechanical baby. Instead we will explore the more general role passion for technology played in Art. This passion will be divided in 3 acts. The first is The Attraction, where the protagonists get to know each other. The second is The Maturity, where the grown up couple works on evolving in harmony. The last one is The Openness, where the love becomes freely available to everyone.

The Attraction

Where the charm of the emerging technology triggers off the desire to know more about it

Whereas we talk about computers, photography or any other media, technology could have just been a means to prevent ourselves from performing repetitive tasks. Since the introduction of steam power in the early 18th century, machines has been built to produce more machines, and Industrial Revolution could be achieved thanks to this mechanization. Technology as a way to improve our lives, it is more or less what's happening in design applications, where all the functions of one software is aimed at reducing the production time and cutting down tedious labour. For architectural plans, using programs such as *AutoCAD* averts spending time with physical rulers and pens on big drawing tables. In graphic design, whether one uses the Adobe Suite or open-source softwares such as *Inkscape* or *The Gimp*, the colours, typography and shapes can be changed easily without altering the final production. The purpose of automation processes to make life easier in all industrial or design fields is true since the *Spinning mule* of Samuel Crompton (1779), starting point of the textile industry.

The attraction phase is a time to discover and experience. Exploration is what characterizes the first projects of the computer arts.

The first computer art exhibitions, which ran almost concurrently in 1965 in the US and Germany, were held not by artists at all, but scientists [...].
(Dietrich, 1986, p. 161)

The reason for that is that the computing resources, worth hundred of thousand dollars at the time, were only available at university scientific research labs. As scientists, they challenged the limitations of those big calculators, trying to get the most out of it. Their attempts were intended as a research, a research for new functions. Comparable to the experimentation led by Muybridge and Marey the first days of photography, their work 'explores the novel facilities offered by the computer' (Benthall, 1972, p. 58). As a result, in parallel of valuable breakthroughs for science, they also produced unique pieces of art.

Johnathan Benthall (1972, p.41) quotes IBM's marketing campaign :

Computer is just another tool like the typewriter. Adages abound like: 'You can only get out of the computer what the programmer puts into it.'

Computers have to be fed, it's only a medium, although not everyone considered Technology as a mere tool.

From the 20th century among improvements in electronics and chemicals, with people being able to take photos, watching moving pictures on television and other abilities to walk on the moon, the increasing power of technology that appeared limitless began to fascinate artists. Charlie Gere (2002, p. 8) refers to those changes in those terms:

"The last one hundred or so years have seen more and more rapid technological change and development than in all of previous human history."

A resulting example of the fascination is The Futurism painting movement from 1909 to 1939. It was a first approach in loving new inventions brought by industrial revolution: car, airplanes and the daily life going faster. Technology in itself became a subject, a subject of worship, loathing cult of the past and the nature. The birth of the computers had a stronger impact than confined experiences in laboratories, infiltrating in music, literature and every other art fields. Technology left the science world: it's the beginning of the true love.

The Maturity

Where the relationship grows and occupies the minds

After the period of phantasm comes the pleasure time. The human is improving technology and the technology helps him improve himself. The ultimate evolution of the technology, embodied in the computers, led to a going deeper in the core of the electronic love since the 60's. John Cage is one important figure in the participation to the shifting of digital technology from the field of military and scientific research to the field of Fine Art :

The reconfiguring of that technology as a creative medium owes at least part of its impetus to the work of Cage, which in turn can be understood as an artistic response to the threat of nuclear destruction.

(Gere, 2002, p. 85)

Along with the social critiques it proposed, the performances of the Fluxus movement where Cage belonged to landed a hand to experiments dealing with science. The handshake will get definitely firm in Europe with the IRCAM creation in 1970. The IRCAM (Institut de Recherche et Coordination Acoustique/Musique) is an institute for science about music and sound and avant garde electro-acoustical art music. In this facility, Francois Bayle created the *Acousmonium* (1974), a sound system arranged on a stage to propose a unique musical experience through acousmatic music listening. Acousmatic music, part of the Concrete movement initiated by Pierre Schaeffer in 1940, designate music composed especially for retransmission trough loudspeakers. Musicians wouldn't need to be present on

stage anymore. The people that came to listen those performances didn't go for the composition itself, but more for the new experience offered to them. One last example in music would be the work of Iannis Xenakis (1922-2001). Initially assistant of Le Corbusier, he made the link between architecture and music, through the medium of Mathematics, making music via formal structures. Inventor of a system called UPIC he translated graphical images into musical results to create the piece *Mycènes Alpha* in 1978. On the same level, the early works of Vladimir Bonacic from 1968 to 1971 consist of flashing lights on matrix made of light bulbs or direct interventions on the buildings of the city, like the United Visual Artists are doing today.

Before the advent of information processing systems, technology was rarely used as a medium but more as a 'system', in a sense of a canvas defining boundaries for a project. Contrary to the medium that can be tweaked to extend its possibilities, the system has fixed limitations, that cannot be overstepped. Popular in the 60's-70's, it is called *systems art*. Those constrained works find multiple echoes through art history. When Raymond Queneau and François Le Lionnais founded OuLiPo (Ouvroir de Littérature Potentielle meaning 'workshop of potential literature') in 1960, they were looking for 'new ways unknown by [their] predecessors' (François Le Lionnais, 1962). A technological transfer would appear from mathematics to literature. They would work with constrained writing technique where formal constraints would become a powerful stimulus. George Perec, one of leader of the group, is the author of the longest lipogram ever written : 300 pages without the letter 'e', the most used letter in the french language. Raymond Queneau, wrote Cent Mille Millions de Poèmes (*Hundred Thousand Billion Poems*), thanks to separated strips of poems which the reader can arrange his own way. In the end, the meaning emerging from those little kind of games is naturally random. The author is not really using the expressiveness of the language to detail a personal message. Instead, he relies on self-generated meaning for a more poetical purpose. Between 1916 and 1925, the dadaists also used similar rules to make random poetry. A more graphical point of view of art under restraint can be found in the minimalist work of Sol LeWitt (1928-2007) who used structures based upon basic geometrical shapes, in order to fill walls with stripes and square forms.

Even before system arts, restraint was used as a source of creation. The *Pointillism* movement for example, deriving from the Impressionism, depended on a technique which only allowed little distinct dot of colours applied in patterns. In music as well, the dodecaphonism from Schoenberg is a perfect example of not having a lot of choice: using all the twelve notes of the chromatic scale, avoiding the music being in a key. Following this golden age, the computer as an artistic medium started to be seen as marginal. Until the 90's.

The Openness

Where technology becomes part of the daily life

Because humans get bored easily, because love cannot last forever, after a while everything falls into public domain. The access of the technology once limited to the greatest universities, companies and laboratories was finally available for the masses. What was huge, expensive and difficult to produce becomes small, cheap and easy. The vision of Vannevar Bush (1890-1974) of 'cheap complex devices' came true.

The development of the World Wide Web in the 1990s has led to an efflorescence of art using and engaging with new media and technology.
(Gere, 2002, p. 114)

The large access to both computer and the internet introduced advanced technology to the amateurs. But the shift of this love from the elite to the crowd led to obsessional and blinded love. Fascination arose again, in newer ways.

The demoscene, a big showing off of programming skills running complex graphics in real time on machines that are pushed to their limits, began to get big from the late 80's. The idea is to display the most crazy colours, items and motions without burning the CPU and video card. It has a aesthetic of its own, often associated to the hacker aesthetic, that doesn't fit in any previous model of beauty or formalism. In fact, Demomakers gather during a Demoparty, and the crowd, formed by enthusiastic computers fans, is more concerned about seeing a checkered bouncing ball bouncing as fast as possible (see the Boing ball, the first amiga application), that a subtle visual poetry. The same applies to the Internet Art (also referred as Net Art), popular in the mid-late 90's. Centred in every visual produced by the internet culture, essentially thanks to amateurs contributions, the Net Art, just like minimalism did, 'refer[s] to nothing but itself' (Gere, 2002). All the digital creations, from the introduction *JPEG* that says 'Under Construction', to the dancing 3D baby gifs, Russian accordeonists, or even shining stars backgrounds, are being re-used or parodied into news forms of visualization. The thematic is the internet, as well as the medium. More contemporary examples can be found in the 8-bit music movement. The principle is to produce music with a very limited range of tones. It can be done using low-fi machines (that produce low quality sound), but can also be achieved through Circuit Bending, a trend where grown up children perform an autopsy on the little CASIO keyboards of their childhood, in the hope to reveal unexpected crazy sounds. In the end it becomes an experimentation around understanding the limitations of the device, to be as creative as possible with the melodies within the physical limitation of the object. Contemporary fans of synthesizers, such as Etienne Jaumet whose last album has been produced by the celebrated techno DJ Carl Craig, spend their time trying out multiple combination of pattern in their old analog oscillator interfaces. As a result, layers of weird sounds are melting together with no melody or harmony development. The listener is immersed in a standing still musical atmosphere. A last musical example would be the Math Rock movement in contemporary music. Based upon complex structures of rhythm always evolving, bands such as Don Caballero or Hella are only concerned about technical and unusual structures.

We can distinguish several kinds of benefits inherent of the use of technological restraint. The first, expressively claimed by the OuLiPo, is to trigger ideas and inspiration. An excess of freedom can create a fear of the infinity, drowning oneself in the void of the unlimited possibilities that are offered to him. In his book 'The Fear of Freedom', Erich Fromm describes humans escaping their freedom's negative effects by creating some forms of securities. The security is the constraint, and the fear of the blank page (or lack of inspiration), is taken care of by the comfort provided by arbitrary boundaries. The author just needs to navigate in the freshly build up playground. Because constraint is a game. The new rules imposed on the creator is a challenge, an invitation to go further by developing any sort of ingenuity that can bypass the inner limitations of the chosen law. George Perec played with *La Disparition*, and every word permutation which avoid using the letter 'e' becomes a joke, producing a funny text in the end. It's literally a *play on words*. The constraint is thus entertaining.

Yet, is a constraint enough to give birth to art? When using restraint, it gets much more importance than the work itself, and the work is getting its *piece of art* status because we know a restraint has been used and followed. What would think a newcomer that doesn't know anything about computer culture if he watches demo videos? He probably wouldn't get the point, and at best would live an 'unusual' experience. Is the constraint acting as a label, a proof that the artist did involve himself in the creation process? What is really interesting in those technology-centered art is to see the audience melting with the makers. Just as advance research used to be understood only by highly educated professors, the public for internet art, 8-bit music or math rock music is composed of folks who *know* about it. That may also explain why the scene for those genres is so small. Aesthetic also shouldn't be the only criteria in judging art. Hiroshi Kawano who started producing computer art in 1959 advocated a 'rigorous stoicism against beauty' (quoted in Dietrich, 1986). So what remains out of it?

Sometimes the use of computers is mandatory. Such projects as the matrix of Bonacic requires the use of computers because it involves complex calculations and random parameters that only algorithms can provide. We could also state the digital culture is the ground of today's digital art. Painters used to depict nature, digital artists depict the digital world we are living in. Maybe technology should be considered as Art in itself?

Tired to encounter shallow and meaningless numeric art in the galleries, the artists from *Gratin.org* try to define some basis to help judging digital art in its manifesto called 'Vademecum de l'art numérique' :

If the description of an artwork looks like the catalog of a computer reseller, check if the artwork contains more than mere fascination for technology [...]. Don't forget that most technologies have nothing revolutionary, especially for the artistic world. [...] the most important is to look, listen and experiment the work
(Gratin.org, 2003)

But maybe some artists don't even consider their technology-focused art as a restrained. It might as well be some kind of obsession, a love that is so deep that using it is not enough, it shall also be the subject. In a Pataphysics Magazine interview, John Cage said :

I'm not sure technology changes things that much; it changes them if we are concerned with what the results are. But if we deal with the new technologies as closely as we have dealt with the old ones, then we will come to appearances that aren't superficial.
(Cage, 1990)

It indeed shouldn't be a matter of using technology or not. The only goal for artist (assuming artist has a goal), is to produce art and emotions. And looking at the size of the public for all the arts cited before, I'm sure the emotion is there.

Epilogue

What remains our love ?

Far from trying to announce a divorce between art and technology, we have to admit the constraint offered by the use of technology in art can be seen as a creative process, as long as it doesn't fall in a frigid self-centered circle. The latest improvements in technology grew so quick that it's hard to follow, but once we will have a closer understanding of what a computer is, how it has been created, realizing that it doesn't have to be separated from the *real* life, we will be able to imagine a closer interaction, a mutual exchange that could lead to meaningful or useful results. Then the mere fascination for technology would be avoided and humans and technology could live happily even after.

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