



CONFERENCE
PROCEEDINGS

**3RD INTERNATIONAL
ACADEMIC CONFERENCE ON
PLACES AND TECHNOLOGIES**

EDITORS
EVA VANIŠTA LAZAREVIĆ
MILENA VUKMIROVIĆ
ALEKSANDRA KRSTIĆ-FURUNDŽIĆ
AND ALEKSANDRA ĐUKIĆ

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Eva VaništaLazarević, Milena Vukmirović, Aleksandra Krstić-Furundžić, Aleksandra Đukić

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PLACES AND TECHNOLOGIES 2016

KEEPING UP WITH TECHNOLOGIES TO CREATE COGNITIVE CITY
BY HIGHLIGHTING ITS SAFETY, SUSTAINABILITY, EFFICIENCY,
IMAGEABILITY AND LIVEABILITY

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FORMS OF CONTINUITY IN ARCHITECTURAL SPACE¹

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ABSTRACT

Starting from understanding the architectural space as one of many modes of continual urban space, the research focuses on the interpretation of concepts developed in order to describe the properties of the so-called cognitive architecture. In the last decade, guided by the issue of social effects of architecture, many investigations in the field of theory of architecture were conducted within the framework constituted from the philosophical elaborations of the notion of affect, mainly by Gilles Deleuze, Felix Guattari and Brian Massumi. In some proposals, the concept of cognitive architecture was established to describe the impact that the space occupied with new information and communication technologies exerts on the domains of intellect and mental disposition, coupled with the practices of every-day life. Cognitive architecture emerges as a consequence of the intertwinings of physical and mental processes in individuals' bodies, as well as between them, that characterize social space in contemporary communication-information age. The concept of cognitive architecture thus emphasizes the ways in which technologies of communication shape the mental sphere of humans and its relation to material processes in humans' bodies. Paralleling this phenomenon, in the field of architectural design, the architect Philippe Rahm has developed a practice based on investigations into the morphogenetic potential of material flows in space. The flows in question comprise a series of chemical, physical and biological transformations through which non-living materials and human mind and body become directly connected. Comparing and intersecting theoretical interpretations of cognitive architecture with Rahm's design strategies, we shall offer a set of notions that trace new forms of unity between mind, body and architectural space, as a contribution to the exploration of the concept of *bodily-mental-social continuum*.

Keywords: cognitive architecture, affect, bodily-mental-social continuum

INTRODUCTION

The cognitive city as a model of urban governance which is based on the introduction of many networked infrastructure systems as *cognition centric systems* - systems that function through the interaction between many human and non-human cognitive entities in order to adaptively synthesize adequate individual and collective behaviors (Mitola 2000, 4). The cognitive city model

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is, therefore, premised on the ubiquity of communication and information technologies, and appears as a variant among many other similar concepts, such as “wired city”, “smart city”, “intelligent city”, “digital city”, etc (Mostashari et al. 2011, 4). Paralleling the formulation of these models of urban governance, many mutations of urban space are registered in contemporary cities. They appear as consequences of the ubiquitous presence of information and communication technologies in their present state of development, but are also related to a whole set of conditions which underline these technological currents: from the physiological processes in living bodies and mental states in humans, to the broader socio-economic and political phenomena. In the field of urban theory a number of hypotheses were made about the impact of digital technologies on the urban morphology and urban space: from optimistic insight into the new possibilities for liberation of urban space from many material ties potentially relegated to the digital realm and speculations on the future of urban form, whether in the sense of its dispersal or concentration, to examinations of the changing importance of physical and digital space on the processes of socialization (Picon 2010, 172-184). Of particular importance for this investigation is the role of the sensory experience of urban environment saturated with and partly constructed through digital technologies of information and communication in mediating and reflecting ideological or political relations traced across the domains of body, mind and society.

The main question discussed in this paper is whether the notion of cognitive city implies certain characteristics of urban space, or more precisely, whether the congregation of cultural and technological phenomena which initiate the discourse on the cognitive city, at the same time points to and stresses the importance of a particular aspect of space, opening up problems and fields of agency for the discipline of architecture. This paper focuses on the impact of the repositioning of the sensory experience of cities in manifold networks of physical, mental and social processes defining the urban space on architectural design. In the broader sense, the goal of this investigation is to obtain an insight into the sensory experience of the urban space as the site of intervention of the discipline of architecture in a social reality of the information-communication age.

The main assumption is that in the complex of networks across the domains of the body, mind and environment many continuities are emerging offering a changed perspective on the architectural space and new possibilities for the discipline of architecture to engage with the contemporary urban reality in a political way. This assumption is posited in relation to the concept of continuity located in the philosophical platform of the French philosopher Gilles Deleuze. Numerous editions of referential libraries testify to the immense impact of Deleuze's philosophical platform on the modalities of thinking about the contemporary reality.² Trying to locate the fundamental attribute of Deleuze's philosophical thought, philosopher John Rajchman concludes that the entire Deleuze's philosophy focuses on the principles of the coming together of things, which are irreducible to calculations and identifications and capable of leading the processes of selection and affirmation resulting in keeping only the things that can increase the number of connections (2000, 4). Instead of localizing the concepts of logic, ethics and aesthetics, Deleuze stimulates the sense for logic and the taste for the unknown, constructing the network of connections. In the book *Mille plateaux: Capitalisme et schizophrénie* (1980), co-authored by Felix Guattari, the notion of connectivity marks the transition from one singular point to the other, through their immediate contact. Taken as a whole, Deleuze's philosophical thought discourages any unified plan of organization or development, and uses an idiosyncratic style to formulate ideas as series and plateaus that are constantly ramifying and making contacts with each other without ever structuring in a definite hierarchical system of thought. The concept of continuity, understood as a guiding principle of Deleuze's philosophy, is taken in this paper to provide a lens through which more or less recent debates in the architectural discourse could be interpreted as elaborations of the problems raised by the ubiquity of technological and

²One of such examples is an edition *Deleuze Connections*, edited by Ian Buchanan and published by Edinburgh University Press („Deleuze Connections” *Edinburgh University Press Website*, 2016. Accessed February, 11. <http://www.eupublishing.com/series/delco>).

communication systems in the contemporary urban reality that are confronting the discipline of architecture in its attempt to develop a strategy for effecting a critical agency.

The methodological approach taken in this paper is also provided by the philosophy of Gilles Deleuze which strives to expose the zones of indeterminacy that lie beside the logic of signification, and their relevance in the understanding of thought as experimentation, rather than reasoning. According to the ideas of Deleuze and Guattari presented in their book "What is philosophy?" the goal of philosophy is not to explain and convince, but to provide us with a new means for describing the everyday processes and events, to provide us with concepts (Deleuze, 1995). Within these new concepts, every discipline should find new specific ways for understanding the world and acting upon it. In the field of architecture two distinct but productively intertwining modes of thought are found, identified with theoretical and design experimentation, respectively. Following Deleuze's and Guattari's understanding of many different modes of thought constructing intersections in the world's chaos and the stated duality of architecture, this investigation attempts to interrelate the interpretations of theoretical arguments about the significance of sensory experience of space for the politics of the discipline of architecture through the lens of the concept of continuity and the design practice of the architect Philippe Rahm. The aim of this undertaking is a reflection on a possibility of developing a design methodology that mobilizes continuities found in contemporary urban space to a critical effect.

COGNITIVE ARCHITECTURE

For In the first years of the twenty first century, the architectural historian Charles Jencks, continuing his almost four decades long project of registering and classifying contemporary concerns and orientations of modern and post-modern architectural practices, announced the end of postmodernism in architecture marked by the attack on the World Trade Centre's/Centre on September 11th 2001, that radically aggravated the sense of insecurity under the constant threat of the global ecological and social catastrophe pervasive in contemporary society which the sociologists Anthony Giddens and Ulrich Beck theorized as a *society of risk* (Dženks2002, 263). In this context, Jencks advanced a proposal that the architecture's agency should be based on the critique of modernism's belief that the world is a predictable machine and enacted through the research into the design possibilities of self-organizing systems lying in the centre of the new cosmology embodied in the scientific and philosophical theory of complexity (Dženks2002, 264). We would argue that such a claim causes numerous confusions about the nexus of architecture's inner disciplinary concerns and its effects actualized in the broader social and cultural context, and also discuss whether such systems are only a formal metaphor or a possibility for a development of new design methodologies. Nevertheless, the request for overcoming the technocratic understanding of the world as a predictable set of isolated linear processes somewhat simplistically attributed to architectural modernism and delving into the world's chaos in order to engage with its complexity, remains a relevant one. Still, this proposal says little or nothing about the domains through which the discipline of architecture could propel or represent the processes of self-organization of matter and space, besides analogies between world's complexity and the complexity of architectural form.

In contrast to the Jencks' prescriptive stance, Jean-Louis Cohen concludes his book *The Future of Architecture Since 1889* by identifying seven problems that confront the discipline of architecture at the beginning of the third millennium and represent the points of its opening towards broader cultural phenomena. These issues are related to contemporary socio-economic, technological and political reality and concern the possibilities of the critical engagement with the dominant image-culture and the globally pervasive processes of commodification of space, appropriation of innovations in the fields of construction materials and methods, participation in the matters of ecological and social sustainability of construction and use of space, intervention in the patterns of interaction between different actors driving processes of urbanization and the development of cities, proposition of new locally specific and globally bound types of urban space between

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architecture and landscape, and the questions of institutional organization of the discipline of architecture and its agency in the persisting social problems such as the housing conditions of the poorer segments of society (Jean-Louis Cohen 2012, 468-474). What is of particular importance here is that these problems are not posed in isolation from one another, but many connections between them could be realized and represented through architectural design practice. Further, we are most interested in the ways in which the proposition of new spatial forms between the traditional architectural tectonic elements and landscape understood as a system of material processes in nature relate to other questions that frame possible politics of the discipline. But before tackling into this problematic, we need to identify the aspects of architecture and landscape that, through the design of places, effect the meaningful conjunctions to other issues observed by Cohen, as well as the nature of these conjunctions and their mode of operation.

Since this paper is primarily focused on the sensory experience of space in the context of ubiquity of digital technologies that characterize the contemporary urban condition, we shall first assess the continuities between the human mind, body and physical environment that are constitutive to the architectural and urban space. In the book *Cognitive Architecture. From Biopolitics to Noopolitics. Architecture and the Mind in the Age of Communication and Information*, edited by Deborah Hauptmann and Warren Neidich (2010), and ensued from the conference *Architecture in Mind: From Biopolitics to Noopolitics* held at the Faculty of Architecture – Delft University of Technology in 2008, these continuities are examined from a number of disciplinary perspectives: those of cognitive neuroscience, political philosophy, culture studies, urban geography and architectural and art theory. The volume is organized through a set of interconnected themes endowed with the capacity to expose manifold effects that new forms of production dependent on contemporary information and communication technologies exert on the practices of everyday life, but also on the consciousness of humans, encompassing the domains of attention, perception and memory (Hauptmann and Neidich 2010). Without delving deep into this enormously complex transdisciplinary subject matter, we would attempt to rephrase general assumptions underlying the concept of cognitive architecture, despite the risk of blatant simplification. It is our understanding that the starting point of the discourse on cognitive architecture is that the domain of mind conditions and is conditioned by the whole of the body and cannot be connected only with the functioning of certain parts of the brain, and consequently, that there exists a continuity between human perception, attention and memory on one side, and physiological processes in the body on the other. Furthermore, the body is on its part strongly permeated by the physical processes in its immediate environment, and at the same time, the sensory experience of space is dependent on actions the body performs in it. This manifold nexus, which we could designate as the mind-body-environmental continuum, opens up a possibility of abstract faculties of the human mind being affected not only through cultural practices of representation, whose circulation is exponentially propelled by the presence of digital technologies of information and communication, but also by the conditioning of the physical environment and ordering bodies in space.

In their seminal article entitled „Notes around the Doppler Effect and Other Moods of Modernism“, Robert Somol and Sarah Whiting (2002), noting the exhaustion of the so called project of criticality advocated in the theoretical opus of Michael Hays and the design practice of Piter Eisenmann, have proposed the model of the architectural theory and practice termed “*the projective architecture*” as an alternative, stating that the discipline of architecture, instead of obsessively reproducing its own status of the field in between the instrumentalizing dominant culture and the autonomous tradition of the development of forms, should contribute to the creation and projection of new moods and behaviours, as well as of novel forms of collectivity (Somol and Whiting 2002, 75). This social function of architecture is realized through, *inter alia* ambiental and atmospheric qualities of architectural space, conjugated with its diagram programming. The authors’ proposal is therefore based on the continuity of diverse architectural effects as the feature of space where social interactions occur.

While Somol and Whiting remain relatively vague about the ways in which the space instigates certain behaviour and moods, some contributions to the post-critical architectural theory explain the impact of non-representational aspects of architecture on its social content as the effects of intensive space levels, comprised by the concept of *the affect*. It was *Brian Massumi*, a philosopher, who pointed out the crucial importance of the concept of the affect for the studies of the image culture of late capitalism. Commenting on a series of experiments in the field of neuro- and cognitive sciences and re-interpreting their conclusions, Massumi establishes the existence of at least two reception levels of environmental phenomena: the level of qualification or signification at which a particular phenomenon is attributed with a sequence of isolated conventional meanings, i.e. socio-linguistic qualifications, and the level of intensity, the effect of the phenomenon which is not structured in advance, and at which the elements indexed as separated are inter-connected (Massumi 1995, 85). Both levels are directly embodied: the intensity level is embodied in chiefly autonomous reactions at the body surface – the interface of the body and the environment, while the qualification level is connected by a feedback through which the stream of consciousness is reflected by heart beating and breathing into the sphere of autonomic reactions within the body, which themselves condition the conscious reception level (*Ibid*, 85). A bifurcation of the response to environmental phenomena in the two systems or levels provides multiple possibilities of their mutual connection: as reasoning or interference, resulting in mutual dampening or amplifying.

Massumi relates this level of intensity to the concept of *affecte* elaborated in a philosophical tradition interpreted in the works of Deleuze and Guattari as well as in connection with the more recent theories of complexity and chaos. According to Massumi's explanation, the affect is the point of emergence of resonating levels of mind and body, body depth and epidermis, volition and cognition, past and present and many others, in their actual specificity, as well as their vanishing point, in which singularities are displaced by their coexistence and interconnections (*Ibid*, 94). Further, the affect is theorized as immanent to experience, but also not exactly accessible to it. It is always experienced in its effect – in levels of bifurcation composing and composed of matter and events, mind and body. The affect could also be understood as virtual, thus always open, synesthetic perspectives, potential interactions and transformations, that an actual, particular thing embodies. In experience there always exists a perception of an escape of the affect, alongside its effect, which Massumi, following Gilbert Simondon, the philosopher of science, identifies as a "*perception of one's own vitality, one's sense of aliveness, of changeability*" (*Ibid*, 97).

Although it could be discussed in relation to experience, the affect actually encompasses the whole material universe, between the quantum physical and the human level, appearing in each one in a unique mode adequate to it, and turning firm dividing lines that separate the physical, the biological and the human into dynamic thresholds. As Massumi explains, the modes of appearance of the affect on the human level at various scales of collectivity encompass many forms of undecidability in logical and signifying systems, emotions on the psychological, resistance on the political level, etc. (*Ibid*, 98). Constantly feeding back and forth into one another, these many modes are the key to conceptualizing the operations of power in postmodern culture as the processes of triggering an actualization – *induction*, and the ones of transmission of "an impulse of virtuality from one actualization to another and across them all" designated by the term *transduction* (*Ibid*, 104-105). Transduction is thus offered by Massumi as a crucial component of the agency of cultural artefacts:

"Transduction is the transmission of a force of potential that cannot but be felt, simultaneously doubling, enabling and ultimately counteracting the limitative selections of apparatuses of actualization and implantation. This amounts to proposing an analog theory of image-based power: images as the conveyors of forces of emergence; as vehicles for existential potentialization and transfer"(*Ibid*, 104).

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Massumi's account on affect resonates most strongly with Sylvia Lavin's theoretical project of "kissing" in architecture (2011). In contemporary architecture, Lavin finds and analyses many interior and exterior spaces on whose surfaces the ancient medium of architecture, requiring the detached, contemplative mode of reception, kisses with many new mediums commonly used in installation art, producing the synthetic medium named *superarchitecture*. (Lavin 2011, 11). Superarchitecture could be understood as a space at the same time outside and inside the body, as a field of multiple occurrences and possible internalizations of its perception (explained by Lavin as *affect*). According to this proposition, the confounding of architecture with other mediums in a state of kissing is a necessary precondition for the discipline of architecture to act ethically, through the contribution to the reinvention of experience, "not personal or sentimental or idealized, but affective and political" (Ibid, 113). In Lavin's arguments, we can identify the significance of the sensory experience of space in the process of engaging architecture in a cultural project of contemporaneity as a permanent fluidity of time (Lavin, 2003). In the light of Massumi's explanation of the process transduction we can understand how this nexus of architecture, space and experience is intended to operate. However, Lavin's arguments don't necessarily explain the critical stakes of this cultural project. We would argue that critical effect of architecture's operation within the continuum established between domains of mind, body and physical environment could be conceptualized as an instigation of its resonance with other levels that concern the problems posed by Cohen. Of crucial importance here is the question of the relative distance between different levels, but also their capacity to resonate with each other.

PHYSIOLOGICAL – CLIMATIC CONTINUITIES IN ARCHITECTURAL SPACE

The practice of the Swiss architect Phillippe Rahm is oriented towards the investigation into the methodology of design in the intersection of the objective scientific knowledge and artistic fiction (Krstić et al. 2016, 76). In the focus of his architectural projects, there lie the non-hierarchicalized and complex ecosystems of human minds and bodies, and physical objects tied by environmental material processes. Rahm believes that knowledge of the physical, electromagnetic and chemical dimensions of space will modify the nature of contemporary architecture in the same way as once reinforced concrete and steel structural systems transformed our conception of space (open plan of Le Corbusier and Mies van der Rohe). He defines this paradigm shift in architecture as the transition from physical architecture to physiological or atmospheric architecture. He is trying to see the architectural space not through the limit of the void (or the envelope) but through the properties of the void itself. His research called "from space to gradient" is directed towards an escape from traditional ways to represent space (as a line that divides the outside from the inside) using more complex gradient composition strategy.³ The direct product of Rahm's architecture is therefore the continuity between the entities in space traditionally thought of as separate, divided by their different essential properties.

Although Rahm continues with the traditional Swiss interest in questions of ambiance linked to the materiality of objects like Zumthor and Herzog&deMeuron, his work moves beyond the phenomenological ideas of memory or analogy, toward immediate perception of material properties such as the odor, the length of wave, the level of humidity, etc. He deals with the literal sense of the space-void properties, not with metaphorical meaning of materials that build limits to that inner space-void. ". Architecture is no longer simply the expression of the play of light and shade on bodies and materials but attains a physiological dimension. Such discoveries opened up a new field of research with new implications, with unheard-of design rationales. I called this field physiological architecture" (Rahm 2010, 89).

This attitude, that architecture deals with a problem of performance not with a problem of form, enabled Rahm to generate a catalogue of forms determined by pure intensities such as the temperature of air or displacement of humidity. Architecture's principal task should be, according

³New paradigm shift in design strategies Rahm formulates as a shift from *physical* to *physiological* (Rahm 2010, 88-93).

to Rahm, the control of the interior climate. His project Digestible Gulf for the Venice Biennale in 2008 sought to create a varied thermal landscape. It consists of two plateaus different by temperature that change habitants' behavior according to thermal conditions. (see Figure1). In the project Domestic Astronomy, the spatial organization of a home is generated by the same principal: circulation of the air between different temperatures and humidity levels. According to these conditions, activities in space are distributed without crisp and fixed borders. (see Figure2) The architect derives a design conception from intensive, not extensive properties of space. The escape of functionalism, fixed typologies and rationalism, , enables new architecture close to Deleuzian materialism to emerge, that sees the human body in an immediate contact with space through the row exchange of matter (Rahm, 2010).

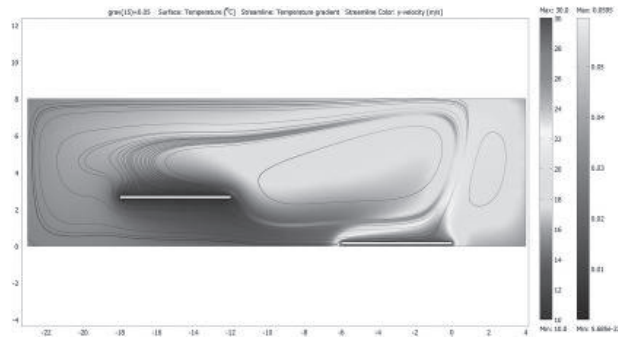


Figure 1: Philippe Rahm architectes: Digestible Gulf Stream, 12th International Architecture Exhibition, La Biennale di Venezia, 2008 (photo: Noboru Kawagishi) (Source: Rahm, P. (2010) Form and Function follow Climate, in Interview of Philippe Rahm by Laurent Stadler in ARCHITHESE 2, p. 89)



Figure2: Philippe Rahm architectes, Domestic Astronomy, Louisiana Museum, Denmark, 2009. (photo: Brøndum & Co) (Source: Rahm, P. (2010) Form and Function follow Climate, in Interview of Philippe Rahm by Laurent Stadler in ARCHITHESE 2, p. 90)

CONCLUSIONS

In an attempt to interpret concepts developed in order to describe the properties of the so-called cognitive architecture, paper traces how the intertwinings of physical and mental processes in individuals' bodies, as well as between them, that characterize social space in contemporary communication-information age, resonate in the field of architectural design, through interpretation of recent design paradigm's shifts in architecture.

The dramatic shift in architecture's focus from the tectonic to the climatic, from the visible to the invisible dimensions of space found in Rahm's design practice is guided by the notion of interconnectedness of an eco-system established through a series of chemical, physical and biological transformations. Restraining from formal concerns of representation and interpretation and consequently releasing the architectural space from metaphorical meanings Rahm aims at, as Blagojević and Ćorović have argued, creating an architecture that exists as "a climatic, geographical or psychological and physiological space-time relation of a future social practice," thus offering a new mode of architecture's engagement with broader social issues, primarily those of social and ecological sustainability (Blagojević i Ćorović 2011, 24). However, we would add that by impacting on the relation between human body and its immediate physical environment through the manipulation of natural processes in architectural space, Rahm's practice necessarily relates to the questions of memory as well, thus indirectly affecting the realm of meaning and representation. Following Massumi's explanation of the interaction between at least two levels of human's response to environmental phenomena, we would contend that the restraint from formal and representational dimensions of tectonics has an operational significance for a critical effect that is potentially exerted between the physiological levels of the body conditioned by its physical surrounding and the faculties of mind spanning perception, attention and memory. In a potential of such an effect we see an uncharted territory for the discipline of architecture to further engage with the issues of contemporary social practice, especially those raised by the ubiquity of digital technologies of information and communication that stands in the center of the notion of cognitive city. The concept of the *bodily-mental-social continuum* thus points to the opportunities offered by this field of exploration.

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