The implications of technological progress in architectural thinking: The future impossibility for an architecture of hiding

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Abstract. This paper aims at exploring the future of architecture of hiding which is encountering the constant pressure of technological advance. The open society and its increasing surveillance are requiring human behaviour to adjust to new realities of hiding. One estimate puts the number of surveillance cameras around the world at 245 million and another reckons there will soon be over twice that number in China alone [1]. Consequently, the perception of hiding architecture is changing, and its romanticism is facing a serious threat. Up to 20th century, hiding an object - space - to the degree of resembling alienation or nothingness assumed meanings addressed to intellect and to the body, meanings imposed by threats or by sanctions. In its ancient Greek version, one could grasp the space by means of a thought-process capable of perceiving them as a totality and endowed with meaning. But today, the boundaries between inside and outside are being dissolved for an observer who through technological means is able to move freely in space and time, defeating the hiding architectures and its three-dimensional spatial perception. To quote Henri Michaux: “I put an apple on my table. Then I put myself inside this apple. What peace! [2]” The advance of technology has made hiding a matter of self-perceiving which has only a distant link to geographical reality. The underground space remains the prime solution for hiding but the increasing conversion of underground structures and military fortifications into data centres tells that the importance of data storing is surpassing that of physical hiding. Instead, the architecture of hiding is transforming into the architecture of living without traces. Technological progress is taking us to a milieu in which the tracelessness of the fugitive becomes the representation of the hidden space. However, as Peter Sloterdijk puts it forward in Bubbles [3], what lends modern psychological knowledge its strength and autonomy is that it has shifted the human position beyond the reach of geometry. Now, the space created is being conceived before it is actually “lived”, meanings are no longer conveyed by a continual putting-to-the-test of the emotions, and humankind is adjusting to new realities by finding other means of hiding, presumably through architecture of data and digital cryptography.

1. Introduction

1.1. Philosophical Background
While hiding as a quest for solitude has been absorbed by poets since Roman times modern and contemporary philosophers considered it essential. The best of all places to hide, typically, is in the plain sight - Heidegger once called it “the inconspicuousness of the obvious” [4]. Further, in Nietzsche’s Philosophy of the Eternal Recurrence of the Same [5] we saw that Nietzsche embrace...
theatricality as a way to hide, a strategy to conceal himself, paradoxically, by parading loudly onstage: “My melancholy wants to rest in the hiding places and abysses of perfection” [6]. But today, as global challenges facing our generations become more and more pressing, the environmental art is widely exploring the spectrum of hiding as a proclamation of simplicity, unification and return to Nature. Christo and Jeanne-Claude first proposed the idea of wrapping a public building back in 1961, stating that either a prison or a parliament should be wrapped, since those are the only truly public buildings (Figure 1). The wrapping of Reichstag in fabric became a symbol of unified Germany while showing the Berlin's return as a world city.

![Figure 1. Christo and Jeanne-Claude, Wrapped Reichstag, Berlin, 1971-95, Photo: Wolfgang Volz, © 1995 Christo.](image1)

Moreover, the evolution of entertainment consumption is pushing the architecture of hiding towards becoming architecture of show and spectacle, too. During the Osaka World’s Fair (1970), the group EAT tried to hide the geodesic dome (military in origin) in a misty fog sculpture in order to camouflage the fact that their work was made in and for PepsiCo [7]. Almost three decades later, the Blur Building, (2002 Swiss Exposition Pavilion, by Diller Scofidio + Renfro), which is shown as an architecture of atmosphere - a fog mass resulting from natural and manmade forces, again opened up the discussion of hiding by excluding the importance of windows as determining elements on constituting a piece of architecture (Figure 2).

![Figure 2. Swiss Expo 2002, Yverdon-les-Bains, Switzerland, © Elizabeth Diller and Ricardo Scofidio.](image2)

However, theatre and spectacle is no longer “plain sight”, and most of it is being transmitted digitally. Technology permits the achievement of what in *Space, Time and Architecture* Sigfried Giedion calls the ideal of the permeable wall, the ultimate in visibility [8]. But these walls are also hermetic barriers,
and here the aesthetics of visibility and social isolation merge. The future panorama of technological implication in our lives and its effect on diminishing privacy is unprecedented and surveillance cameras are intervening to the degree of altering all the so far human behaviours. According to Richard Sennett, when everyone has each other under surveillance, sociability decreases, silence being the only form of protection since human beings need to have some distance from intimate observation by others in order to feel sociable. [9] Essentially, the purpose of surveillance is not only to observe but to imply changes, too. The negation of the possibility for hiding brings us closer to the Brave New World’s dystopian society where surveillance works as a complex system of control including systematic monitoring [10]. What if we all behaved as if we were being watched? Who would do something antithetical or immoral or illegal if they were being watched? If all that happens must be known, the pressure on those who are not yet transparent will go from polite to oppressive. To quote Dave Eggers in The Circle: “If you aren’t transparent, what are you hiding? If you weren’t operating in the light of day, what were you doing in the shadow” [11]?

1.2. The poetics of hiding
As Gaston Bachelard put it in The Poetics of Space, an anthology devoted to small boxes, such as chests and caskets, is very evident witnesses of the need for secrecy, of an intuitive sense of hiding places. It is not merely a matter of keeping a possession well-guarded. Hiding something could well be yourself, Bachelard continues: “Every corner in a house, every angle in a room, every inch of secluded space in which we like to hide, or withdraw into ourselves, is a symbol of solitude for the imagination; that is to say it is the germ of a room, or of a house [12].

Figure 3. Martin Heidegger’s hut in the Black Forest, an emblem of flight from the city. Simplicity of build form combined with social exclusion [13]. Source: http://thinkingplace.org/heidegger/ , 2017.

Furthermore, the discovery of the Zen View created between the built environment and the natural elements constitutes another feature of hiding: intimacy. In this respect, the romanticism of hiding in the underground space has accompanied humankind from living in caves till the present day. As flight from metropolis has a pedigree stretching back to Virgil, Heidegger’s flight from the city (Figure 3) was prompted by the same search for solitude which sent Wittgenstein in 1913 to a cabin in Skjolden, Norway [13]. While this reflects in part a Romantic quest for solitude escape from city to Nature can show a rejection of others too and a plea to evade confronting the surrounding reality. One undertaking the assignment to design for himself will see that the preservation of intimacy starts with very elementary interventions such as half hidden gardens, secret landscapes and child caves. In the classic A Pattern Language Christopher Alexander clearly describes that any rooms are not complete unless they have smaller rooms and alcoves opening off them. No homogeneous room, of homogeneous height, can serve a group of people well. To give people a chance to be together, as a group, a room must also give them the chance to be alone, in one’s and two’s in the same place [14].
2. Underground space as the classical solution of hiding

2.1. The underground way of living: Windowlessness

A rich legacy of fossil records and ancient tools, art and structural ruins suggests that humans have had a complex and intimate association with the subsurface ever since evolving into modern Homo sapiens [15]. Indigenous communities in China, Spain, and Tunisia have continuously occupied man-made spaces below ground for more than 4,000 years and tens of millions of present-day Chinese still live on the underground level. As far back as 1800 BC, residents of the Cappadocia region built different typologies underground from homes, schools, and chapels in order to seek shelter from hot summers and cold winters. But the most impressive recent example is in Finland where an entire underground master plan was completed back in 2014. While the country has made use of its hard bedrock for decades the new plan is the first of its kind to regulate underground construction on a city-wide basis. Helsinki has developed a dedicated Underground Master Plan for its whole municipal area, and on average, under each 100 m$^2$ of surface area in Helsinki there is 1 m$^2$ of underground space [16].

![Figure 4. "Depthscrapers" Defy Earthquakes. © Everyday Science and Mechanics. November 1931.](image)

Today, in cities and towns around the world, a mixture of extreme weather caused by climate change and rapid urbanization has proven that the case for building underground is still on the table. However, by considering the human experience as working on mines, as places where the organic is displaced by the inorganic, where the environment is deliberately manufactured by human beings rather than spontaneously created by non-human processes [16], the human life appears strongly connected to natural processes and possibly cannot resist for a long time in a completely different environment. When it comes to hiding, by eliminating windows the environment becomes internalized and focusing inwardly it removes outside influences. In this case, windowlessness appears not much of a lighting issue rather than an opposition to the possibility for looking outwardly. Adolf Loos did predict that the
truly modern gaze will be directed theoretically inwards [17], but, however, in contrast to underground infrastructure the subterranean living, even for a short time, is still considered a feature of fiction. Even though windowlessness cannot be regarded as an inherent characteristic of the subsurface, yet it will always be an inescapable issue in the design of terrestrial architecture. Although fenestration is becoming available to many underground building forms, most of them and depthscrapers in particular will require a long-term commitment to technological advancements. However, considering hiding as an embodiment of the need for exclusion, the romanticism of hiding in the underground space will remain vivid for much longer.

2.2. Architecture of fortification: The art purposefully hiding structures

Since ancient times secret passages were built in the castles of individuals of high rank. The passages and tunnels were mostly for escape, stealthy travel or the movement of treasure, to perform all these activities without to be seen. But our civilization has developed other terrestrial structures of hiding which demonstrates equal stability and robustness as the underground constructions. These concrete structures which have been symbols of wars or nuclear threats, more than hiding guarantee security and their extremely crushed form visibly recall the ascending experience of Aztec architecture.

As Virilio put it in Bunker Archeology, these heavy grey masses with sad angles and minimal openings brought to light much better than many manifestos the urban and architectural redundancies of this post war period [18]. But, according to Ernst Jünger, the particular character of fortified works does not appear with as much impact when one dwells in them. This character becomes vivid only when its occupants have deserted [19]. This immediate comparison between the urban habitat and the shelter, between the ordinary apartment building and the abandoned bunkers in the hearts of the ports is as strong as a confrontation, a collage of two dissimilar realities [18].

![Figure 5. Lindemann battery in the Strait of Dover © Paul Virilio Source: Bunker Archeology 1994.](image)

But today, the war of real time has clearly replaced the war in real space of geographical territories that long ago conditioned the history of nations and people. Thanks to a centralized management and continual processing of data capacity in real time the real space of confrontations is being gradually disqualified. Territorial expanse and physical confrontation are losing much of its geostrategic importance since terrain relief and distances to be spanned no longer represent real obstacles. According to Paul Virilio, the instantaneous speed of data transmission, as well as the extreme precision in the guidance and navigation of intelligent projectiles, dominates the devastating power of conventional or unconventional arms [18]. Could this be the end of military camouflage and hiding as we know it? Fortification, which was geophysical in the ancient times of the Great Wall of China or the Roman limes, has suddenly become trivial. The physical and “micro-physical” are no longer located in the space of a border to defend, or in the covering or armour of a casemate or tank, but in the time of instantaneous electromagnetic countermeasures [18].
3. Underground fortifications revised: Data Centres

Surrounded by rock and often featuring just a single entrance, military facilities are physically highly secure and sufficiently solid to withstand a nuclear attack. However, as technology is penetrating each and every range of human legacy, the WWII remains of hiding are increasingly accommodating the sensitive typology of data centres. From the United States to Switzerland and Sweden the bunkers of high security and protection are more and more accommodating a new typology of storage: digital information storage. Data centre operators have been retrofitting underground bunkers into functional data centre, and as security considerations and energy demands intensify, there is an increasing trend towards building additional subterranean facilities to host the infrastructure of data centres.

Exploring worldwide examples of most secured data centres we see that the bunkers have slowly transformed from the hiding purpose to storage purpose. Utilizing military fortifications for storing data clearly shows that a possibility for hiding is becoming unrealistic and irrelevant. Although the digital information does not need to be stored in a hidden place as it remains physically inaccessible, does this show that the paradigm of the touchable information is still in place even though technology has already progressed faster? While physical destruction is not needed to destroy digital data, it is still possible and guarding against this is one of the important reasons for putting data centres underground.

![Figure 6. Plan 1, WikiLeaks Headquarters (former WW II bunker, Stockholm) / Albert France-Lanord Architects, 2008. Source: https://www.archdaily.com/95432/architecture-of-wikileaks.](image)

The digital world is about to become the new medium of human communication, experience and action and its implications are changing the paradigms of architecture of the future. This new form of interaction is slowly dissolving the local relations of the real space and consequently architecture and its design parameters must be newly defined. It is this new field of symbiosis between the digital and analogous world which has already begun to shape the future of humanity by means of new realities of function and image, and the contexts emerging from them [20].

Data memories have been used as virtual work and storage space since the middle of the 20th century, but the environment already heavily determined by the interactions between material and virtual space has found hardly any reflection so far in architecture. And if architecture wants to maintain its position as both an expression and a mirror of society, the gap in a complex of issues of ever-growing
importance must be closed. In this respect, Vilém Flusser proved right in his urgent call for new kinds of buildings and new architecture [21]. Flusser believed that the shape of things (and the designs behind them) represents both a threat and an opportunity for designers of the future. Altogether this put forward the necessity for a reinvention of the architecture of hiding, too. It will be the task of designers and planners of the 21st century to design electronically communicated environments with omnipresent networks, where their artefacts (of any size, from the nano to the global scale) equipped with and means of telecommunication will serve to the bigger purpose.

4. The impossibility for an architecture of hiding

4.1. On Panopticon

“We believe there is a need in people to live with a secret place in their homes. To live in a home where there is such a place alters your experience. It invites you to put something precious there, to conceal, letting only some in on the secret and not others”, was Christopher Alexander remark on the importance of hiding places [14].

Jeremy Bentham, the philosopher and social reformer, pointed out that a regime can only be upheld if everything that deviates or dissent from it does so in broad daylight. He allegorized his realization as an imaginary surveillance architecture consisting of a tower standing at its centre and surrounded by countless windows. This would be the panopticon - a type of institutional building and a system of control designed to allow its inmates to be observed by a single security guard and without being able to tell whether they are being watched. Although it is physically impossible for the single guard to observe all the cells at once, the fact that the inmates cannot know when they are being watched motivates them to act as though they are being under surveillance at all times. Thus, they become compelled to regulate their own behaviour in accordance with the system’s requirements. Bentham devoted his effort to developing a design for a typical prison, but the basic plan can be equally applicable to hospitals, schools, sanatoriums, and asylums.

![Figure 7](https://www.nytimes.com/2013/07/21/books/review/the-panopticon-by-jenni-fagan.html)

As a metaphor, the panopticon was commandeered in the latter half of the 20th century as a way to trace the surveillance tendencies of disciplinarian societies [22]. In his study of the origins of the prison, Michel Foucault describes the prisoner of a panopticon as being at the receiving end of
asymmetrical surveillance: “He is seen, but he does not see; he is an object of information, never a subject in communication. This permanent visibility became a way to exercise power and in so doing induce “in the inmate a state of conscious and permanent visibility” [23]. The authority changes from being a limited physical entity to being an internalized omniscience - the prisoners discipline themselves simply because someone might be watching, eliminating the need for more physical power to accomplish the same task.

4.2. Hiding in the Age of Mass Surveillance
While the panopticon has been considered as a precursor to the cameras installed to our buildings, the monitoring electronic communications from a central location has already surpassed it - it has transformed to mass surveillance. According to Glenn Greenwald, Mass surveillance creates a prison in the mind that fosters compliance with social norms or with social orthodoxy. It is much more subtle, much more effective than brute force could ever be [24]. As George Orwell put it in Nineteen Eighty-Four, his iconic novel about surveillance and privacy, “there was, of course, no way of knowing whether you were being watched at any given moment. At any rate, they could plug in your wire whenever they wanted to. You had to live, did live, form a habit that became instinct, in the assumption that every sound you made was overheard and except in darkness every movement was scrutinized.” However, in the panopticon the occupants are constantly aware of the threat of being watched but state surveillance on the internet is invisible. According to Jake Goldenfein, the asymmetrical exposure of inmates in Bentham’s building is of a different order to how government bodies conduct surveillance today [22]. The parallels between the panopticon and CCTV may be obvious since there is a physical sense of exposure in the face of authority, but are we still “objects of information” as we swipe between cells on our smartphone screens? Does the fact that we do not know we are being watched mean we are having less and less possibilities for hiding? Are we being normalized in the way the panopticon was intended to correct behaviour and is our freedom to disappear a fundamentally erased one? “In general you could not assume that you were much safer in the country than in London” – Orwell continues: “There were no telescreens, of course, but there was always the danger of concealed microphones by which your voice might be picked up and recognized [25].”

The reason why the Internet is difficult to comprehend is because the Internet is invisible. Invisibility is the key to holding control over others. While much of the justification of this is the alleged benefits to health and wellbeing the interconnectivity between objects in our homes, cars and cities, generally referred to as the internet of things, is creating a vast amount of data about our lives. Strong measures are being taken in order to prevent such escalation of privacy loss and the Right to be Forgotten is one of them [26]. But the rights of humans in a Digital age could be no different from the right of humans in the Roman age. As Eggers collected them, “We must all have the right to anonymity. Not every human being can be measured. The ceaseless pursuit of data to quantify the value of any endeavour is catastrophic to true understanding. The barrier between public and private must remain unbreachable [11].”

5. Conclusions
The development of technology has changed the paradigm of how the architecture of hiding manifests itself. Camouflage, concealing, fragmentation, dissolution, silence, privacy and secrecy are gaining new meanings while the penetration of the Internet and data accumulation is questioning today's possibility for physical hiding. The old paradigm of hiding things underground has become in many ways obsolete but the world's digitalization requires underground spaces too to secure it (data centres). While the horizon of architecture is expanding beyond the physical environment, the rights of individuals are narrowing down proportionally. Foucault argues that more sophisticated societies offer greater opportunities for control and observation, and Panopticon has become not a dream building but a diagram of power reduced to its ideal form. It gives power over people's lives through architecture.
But, today’s mass surveillance is putting us all into an invisible panopticon and for designers and engineers the question is no longer what could the architecture of hiding look like, but instead, how would that architecture be organized in today’s knowledge society?

The underground space remains not only the prime solution for hiding but with the expansion of data centre typology it is gaining a different consideration, too. While digital revolution is increasing the time humans are physically and mentally able to spend underground, the real occupation of underground structures and military fortifications tells that the importance of data storing is surpassing that of physical hiding. However, during the past two decades, the subject of underground living and windowlessness in particular has generated a great deal of debate. Its user acceptance remains clouded by much emotionalism and little empirical or psychological study [27]. In addition, time has come that the architecture can no longer simply focus on the designing of indoor space or building the relationship between inside and outside. The 21st century individual’s gaze no longer sweeps across rows of windows, but screens have begun to replace not only them, but also the door in the classical sense. Reality is being rapidly competed by perceptibility. What if Adolf Loos had proven right in saying that the truly modern gaze is directed theoretically inwards? As he put it, “civilized man does not look out the window - his window is made of frosted glass. It serves only to let the light in, not let the gaze pass [17]”. As the fundamental purpose of windows remains the establishing of a relationship between inside and outside, the virtual windows representing a limitless access to worldwide information is challenging architecture beyond aesthetics and functionality.

Around the millennium, users increasingly brought technology along into the existing world and interaction designers turned to making new kinds of interfaces for this newly hybrid reality [28]. Since our houses have become “perforated” by wires and radio signals, and landscapes populated by massive structures that support them (Figure 8), the Internet have come to constitute a space which is no longer bound to the conditions of the physical and built environment. As Marc Ries put it [29]: “The given limits of the built space, the boundaries of the site, are therefore transgressed, and to such an extent that relations with people moving within the limits of visibility become less relevant than relations with those presence in virtual”. This will necessarily have consequences for architecture and our living habits. After all, given the progress of current digital communication it would be incomplete to persist in perceiving the architecture of hiding only as a domain of a limited territory or physical container.

![Figure 8. American Surveillance Base, Yorkshire, © Trevor Paglen - Art on the Underground, 2014.](image)

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