Thinking in networks: artistic–architectural responses to ubiquitous information

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Abstract
The article discusses creative practices that in aesthetical-technical ways intervene into the computer networked communication systems. I am interested in artist practices that use networks in different ways to make us aware about the possibilities to rethink media-cultural environments. I use the example of the Japanese art-architectural group Double Negative Architecture to give an example of creatively thinking in networks.

Keywords: Networks; Creative Practices; Artistic Intervention; Ubiquitous Computing; Complexity and Connectivity; Augmented/Virtual Reality

With the focus on artistic positions, I wish to raise awareness for creative practices that in aesthetic–technical ways reflect on digitally networked information and communication systems. I will discuss conceptual frameworks that help to determine theories, practices and aesthetics that intersect in the media-cultural applications of current media technologies. They are, for the most part, associated with fluidity of constantly changeable media borders, the miniaturisation of objects and the increase in responsive environments. The main characteristics of the present situation are permanent flow, constant change, connection with everything and endless continuation of processes. These characteristics also enter into building blocks with identifiable core parameters and are generally agreed to connotate the essential structures of our contemporaneity at global scale. In

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In this situation, I propose to look closer at conceptual frameworks that have fostered thinking in complexity and have promoted a high level of connectivity. This distinguishes media and cultural processes of the present and emerges with computation at large. The point of view that I discuss in the following considerations arises from a perspective of humanities applied to examples of aesthetic–artistic practices. The focus lies on those practices that not only make use of digital technologies but at the same time also take a critical stance and pursue creative interventions into networked processes of the present.

I am interested in methods of applied analysis, more precisely in those fields of creative practices and of digital humanities, which relate questions of capacity regarding constantly changing and multiple interconnected technological forms to the discussion of the specific cultural context that shapes and is shaped by the use of the presumably universal machine named computer. When we want to determine what a critical position of artists regarding these interwoven fields of influence can be, it will be worthwhile to observe points of interference where the aesthetic positioning suspends expectations and shifts perception. In this direction, creative practices will be able to differently employ tools and experiment with the properties of devices. They can relocate ubiquitous appearances of more or less imperceptible, notably invisible and unnoticeable processes that surround us at any given situation. As a premise for effective artistic responses towards a situation that is characterised by overall technological environments, and has been discussed as the new paradigm of electronic respectively digital culture, it seems necessary that these practices reflect on the state of the art of the present. A present that is characterised by ambient computing, smart devices and omnipresent networks. At the same time, artistic expression needs to articulate a position of aesthetic intervention amidst a surrounding where everything can be traced, connected, surveilled and controlled.

The shifted perspective of the arts manifests a position of inventive intervention. This means, for example, that existing devices are purposefully misused and remodelled. Thereby, changes in their functions make us aware of the ways in which we have learnt—which without much questioning—to understand, accept and also “communicatively” adapt to the properties and attributes of networked processing that have entered into many if not most areas of everyday life. With regard to digital cultures, smart technologies radically dissolve barriers between us and the machine by diminishing the annoying interfaces that were needed in most Virtual Reality applications. I would imagine that practices of creative intervention at the core question political–military implications of emerging technologies as well as the advancement of techniques in the commercial–industrial sectors. In this respect, I think, artistic practices bear a far-reaching potential to articulate another scientific–artistic model, a model that rearticulates participatory and interactive features by expressing an imagination of other forms of the unseen and the unheard. In view of the growth of Virtual Reality applications in the sectors or game industries, on the one hand, and of the sophisticated overlay of real and virtual data in Augmented Reality, on the other hand, the current strand of development in ubiquitous computing seems to foster properties such as smallness, fluidity, invisibility, sensor-based connectivity and resultantly more and more interface-free encounters of human and machine code. In this situation of highly complex devices that enhance and challenge our intellectual capacity at the same time, a position of invention can be regarded not only as a representational reflection on the situation but is also meaningful as an exemplary model to guide further practices.

Artistic intervention that takes position amidst the challenges and changes with which social and cultural relationships are confronted in networked societies—to borrow Manuel Castells’ term in the broader understanding of art within global politics—necessarily needs to take into account media and also cultural connotations of thinking in networks. By situating artistic–creative practices in networked environments, we can investigate how far the participatory idea of connectedness relates to governmental–political and military–industrial frameworks of controlled spaces that surround us in public and private sectors. To recall a recent event here: Apple company is facing an extensive law suit from many ten thousands customers in South Korea who protest that their mobility position data are traced, registered and stored so that their behaviour and whereabouts become corporate property and can be used and shared by others as well beyond the control of the “user”
of the smart phones. The example demonstrates the urgency to closely investigate the structural settings within the society that pre-figure and shape the media cultural environment, wherein novel technical applications are embedded. Clearly, they do not emerge in neutral spaces. In contrast, they are configured and processed according to an existing order and rule with specific parameters of social acceptance and control, and they develop at a specific time and location. In result, thinking in networks does not liberate us from scrutiny and comprehension of the particularities of practical, economic and—not to forget—aesthetic components and their inter-relationships. For the discussion of artistic responses to the present situation of ubiquitous information processing in networks, it will be important to link the creative world to larger parameters that are said to be structural factors of the present. These are (1) surveillance and control and (2) supervision and monitoring. In this view, inventive intervention into the present situation works on the creation of participatory and dialogical models for communication. The point is to set out alternatives and to critically respond to growing needs in the fields of social media activities. However, we shall not naively overlook that a large number of presumably uncontrolled, alternative activities may also work under the regime of surveillance and supervision of the master structure of the corporation or enterprise who provides the service for all. Therefore, critical awareness for critical positioning is also at stake.

In view of our complex media culture, the aesthetic–artistic response to networked processing devices is intervening into the present when it does indicate a new pattern in the overall conceptual framework of complexity and connectivity. As the example may demonstrate, such a model not only realises what can be done in pervasive computing. Moreover, it will have effects on shifting the perspective on and the perception of “media products”. Aesthetic–artistic thinking in networks, therefore, seems to be an important tool in creative practices for mediating a comprehensive understanding of the location and the position of a governing framework. By demonstrating distinction towards industrial–commercial and/or political–military applications both of which also converge in the overall cultural–economic setting, it is possible to make specific, governmental and locational politics behind the technological drive into pervasive computing more evident and raise the contextual attributes of the framework as a subject to be discussed.

CONCEPTUAL FRAMEWORK

Conceptual frameworks have foregrounded and by and large driven the technological development of building blocks for programmable devices, tools, sensors and further applications. One key tendency has been to miniaturise the tools and objects and to make their appearances more appealing to us. This is coupled with further efforts to smoothen our encounters with the machine world by predominantly dissolving the interface with its dual function of barrier and border and as bridge to connect to and embrace different worlds. In this respect, the use of networked devices follows a model of the machine that smoothly and not necessarily in anthropomorphic representation

Figure 1. Double Negative Architecture: “Corpora In Si(gh)te”, Japan/Hungary/Switzerland, 2007–2009.
adapts to human behaviour and environment. It “learns” from us by monitoring our customs and practice and not the other way round. Previously, the machine pattern of an electronic device, let’s say of an analogue image processor, required that we accommodate to a certain level of expert knowledge and learn the internal operational system, whereas nowadays with the digital devices, we must not necessarily be aware of systems’ operations that are implemented everywhere and manoeuvre everyday tools. It is not required to take note of the interconnected processes that, in principle, would run forever independently from our existence. A closer look at the conceptual history of multi-purpose computation and the processes of technical development reveals, however, that a dual concept exists of a long time: of machines that adapt to our environment and machines that force us to fit to their mechanism. I will briefly describe key points in both directions as far as they contribute to conceptual ideas of complexity and connectivity.

When discussing the emergence of such concepts, we need to avoid a way of thinking in progression and linear development of the kind “from-to”. This would be inappropriate and needs to be abandoned. Nevertheless, it can be useful for the contextual understanding to remind a few cornerstones in the development towards the realisation of ubiquitous computational environment that we experience in the present time. With regard to the conceptual history of a frame-work that links people and computers, we find points of conceptual synchronicity across different cultural and media contexts. When viewed together, they foreground the building of tools and have instigated further practices in and with, notably Virtual Reality and Augmented Reality. A large part of the modern, respectively, post-modern imperative to think in networks has advanced after Second World War along with new demands to achieve faster and more complex information recording and processing. These were in the first place raised by Western governments in correspondence with military-industrial demands of the Cold War period. Retrospectively, the different approaches have paved the path to our contemporary understanding of ubiquitous computing. To remind, as early as 1945, the governmental chief scientific advisor Vannevar Bush had set the tone in his influential statement “As we may think” by proposing the concept of “Memex” that was designed as a hypertextual machine to bring solution to the challenge of coping with increasingly information-saturated world. Bush advocated the emerging military-industrial complex in securing control in the Western world. In the following, conceptual thinking instigated Ted Nelson to develop hypertext and hypermedia as a new cultural form. Nelson, who had coined the terms in the early 1970s, was concerned with the interfaces between complexity and creativity and promoted the new model of “non-sequential” structures that
he described as essential to serve the enhancement of ideas and to foster connections between literature, art, music and science. Both concepts, “Memex” and hypertext, were meant to represent new structures to process and systematise complex and connected information. Further to the question of how we may link people and computers, Douglas Engelbart’s research into the construction of human–computer interfaces is of interest because of the core purpose to augment human intellect. In the 1962 essay, “Augmenting Human Intellect: A Conceptual Framework”, Engelbart presented a machine vision to ameliorate the human capacity of intelligence by proposing higher levels of synergy and structure with the support of personal computing. It is in this direction that the term “intelligence” is used to interactively use computers as appropriate tools and problem-solving machines. “By ‘augmenting human intellect’ we mean increasing the capability of a man [sic!] to approach a complex problem situation, to gain comprehension to suit his particular needs, and to derive solutions to problems.” The objective to “augment human intellect” shall be realised by developing a “conceptual framework” that “must orient us
toward the real possibilities and problems associated with using modern technology to give direct aid to an individual in comprehending complex situations, isolating the significant factors, and solving problems.\textsuperscript{5}

In principle, the same conceptual framework can be applied to the current development of smart technologies that use sensors to help us: for example, to save energy by control of heating, air condition and light in homes and offices depending on our behaviour, protect us—eventually—from risky driving, enhance multi-tasking options in mobile communication, connect us with deeper levels of information with a plentitude of interactive interfaces and also inform us about rather banal shopping needs when the milk in the refrigerator turns sour. In light of the development of new techniques, procedures and systems that would better match these needs, Engelbart’s proposal is also far-reaching because it involves a two-way augmentation. The human capabilities have to be extended by training and new systems need to be improved. In this respect, he was already thinking of computers as artefacts, computer-controlled information-storage, information-handling and information-display devices, all of which culminate in the writing and memory system of personal computing and lead to the design of networked environments for collaborative human–human communication in and with human–computer interaction.

In summary, Engelbart in the early 1960s proposed a conceptual framework for “real-time interaction of collaborative computing” that under the paradigm of ubiquitous computing foreshadows adaptations to virtual and augmented reality environments. In contrast to the framework of electronic culture that is based on television and video and follows the paradigm of plug-in tools, the novel experiences with computer-based interaction in digital cultures follow the paradigm of programmable operations that result from structurally open-ended processes.

The initial idea was not limited to enhance capacity in processing information systems by introducing networked processing devices. The cultural context of these systems in the Western post-war societies also documents Engelbart’s aim of mutual learning, whereby the devices and the users would mutually adapt to each other by enhancing capacity and capability. The point has been made that the technological environment is in constant flow. There are constantly changing processes that transform experiences. Variable interfaces and functions are met by needs to augment human intellectual capacity accordingly. In view of such technological forms that are constantly changing their modes and our expectations, the sensor-based tools seem to align to this concept of augmentation in specific ways with the goal to smoothly “adapt” to patterns of our behaviour. However, the newer devices of flexible environments, which are meant to support and be useful in complex situations, also seem to fundamentally differ from the earlier concepts or even transform our experiences in line with the technical systems. One way of looking at the new environment is to regard the incorporation of devices as almost “natural” extensions of our daily actions and thought processes. In this respect, the augmentation that the devices manoeuvre brings new affordances of complexity. Another way to look at the augmented computer tools is to regard

\begin{figure}[h]
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\caption{Double Negative Architecture: “Corpora In Si(gh)te”, Japan/Hungary/Switzerland, 2007–2009.}
\end{figure}
their structural organisation and how it is enhanced by “learning” step by step from previous steps. In this respect, omnipresent machine processes foster connectivity. When we regard the communicative concepts behind the development of “thinking machines”, “smart environments”, “ambient intelligence” and so forth, I find that at least these two components, strike out that can be described in their paradigmatic function to constitute, sustain an ubiquitous level of computing. They are complexity and connectivity.

In a conceptual–historical view, the two machine visions how to link people and computers, namely machines that adapt to us and machines that demand from us enhancement of capabilities and adjustment to novel affordances, are intersected in the imaginary situations that were described in the science fiction novel “The Invention of Morel” by Adolfo Bioy Casares, written in 1940. In the novel, the narrator tries to discover the nature of the code of an ubiquitous machine that has been recording and retaining sensory perceptions and endlessly re-performs the actions of people who are no longer alive. There is no escape from the overall presence and routine of the machine and its performances that clearly dictate the rule for all times: they force us to fit to their mechanism. At the same time, the human figures who lived in the past and now reappear in the present, almost seamlessly mix with the actual presence of the narrator so that the resultant mixed reality of overlaid time zones renders in the present the power of the device invisible and unrecognisable. The convergence creates an almost seamlessly connected perceptual environment. Hereby, the machine vision of interface-free encounters between the real and the virtual is foregrounding smart devices. The novel points towards contemporary parameters of connectedness and of conflated virtual and real spaces that dissolve into a new environment of ambient intelligence.

Predominantly, “The Invention of Morel” has been regarded as a founding myth of Virtual Reality, a situation where we adapt to and immerse into a virtually presented world. The idea of the construction is to diminish interfaces and provide possibilities to experience immersive encounters with simulated figurations of the virtual as if “real” and of the past as if “present”. Nevertheless, in the novel, I also find some connecting points in the direction of Augmented Reality when in logically paradoxical situations, different actions of different time and space zones intersect. Conceptually, these mergers pre-figure, for example, autonomous, self-reconfiguring machine processes that in another setting of contemporary visions of ambient intelligence can result in the performance of multiple functions in dynamic and flexible environments. Referring back to Morel’s novel, the described environment meanders in between time zones and has elastic spaces because the locational data of the past and of the present are fused. They are not necessarily coherent when the same door can be opened or closed in different temporal layers so that in result, the built spatial environment is inconsistent. This difference in between spatial and temporal “data” that appear conflated and not in linear progression does also foreshadow the realisation of paradoxical options that become possible only with digital tools. One interesting point in the realisation of paradoxical temporal–spatial situations lies in the dissolution of any central, hierarchical or priority position: differences such as before and after and also inside–outside position simply dissolve. There is no absolute outside or observer position or any escape—except in the destruction of the whole system, which is a foreseeable ending of the novel and necessary to end the narration at all. Conceptually, the novel represents the open-ended flow of action and interaction of multiple times and spaces in which borders collapse and converge. This setting allows to draw an analogy between imaginary concepts of mixed realities and the technical realisation of digital devices for augmenting interaction in mixed perceptual environments.

MIXED REALITIES AND CREATIVE INTERVENTION

To focus on aesthetic–creative strategies that present thinking in networks, it will be useful to roughly distinguish two major tendencies of visibility and invisibility in the processes of constructing mixed realities, Virtual and Augmented Realities. For the following discussion of aesthetic–artistic intervention into the spaces of representational systems of visualising complex networks, it is sufficient to note that Augmented Reality relies on a different kind of inter-relationship of real and virtual components, which does
not dissolve the medial interface. More precisely, the mixing of objects and events of the physical reality with representations of the computer graphic simulation remains recognisable in the overlapping and includes the position of the interacting activity. As Jay Bolter and Richard Grusin discussed the matters: “In many hybrid systems for augmented reality, the user may wear special glasses or a headset that is not entirely opaque to the world of light. The user can see the physical world, but the headset can also display computer graphics over part or all of the field of view. […] Ironically—and we can now appreciate the irony—neither augmented reality nor telepresence can make the same claim to transparency as the claim made by complete, and therefore opaque, virtual reality”.

Virtual reality means that the whole scene in cyberspace is realised by computer graphics that “replaces” the physical objects with virtual objects in virtual locations. Differently, in augmented reality, the processes of computer graphics will enhance sensory-based and action-oriented behaviour and also intervene into the physical spaces, wherein the user actually moves (or which is presented to the use “live” through telepresence). In result, a paradox occurs in our perception of such mixed, respectively augmented realities because we can at the same time see and experience double vision: the world of computer graphics and the physical reality, and we are enabled to intervene into both. The mixing of real and virtual elements in this situation causes a multiplication and even fusion of possibilities of experience and action. What is important to our discussion of spatial intervention is the fact that locational relationships are not fictitious but real. We remain connected to the real spaces that appear to be blurred and relocated in the unknown, somewhere else as if disconnected. Augmented and virtual realities differ regarding permeable and immersive properties that characterise the ways of connecting and interfacing. Augmentation demands not only the intellectual capability of the participant to enhance to some extent. More drastically, it requires that we think in networks of cause–effect effect relations. This becomes crucial in applications of augmented reality, which have been developed by and used in science, medicine and military for enhanced viewing and acting. One example of war technologies strikes out: augmented viewing with infrared devices was employed in the Iraq wars as a tool for distancing and targeting, similar to computer games. The augmented vision causes abstraction and precision, so that resultantly, as the gulf war engineers explain: “of course, we kill people, but we see them as little dots on the screen and we just zap them”. In contrast, it is one of the core properties of the virtual environment to combine and interact diverse elements in processes of machine control, which resemble the closed circuit of early video experiments.

The openness of extensions of the space of perception and action in augmented reality, tele-robotics and avatar has increased attachable instruments capable of carrying out real operations in remote locations via virtual connections. The mixing can be observed in art, medicine and warfare. In dealings with variety, two contrasting procedures can be discerned: on one side aesthetic–critical forms of expression that aim at plurality and multiplicity and on the other, standardisation of technological norms and formats, be it out of economic or industrial–military considerations. We should not overlook the fact that in the production of cultural artefacts, various regulations come together, and in this process, the rules and regulation are one side of the overall global spread of electronic–digital culture. Knowledge about these governing conditions seems to be a necessary pre-requisite for understanding how aesthetic–critical interventions develop in the contemporary context of augmented networks. Resultantly, we need to view what their aims are and what might be their productive share in media–cultural hybridization.

So far, the conceptual framework has produced an array of pre-occupation with “the art of human interface design” to reference Brenda Laurel’s well-known proposal for an architecture of computer-based interaction of the early 1990’s. The development of tools was meant to adapt human to machine in a spirit of ubiquitous and strikingly spatial enhancement of capacities in Western post war societies. Recently, the direction that strikes out can be identified in participatory and interactive “intelligent” applications that realise a concept of augmentation by making the “as if” communication with the machines easier for us to accept. One possibility lies in personalised configurations, mainly executed in mobile technologies.
and personal computer applications. Another possibility is tested in larger augmented reality and networked environments that refer to social models of making contact in rather organic structures and with shifting, changeable priorities regarding multiplicity of locational positions. All of this can be seen as efforts to relate computational environments closer to the values of social and cultural processes and to develop applicable models of participatory interaction. As discussed, learning tools and highly saturated media environments contribute to the contemporary situation of complexity and connectivity. However, the question remains: in how far do technological concepts pre-shape different models of communication and interaction or, in reverse, in how far are we trained to accept communicative models that follow the structuring principles of machine operation? And, will miniaturisation and smart technology efface the difference to a level that can be neglected? Or, as the warfare example demonstrates, is it not the other way round and our desire to dissolve media borders highly questionable?

To remind: the operational mode of interactive machine operation differs from person-to-person communication with regard to the dialogical function. In a usual communication situation, the production of meaning relies on difference, whereas in a machine–machine interaction, the model of communication based on difference is converted into more or less instantaneous commutation in networks. In self-identifying processes, a sender turned receiver, a receiver turned sender. In these chains of complex connections, what matters are multi-directional and multi-dimensional modes of operation that exceed the dialogical model of conventional communication systems. This implies another social model based on networks as paradigm of spatial relations and needs to be further considered according to the mixing of modalities in processes and devices. I feel that two important criteria stand out here: one is the crossover of different cultural and media elements in dialogical contexts of our communication based on negotiations; the other is the interaction of different views, attitudes and realities in open-ended processes, wherein we experience variety and diversity beyond and across difference in zones where everything connects to everything.

In the present situation of ubiquity of visible and invisible computers, it is widely agreed that we have reached a level of mediation that has entered many—maybe too many—areas of our daily lifes and activities, so much so that it might sound odd or outdated to seek for a critical–artistic position in conflated spaces. Furthermore, we have developed technical tools for the remediation of all previous media arts that we can present almost globally. As media critic Marshall McLuhan predicted decades ago, media technologies now seem to have become the natural prosthesis and communication tools of humans and prolong our bodily and sensorial perception. Today, most of us are happy to employ these novel technologies, devices and gadgets without much reflection. We do not (usually) refuse to carry all kinds of mini computers around all day long, we do not protest (much) about the talking machines and all the noisy sounds and images that we encounter in almost every public space and place. They come to us without choice or request: we cannot control or stop them in the same way that we can switch off a television. At the same time, we take advantage of all sorts of new applications that demand our ability to constantly adapt to ever-increasingly complex and interconnected operations, while the amount of time and space available to us proportionally decreases.

This state of affairs is characterised by contradiction. On the one hand, complex technology has become a smart part of quotidian life, while on the other, large sections of our society struggle to cope with the demands of science and technology that force us to adjust constantly to the growing capacity of networked communication. As discussed earlier, computers were introduced to enhance humankind’s intellectual capacity; now it is rather the other way round and we need to catch up with the machines. Furthermore, we cannot ignore imbalance between those who have hands on, access to and eventual control of these new technologies, and the many others outside, who are excluded from access and control. In this respect, it is important to remind that dataspace, for example, is not an open or free territory somewhere that we can all enter but another place in extension to the real, with culturally, commercially and politically regulated borders that can be opened or sealed, as many examples of governmental regulation demonstrate. Moreover, there is
also an imbalance that is re-inforced in critical discourses when debates about media landscapes merely reproduce polarised positions, in particular when they develop viewpoints about the “before and after”, the “here and there” and so forth, prolonging the assumptions of dual thinking and not of network thinking. In this situation, it has become difficult to determine the position of critical discourse in humanities. Notably, it is difficult to define a position and its locational relevance of intervening arts practices. From where do they operate and to whom do they speak in a global network? In light of these reflections, how can we argue aesthetically for interventions into complex and diverse media realities at all?

One critical voice, in particular, can be singled out in providing an answer to the question about where to locate creative positions between such uncertainties of self and other, inside and outside, in the contemporary situation of crossing, mixing, blending, blurring and other hybridising combinations. Cultural critic Homi K. Bhabha when discussing questions about “The Location of Culture” pointed out that critical engagement beyond dualisms and polarities keeps cultural dialogue alive and inhabits the in-between zones with dynamic interaction and open-ended processes. It is in this respect, radical artists’ practices will manifest themselves as creative interventions. The artists’ intervention is seen as the instrument of interrupting the apparently seamless and fluid stream of performances of present media cultures. By means of fostering multi-purpose views in a variety of combinations, a lively participation in and with the “smart”, “ambient” and “intelligent” environment can be tested.

Clearly, it is not about an outside position or an either-or optionality. What counts is immediate and intermedial participation, a behaviour that aims to strengthen the demand that we need to reflect on our capacity to enhance intellectual response, if we wish to cope with an environment of multiple interconnected relationships. Enhancement means that we understand what it means to us to be connected with the global world at all times and everywhere. It also means to decide on how we locate a present position in temporal and spatial terms to the overall translocal, transcultural and transnational systems. As it seems, local relationships are precious: cultural contexts in this respect matter as roots and by the same token as routes—to reframe James Clifford’s observation that cultural, respectively, media concepts exist in travelling relationships. In this direction, the spatial relations of locational positions and differences should be discussed in a travelling conceptual framework.

At this point, it may be worthwhile to remind that the “nature” of the above-described conceptual framework for networking is rooted in the Western discourses. It was conceived in a spirit of thought processes that had the goal to enhance territory, dataspace from West to East and to execute power and control over networks from this Western perspective. However, the idea of networking is rather rooted in the Asian thinking that does not in philosophical terms rely on subject–object relations, dualisms and inter-relationships that are of the Western origin. A specific kind of temporal–spatial juxtaposition and a connectedness unfold a genuinely permeable quality in Asian cultures: they “think in networks”, rather than in dialogues. Given that the dynamics of contact do manifest themselves in the way medial and cultural crossings can be seen to travel and pervade each other, it seems necessary to discuss this dimension of connectedness in respect of cultural specificities (roots) and their transcultural qualities (routes).

The notion of network thinking and related circular structures indicate a cultural form that is more appropriately associated with the Eastern thinking and differs from Western cultural forms of polarities. In view of the task to identify aesthetic ways of intervention, it is, therefore, worthwhile to look more carefully at the cultural components, wherein specific artistic proposals are made—it is not to say that the cultural form as such will be highlighted or even play an articulated role in the practices. Nevertheless, it will be an influential element that forms the surrounding and rootedness of intellectual and aesthetic conceptual thinking—it cannot escape a specific context. Creative intervention cannot be inventive in a neutral, abstract space. It needs to express relations, differences and tensions to the existing situation. Following, it may not come as a surprise when a collaborative artistic–architectural group that spans across Europe and Japan is especially interested to revision questions of subject positions, positions that connect to the centrality of Western central perspective. These structuring principles in
a differing spatial setting are remodeled and construct novel network options that create another model of decentralising connectivity.

To explain this further, I would like to discuss a collaborative work in process of the artistic-architectural mixed Japanese-European team “DoubleNegatives Architecture” that may serve as an effective approach to redress such one-sided discourses that look from here to there, inside to outside. Their proposal for the installation “Corpora in Si(gh)te” is grounded in participatory connectedness and has at the same time cultural, locational, architectural and technological implications. The present architectural model suggests cross directions and networking practices that are relevant to the larger topic of intervention and to travelling of concepts in different cultural contexts. Set against the background of dominating centrality in vision, supervision and surveillance (to remind of the visual regime of modernity according to Martin Jay), the intervening concept of invention manifests in the building of another vision of mobile connectedness in situations of augmented reality. This project has effects on the real environments where are rendered fluid. Rooted in the real space, the changeable routes are necessary to making connections.

As the project is travelling to different locations, adoptions to the specific architectural structures are crucial and are revisited in the mixed reality installation. This open-ended and processes–locational approach demonstrates that it is necessary to consider both media and cultural specificities. These parameters are seen as precious to understanding the impact of the practices and their targets. The aesthetic practices are following a comprehensive multimedia and inter-cultural thinking in networks and as such highlight strategies of intervention in light of the overall level of computational media environments. The complex architectural–artistic installation of variable networks and augmented reality encourage us to reflect on the question: what are effective strategies of intervention into network communication that can cope with ubiquitous tools and smart technologies which spread out everywhere?

I will use the example of the installation “Corpora in Si(gh)te” because it investigates novel ways of using and, respectively, misusing densely connected information systems that are shaping many aspects of everyday communication without much notice or consideration. Moreover, the Euro-Japanese art and architecture group “DoubleNegatives Architecture” uses self-operating and self-modifying systems as model to engage us, the participants to closely investigate and rethink how handy technologies and complex military and political surveillance and control structures interact. This is evident, in particular when the art group re-investigates self-organising mesh network devices that were initially designed for warfare purposes. I also suggest to regard the open work structure of the architecture group as a way to initiate thinking about purposes and mechanisms of connectedness/connectivity that have developed differently in the Western and Asian cultures.

As mentioned above: while the West conceptually thinks in dualism, the East conceptually thinks in networks. Nowadays, when we are sharing ubiquitous computing almost as a world standard, the inter-relations between the roots and travelling routes of these concepts need to be newly questioned and challenged. In the installation, the group investigates the use of networks for (a) surveillance and (b) military purposes and, for example, uses the smart dust technology and augmented reality that were both introduced as ubiquitous devices in Iraq wars. In this respect, we can appreciate the critical approach of artistic intervention that explores invisible and mostly unnoticeable computing operations. Therein, I like to stress, lies an alternative aesthetic approach towards built environments (architecture) and dominant visual regimes (predominantly linear perspective).

In the installation of “Corpora In Si(gh)te”, these parameters seem to be rather fluid and changeable. This raises questions of power and control: what instance is potentially responsible for reassembling the parameters? Can it be anyone, does the system need us? Are there traces of emerging co-creativity between us and the system or is it immune to external communication? Resultantly, the work critically poses the question of how to organise communicative structures in a living environment where real spaces expand into mediascapes and changeability is rather formless, frameless and fluid. The multi-perspectival and multi-dimensional presentation of “Corpora in Si(gh)te” mixes features of virtual and augmented
reality to compose a living form of technologically enhanced and permeable architecture.

The group’s philosophy is to use data input from nature/outside (such as wind, temperature, light and noise) and to employ military technology to build living architecture environments with intelligent sensors. In the architecture project “Corpora in Si(gh)te”, the concept is to decompose the parts and materials of real buildings and reassemble them as an autonomous structure with varying and multiple viewpoints that are called super-eyes. The aesthetic experiment results from mixing existing devices and building one’s own structure. Superimposed architectural models are built from data measuring brightness, wind direction and speed, temperature, humidity and sound. The generated 3-D structure is constantly changing, demonstrating how the flexible, constantly re-created corpora—which is constructed from the collected and connected data of multiple viewpoints—occupies and dominates the surrounding public space. The superstructure is interacting with the surrounding environment and it is also redesigning itself. It purposefully uses the technology of a mesh network and employs smart dust tools that come from in military technology for the goal to establish de-centered networks. What gets demonstrated here are processes of building networks by restructuring connections from scratch in all possible directions. In “Corpora”, another mesh network will be realised in connection to a real time environment, it has a behaviour like an organic structure or a nervous system. This model of networking realises possible forms of virtual architecture that is growing like an organism and not stable like a concrete entity. In line with the concept of de-centered networks, the focal points of connections, the super-eyes are also self-generating, self-assembling structures that stress multiple connections because they exist in polar coordinates, not in Cartesian parameters. The multi-perspectival model departs from linear perspective that is incorporated in most computer graphics. Herein, a change of perspective goes hand in hand with interaction with surrounding environment. As a result, the project “Corpora in Si(gh)te”, which was presented at Yamaguchi Center for Arts and Media, at the Venice Architecture Biennale, the Ars Electronica Center and the Hungarian Cultural Institute in Berlin, creates each time differently an ambient structure that dismantles the underlying smart technologies of military surveillance operations using their sensors and wireless network functions. The aim is to demonstrate how we may change the function of, and challenge the ways in which we perceive and behave in relation to disturbing, decentralised, unstable, constantly reassembling environments.

As the example may demonstrate, when we wish to discuss artistic–creative positions in the overall computational development, it is important to mark their specific context of comment, critique and alternative models. As much as our living environment is more and more enriched with lesser noticeable computer processes, such as the talking machines and multi-sensored responsive locations, the more it is sought important to contextualise our position towards surrounding space, environment and mediascape. It is for this reason that I have interest in the described artistic–architectural project of “Double Negatives Architecture” because it invites us to rethink connectivity in mediascapes, landscapes, cityscapes from a network position.

ILLUSTRATIONS

Double Negative Architecture (Sota Ichikawa, Max Rheiner, Akos Maróy, Kaoru Kobata, Satoru Higa, Hajime Narakuwa) “Corpora in Si(gh)te”, Japan/Hungary/Switzerland, virtual architecture project, 2007–2009.

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