

Non-space: The Metaphysics of Space In The Information Age

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ABSTRACT

The computer will become more and more influential as a mediator between man and his environment, due to its evolution as a device and increasing ubiquity. A growing number of people will own a personal computer or computer-like devices, such as cell phones, even though a 'digital divide' will continue to exist, separating social groups within societies. To denote a computer-mediated environment, the term *non-space* is proposed, derived from Vilém Flusser's *non-things* which basically refers to computer-programs. *Non-space* is relative, fluid, non-material and non-locatable. Spatial metaphors, still used in present-day computer-interfaces, are inherently deficient and will be replaced by a more direct and intimate interaction with the computer. Life in *non-space* is essentially provisional, which causes a new existential

anxiety. In the not so distant future, large portion of humanity will end up living their lives in 'augmented reality', a hybrid of the real world and *non-space*.

Key Words:

- Computers
- Personal Computers
- Cell Phones
- Digitization
- Information Age
- Industrial Age
- Digital Divide
- Augmented Reality
- Metaphysics
- Space
- Non-space
- Vilém Flusser
- Work
- Play

In less than a human lifetime, the computer has taken over the world, but its success story does not end there. The computer is still evolving and in different shapes and sizes it will become a dominant factor in the lives of an ever-growing number of people. More and more, it will play a role as a mediator between ourselves and our environment. Within a couple of decades, a majority of the people who live in urbanized areas all over the world can be expected to live in what is called 'augmented reality'.¹ In this essay, I first look into the future development of the computer and its role in society, and then attempt to shed some light on one metaphysical aspect of this change, related to the perception of our environment. The main question is: What is the nature of the 'space' in which human beings will spend their time in the future?

Leverage of ideas

What the machine was to the Industrial Age, the computer is to the information age. The computer deals not with transforming energy into motion, but with transforming energy into information. Ultimately, it deals with the leverage of ideas and therefore its transformational power is

much greater than that of the machine. Some two-hundred years ago, the machine promised to set humanity free from work by mechanization, but in stead it enslaved people by making them replaceable parts of a greater physical and social mechanism. In the early nineteen-sixties, scientists and technocrats believed the computer would liberate us from the machine, by helping us regulate industrial and social processes through 'automation'.²By now, it has become clear that their expectations were far too modest.

An industrial society is defined as a society in which the majority of the people work in the production industry. Since a couple of decades, the Western world has been moving towards a post-industrial or information society, a society in which most people work in the service industry and deal with information transfer, in which computers play a vital role. More emphasis is put on well-being in stead of welfare. Partly, this has to do with the general level of welfare: most people already have 'everything' and therefore acquiring more material goods is no longer high on the priority list. They rather look for immaterial goods, such as knowledge, entertainment and experiences. Software takes precedence over hardware.

It is important to note that developing countries do not follow the same path of economical and social development as developed countries. Their starting position was different at the outset of the Industrial and Post-Industrial Age: they were excluded from the global economy and in many cases robbed by colonizing nations of their capital in the form of natural and human resources (and some still are). In view of the process of globalization, both worlds will eventually end up close to each other, but their route will be entirely different. Developing countries may even be better able to transform into post-industrial societies for reasons that have to do with their specific traditions and culture, and with the fact that they lack the burden of history.³ Certain products, knowledge and know-how can be imported directly from the West (mostly by the rich and the growing middle-class), thus providing a shortcut to modernity.

Universal tool

Among those readily available products the computer stands out, not only as a means of distributing knowledge and know-how of any kind, but also as supplier of entertainment and experiences. During the second half of the twentieth century, the computer has developed from room-size 'main-frame' to micro-scale integrated circuit; from administrative assistant to big bureaucracies to personal gadget for everyman. Unexpectedly, it has become a universal tool for work as well as play. People do want to be set free from the drudgery of repetitive work and hard labor, but not from work per se, because work is seen as a major means of self-development and self-expression.⁴ Under the influence of personal computing, the distinction between work and play has been dissipating, notably for white-collar workers,⁵ who constitute the majority of the work-force in a post-industrial society.

Not all of humanity has equal access to personal computers, computerized devices and their communication infrastructures, such as (high-speed) Internet. This phenomenon separates groups in Western societies, but, more importantly, it also separates the developed world from the developing world; this is known as the 'digital divide'.⁶ The number of people with access to computers may be growing fast worldwide (it is expected to reach 1.3 billion this year⁷ – the current world-population being almost seven billion), ownership is still limited to those with a substantial steady income. More than ever, Marx' famous maxim 'Knowledge is power' holds true in the world of today and whereas the computer potentially is a formidable ally of world democratization, emancipation and empowerment, for now it only accentuates the existing barriers between rich and poor. However, during the coming decades, the level of welfare will rise substantially for a large proportion of the world's population and the price of affordable computers and related devices will decrease steadily.⁸ When we talk about digitization, we also have to look at the cell phone,

which is more than a powerful communication tool; in fact, it has developed into a fully-fledged personal computer (smart phone). Cell phones are much more affordable than traditional desktop computers or laptops and have spread exceptionally fast across the world, even in the poorer countries. Early 2009 there were estimated to be four billion subscribers worldwide or more than half of the world population.⁹

The tablet computer

At the moment, a whole new type of computers is being developed to fill the gap between cell phone and personal computer. Personal computers for use at the office or at home were never differentiated, in spite of their obviously different purpose. With the introduction of 'tablet computers', such as Apple's iPad, using multi-touch screen technology, private computers are clearly differentiated professional computers – under the influence of which the latter will most probably change too. Existing media (TV, newspapers, magazines, books, Internet, games, music, film, photography) will converge in these devices, while new media will emerge. Their main aim is media consumption – buying and 'experiencing' – as distinguished from media production by professionals. Usage is intuitive and requires no technical knowledge whatsoever. The prevalence of software over hardware will increase, economically as well as technically. The pervasiveness of computers and similar online devices in the lives of an ever-larger part of the world population will grow.

Recently, the results were released of a ten-year study on media in the lives of young people ranging from eight to eighteen years old. Recreational media exposure (not including the use of computers for school or work) averages ten hours and forty-five minutes per day in seven hours and thirty-eight minutes (children consume more than one media stream at a time). What this boils down to is that young people are exposed to electronic media practically every minute of the day they spend outside of school.¹⁰ In

the near future, the tablet computer can be expected to play an important role in (formal) education as well, so by then we can expect young people to be online more or less permanently and of course they will bring this habit into their life as grown-ups. In principle, they will need to own only one device (no more need for separate TV, radio, stereo, books, magazines, CD's, DVD's, etc.), but for practical purposes it is likely that they will want a smaller 'phone' version apart from the bigger 'tablet' version. A lot of their media exposure will be shared through the Internet or directly by phone. Apart from media consumption, these computers will also be used to serve a wide variety of practical purposes, e.g. with their GPS-capability or being connected as a monitor of the human body or as a monitor and remote control of electronic (household) appliances.

Vilém Flusser's 'non-things'

In this context space is usually referred to by terms as 'cyberspace', 'virtual space' or 'virtual reality',¹¹ but these terms have specific (historical) connotations which may get in our way. For the present purpose it is better to introduce a more generic and neutral term. In his book *The Shape of Things*, the Czech philosopher Vilém Flusser (1920-1991) refers to computer software – things on computers – as 'non-things' (*Undinge* in the original German text, written in 1989).¹² I would like to extend Flusser's argument, by referring to the environment in which we stay while we are using computers and related devices as 'non-space'. His analysis – obviously inspired by Husserl and Heidegger – rests on the given that life is finite and physical things are considered as obstacles which get in our way and ultimately cause our death, when they can no longer be overcome. Computer things, however, do not offer resistance and play an altogether different role in our lives, according to Flusser. Interestingly, he was right on the mark when he predicted that people who use computers – and therefore are less preoccupied with the physical consequences of having to

overcome material things – would put a higher value on experience and play:

“[...] 'modern' life, life surrounded by things, is not the absolute paradise our ancestors perhaps thought it might be. Many non-Western societies in the Third World have good reason to reject it. If our children too are starting to reject it, this is not necessarily reason for despair. On the contrary, we must try and imagine this new life surrounded by non-things. Admittedly, this is no easy task. This new human being in the process of being born all around us and within us is in fact without hands. He does not handle things anymore, so in his case one cannot speak of action anymore. Nor of practice, nor of work for that matter. The only things left of his hands are the tips of his fingers, which he uses to tap on keys so as to play with symbols. The new human being is not a man of action anymore but a player: *homo ludens* as opposed to *homo faber*. Life is no longer a drama for him but a performance. It is no longer a question of action but of sensation. The new human being does not wish to do or to have but to experience. He wishes to experience, to know and, above all, to enjoy. As he is no longer concerned with things, he has no problems. Instead he has programs.”¹³

Technological instruments are tools which serve as extensions of our body. Man has extended his senses and powers far beyond his own scale. This circumstance changes the way we perceive our environment and extends our knowledge. It has enlarged our biotope to comprise the whole of our planet and dramatically changed our impact on the earth's ecology. As Marshall McLuhan has famously claimed, 'electric' media are the extension of our nervous system.¹⁴ Whether we should take this literally or metaphorically, they have indeed changed human consciousness as surely as the telescope and microscope have. Not only have they become indispensable as communication tools, memory carriers and production tools for scientists and professionals, they also play an important role in the

dissemination of knowledge. This knowledge is not necessarily limited to the realm of science, but it can also be of a highly personal nature. Digital networks are not hampered by any physical limitation, except for the presence of a proper infrastructure, and can have nodes in any place on earth or even outer space. As a result, our awareness of what is going on all over the world, on many different levels, has increased greatly (directly or indirectly through traditional media which make use of such networks). In these digital networks physical distance is played down, with, for example, a concurrent increase in mobility as a result. Distance is commonly used to measure space, but distance has become extremely fluid and is actually non-existent in *non-space*. This relativity of space practically destroys our common perception of what space is, so the term *non-space* seems entirely appropriate. Moreover, due to the way digital information is relayed, this space is nowhere, it is non-locatable.

The natural companion of space is time. Together they constitute the four dimensions in which our physical existence takes place. Unlike the importance of space, the relevance of time is not reduced in *non-space*. On the contrary, it is more articulated: having a cell phone means being directly available during waking hours¹⁵ and communicating with people in other time zones means being aware of the time difference. Also, computers need time to perform their tasks. This is a resistance within *non-space* that is comparable to the resistance of physical objects. According to Moore's Law,¹⁶ however, this resistance will gradually continue to decrease in the future, especially for ordinary usage, although it has been a considerable factor in the past. So much so, that many 'real-time' (or seemingly real-time) interactions facilitated by computers were impossible not so long ago.

Spatial metaphors

Non-space is essentially a non-spatial environment. Still we do encounter forms of conceptualized space in *non-space*. The desktop metaphor used by

the most popular computer operating systems (Windows and MacOS) refers to our everyday physical environment – the office to be specific – and in games and specific applications we can find ourselves in simulated 3D spaces. As for the desktop metaphor, it remains to be seen if it will survive much longer when the traditional PC is replaced by tablets. This metaphor is merely a way of categorizing the information that is available in the computer's memory. The physical memory of a computer or a memory disk contains only switches that are either on and off. These states can be decoded into information by applying linguistic rules. Thus, *non-space* is a purely linguistic construction, constituted by artificial languages specifically developed for this purpose. However, with the intuitive interface of touch-screen tablets there is no longer a need for such ultimately deficient and confusing metaphors.

As for simulated 3D-space, the obvious end-goal in developing this is to achieve the highest degree of realism possible. But also in this case there is an ultimate deficiency: the sensorial stimuli that can be generated by computers is, at the present, reduced to the visual and the aural. It is to be expected that in the future some tactile information will also be added to the spectrum, but there is a limit to what can be achieved. Transferring stimuli to the other senses will depend on hardware which inherently undermine the realism of the experience, such as is already the case to a certain degree with any kind of goggles, earphones, etc. Future computer interfaces will replace these deficient intermediaries by programming intuitive handling without (metaphorical) reference to physical reality. The employment of a touch-screen (with tactile feedback) as main input device – instead of the combination of keyboard and mouse – will facilitate direct 'handling' more similar to the handling of physical objects. Most daily computer usage does not require substantial textual input, so tablets can dispose of the symbolic layer that now still surrounds the operations of computers. Consequently, computer usage will feel more intimate and

natural, more tactile instead of 'mental'.¹⁷

Finally, McLuhan's seemingly outdated word 'electric' still has relevancy with respect to *non-things* and *non-space*. The universe is powered by cosmic energy (everything on earth mostly by the sun), whereas *non-space* is powered by a transformation of that energy in the form of electricity. Electricity, so far, is an absolute precondition for *non-space* and *non-things*. A breach of reliance is inherent in all powered tools. Their potential total breakdown caused by a lack of electricity or a mechanical defect defines *non-space* and *non-things* as essentially provisional. They can cease to exist and come back to life from one moment to the next. Combined with the uncertain, non-locatable relationship that digital networks have with the physical world, this gives rise to a new class of existential anxiety. We live part of our lives in *non-space*, where existence is equally provisional as non-existence, a condition which compares to nothing in real life.

Conclusion

Software creates an environment in which all the programs that run concurrently constitute its possibilities and limitations, the way the laws of physics determine the possibilities and limitations of living in the real world. In Kantian terms, we cannot know anything about 'das Unding an sich', nor can we know anything about *non-space* in itself. Rules of conduct are given or emerge, just like in real space. The main differences lie in the articulation of duration and distance, and the non-material character of *non-things*. With the introduction of more intuitive user interfaces for computer tablets and ubiquitous computing devices, *non-space* and *non-things* will link up with physical reality almost seamlessly in daily life, constituting a hybrid of physical space and *non-space*, which can be referred to as 'augmented reality'. A majority of the world population is likely to be wandering this hybrid reality during a large part of their waking hours within the next ten or twenty years.

End Notes:

¹ Augmented Reality: "Augmented reality (AR) is a term for a live direct or indirect view of a physical real-world environment whose elements are augmented by virtual computer-generated imagery. It is related to a more general concept called mediated reality in which a view of reality is modified (possibly even diminished rather than augmented) by a computer. As a result, the technology functions by enhancing one's current perception of reality." <http://en.wikipedia.org/wiki/Augmented_reality> (19 May 2010).

² Pessimists, on the other hand, could see only doom: the computer taking away our power to decide and making us into mindless robots. A good example of a text professing the beneficial influence of computers on society (when properly understood and used) from that era is: Leon Bagrit, *The Age of Automation* (Harmondsworth: Penguin Books, 1966).

³ To describe this phenomenon, Dutch historian Jan Romein (1893-1962) coined the phrase: 'the Law of the Handicap of a Head-Start' in his essay "De dialectiek van de vooruitgang" (The dialectics of progress) from 1937.

⁴ On work and enjoying work: Mihaly Csikszentmihalyi, *Flow* (London: Rider, 2002), 143-163.

⁵ Literally, because it is easy to play a computer game during working hours (without anyone noticing), but also in a wider sense, because private and professional cannot be separated off in a computer. Also, the computer makes it easier to work at home.

⁶ See <http://en.wikipedia.org/wiki/Digital_divide> (15 May 2010), which contains two graphs which quantify the global digital divide.

⁷ Personal computers worldwide (most recent data): 787,339,863. Indonesia: 3,022,000. Source: <http://www.nationmaster.com/graph/med_per_com-media-

personal-computers> (21 May 2010). *Sizing The Emerging-Nation PC Market* (2004), a report by independent technology research company Forrester Research, predicted that the number of pc's in the world would double (to 1.3 billion computers) and that there would be 40 million new PC users in Indonesia by 2010.

⁸ Computer price/performance ratios halve every eighteen months according to Moore's Law. See: <http://en.wikipedia.org/wiki/Moore's_law> (19 May 2010).

⁹ This includes people who own more than one cell phone. Source: "Mobile Growth is Exceeding Expectations Globally," <<http://www.mobilemarketingwatch.com/mobile-growth-is-exceeding-expectations-globally-2-1006>> (19 June 2008). According to data from the World Bank the total number of mobile phone subscribers around 2004/2005 was: 2,152,079,307 worldwide; in Indonesia: 46,909,970. Source: <http://www.nationmaster.com/graph/med_mob_pho_sub-media-mobile-phone-subscribers> (21 May 2010).

¹⁰ Source: Victoria Rideout, Ulla G. Foehr and Donald F. Roberts, *Generation M²: Media in the Lives of 8- to 18-Year-Olds, A Kaiser Family Foundation Study* (Menlo Park: Kaiser Family Foundation, 2010), available online: <<http://www.kff.org/entmedia/8010.cfm>> (1 January 2010).

¹¹ Conversely, avid computer users are known to refer to the real world as 'meatspace'.

¹² "The Non-thing 1" and "The Non-thing 2" in Vilém Flusser, *The Shape of Things, A Philosophy of Design*, transl. Anthony Mathews (London: Reaktion Books, 1999), 85-89 and 90-94. The German word *Unding* means 'absurdity' or 'rubbish'.

¹³ Flusser, 89.

¹⁴ Marshall McLuhan, *Understanding Media, The Extensions of Man* (London: Sphere Books Limited, 1967).

¹⁵ "... an SMS is typically read within an average of 15 minutes after receipt and responded to within 60 minutes." Source: "Mobile Growth is Exceeding Expectations Globally" (see note 8).¹⁶

¹⁶ See note 7.

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