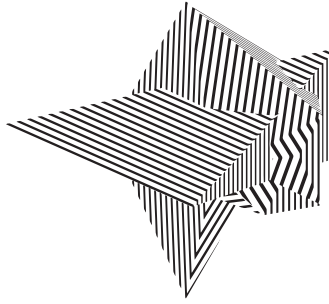


**GOING DIGITAL:  
INNOVATION IN ART, ARCHITECTURE,  
SCIENCE AND TECHNOLOGY**

**BOOK OF ABSTRACTS**

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**BOOK OF ABSTRACTS**

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**GOING DIGITAL:  
INNOVATIONS IN THE CONTEMPORARY LIFE**

The theme of the conference is innovation and creativity in modern society, with the focus on art, architecture, technology, and science as being among the leading proponents of innovative change. Innovation has always been present in human endeavors to solve problems, organize community better, improve the quality of life, work more efficiently, and so on. However, the digital age has brought about unprecedented challenges as well as possibilities of innovation in all spheres of daily life, resulting in a growing need for inter-, multi- and trans-disciplinary approach in, art, architecture, science and technology.

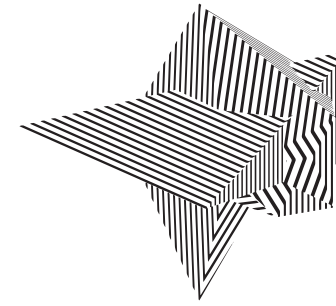
As Lucas Dietrich explained in the preface of *60: Innovators Shaping Our Creative Future* "...The future of innovation is no longer in the hands of the scientist, artist or designer working alone in a lab, loft or studio... It is a creative, collective, humanist enterprise that seeks to find new solutions to the problems of our planet and its future." More and more, we are seeing the blurring of boundaries between art and science, architecture and computational design, physical and virtual spaces and selves, fiction and reality, all due to the development of new media technologies and innovations they introduce in modern society. Thus, Warren Steinkraus identifies five types of artistic innovation: "the exploration of new technique or materials deriving from technology; the inclusion of 'incidental novelties' or doing something new with something old; the application of self-imposed rules for creation; radical departure from tradition; and finally a creative advance within a tradition of such magnitude that it transcends the four previous categories." These types or principles of innovation also apply to other fields, giving rise to new, hybrid or liminal disciplines in both sciences and humanities.

The call is addressed to researchers and professionals in the following fields: art (visual art, applied art, performance art, new media art, biogenetic and transgenic art), photography, graphic design, fashion, and advertizing; architecture (green architecture, sustainable architecture, wet architecture, digital architectural design, smart interior design); emerging communication and information technologies (ICT), AI research, neuroscience, and biotechnology; culture studies, theory of art, philosophy, and communication studies. We invite the submission of original papers related to (but not limited to) the following topics.

## Topics

- New Media Arts, Computational Design and Architecture
- Creative Space: Interior, Green Space, Built World/ Street World, Augmented Space
- Living Architecture
- Cyber Space/ Cyber Art/ Cyber Culture Studies
- Virtual and Augmented Reality in Art and Architecture
- Innovation in ICT/ Enhanced Use
- Globalization and New Media
- Rethinking the "New" in "New Media" / Remedialization
- Neuroscience and/in Art
- Innovation and Creativity in AI and ALife
- Trans- and Posthumanism in Art
- Fashion and New Media Technologies
- Advertizing in the Digital Age
- Philosophy and Theory of New Media

## Editor



## **ARCHITECTURE**

COMPUTATIONAL DESIGN AND ARCHITECTURE  
LIVING ARCHITECTURE  
VIRTUAL SPACE IN ARCHITECTURE





Bojan Tepavčević<sup>1</sup>

### **RETHINKING DESIGN AND MATERIALITY IN ARCHITECTURE AT THE AGE OF COMPUTATIONAL DESIGN**

Throughout the history of architecture, designing and making of new forms has been guided by the simple rule of shape economy. Perpendicular and arched forms were prevalent, since they can be easily and quickly translated and built on site. As William Mitchell observed, architects drew what they could build, and built what they could draw. Development of drawing tools also had an influence on development of new geometric forms through different ages and the relationship between drawing tools and fabrication process has still been retained. Along with the development of digital tools for architectural representation, a growing interest in complex architectural forms emerged.

Digital tools changed not only the representation, but also the way of thinking about the design, as well as the way we use and perceive materials. Materiality in the digital age has been enriched with characteristics of computational design, making architecture more versatile and diversified. Such interplay between material and digital processes in construction and fabrication is defined as a new architectural phenomenon called digital materiality (Gramazio & Kohler 2008), material ecology (Oxman 2012) or new structuralism (Oxman & Oxman 2010). Thus, designing and making new forms in the age of computational design goes far beyond parametric play of complex drawing patterns, towards a new way of thinking about digital design, interwoven with new material and fabrication processes. The lecture explores and illustrates in what way design and materiality have changed in the age of computational design

**Bojan Tepavčević** is an architect and an associate professor at the University of Novi Sad, Faculty of Technical Sciences, Department of Architecture and Urbanism, where he teaches courses in computational design and architectural representation. He has lectured at UNITEC Institute of Technology, New Zealand as a visiting professor. Currently, he is the head of the master's program "Digital Techniques, Design and Production in Architecture and Urbanism" at the University of Novi Sad, Faculty of Technical Sciences.

He was awarded the International Trimo Research Award in Ljubljana in 2011, for his PhD dissertation about the influence of geometric representation of space on contemporary architecture. He is a coauthor of the book "Architectural Scale Models in the Digital Age: Design and Manufacturing" (Springer Vienna 2013), as well as the author of many research papers in the field of contemporary architectural theory of design, computational design and advanced modelling strategies in architecture.

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Anastasios Tellios<sup>2</sup>

## INVESTIGATING SPACE

We are witnessing change and evolution in all areas of architecture and the design procedure. Available tools have facilitated full expansion of designers' potential on form and scale and have cultivated expectations for fresh, unseen, spatial configurations. The lead to this race very much belongs to academic environments and research initiatives. 'Spatial Investigations' is an actively experimental design studio, at School of Architecture, in Thessaloniki. During the last five years it has been a vehicle to investigate architectural design, its capacities and its limits. Advanced design tools have allowed to model huge amounts of information, solidify flows, movements and behaviors into architectural space and rigorous narratives.

Architectural design is already very much agile and experiments are moving out of schools into the real world. Design is in a state of constant, intellectual polyvalence while claiming profound scientific validity. This agility opens up a new world of possibilities. Gradually, yet persistently, a set of profoundly advanced architectural cultures is being established, and this is conveying aspects of a new and promising paradigm for architecture. It feels the right time to challenge the world of design, its advancements and experiments and re-establish missing links with nature, place, history, culture, human needs, rights and habits. It is now time to speak of nature, localities, atmospheres and particularities and coordinate local matter and environments with universal spirit.

**Anastasios Tellios** studied architecture at the Aristotle University of Thessaloniki (Dip. Arch. AUTH) and the Bartlett School of Architecture in London (M.Arch Dist. UCL). He holds a PhD at School of Architecture, Aristotle University of Thessaloniki (PhD AUTH) in the scientific area of architectural design and the related theories. His PhD academic research was focused in issues concerning architecture, theory and criticism, image and representation. His recent academic interests are related to advanced architectural design, spatial experimentation, innovative environments, contemporary theories and design research.

He is an active architect located in Thessaloniki, Greece. He has been involved in various projects and international competitions. His work, both theoretical and practical, as an architect and educator, has been published and exhibited in Greece and internationally. He has edited publications and monographs, including 'Synecdoches: architecture, image, spatial representation' (Epikentro, 2011) and 'Agile Design, advanced architectural cultures' (CND publications, 2014). He is lecturing in Greece and abroad and he is teaching architecture at School of Architecture, Aristotle University of Thessaloniki.

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Djordje Stojanović<sup>3</sup>

## TOWARD A DIGITAL FABRICATION LAB AT THE UNIVERSITY OF BELGRADE – FACULTY OF ARCHITECTURE

The paper will focus on the design practice, research and student's work from the University of Belgrade – Faculty of Architecture, created within a single conceptual and organizational framework. Some of the most recent production will be showcased to provide basis for the discussion on the plausible future of architectural education. The debate will be based on the following topics: applying computational logic to thinking about spatial organisation and construction (through both analogue and digital means), developing a better understanding of material properties (i.e. elasticity) with the use of digital tools, learning through hands-on building experiments and making prototypical models, and acquiring transferable knowledge rather than technical skills.

**Dr. Djordje Stojanović** is Assistant Professor of Architecture at the University of Belgrade and founder of 4of7 Architecture, a framework for integration of research, education and practice. His research interests include the notion of adaptability across two distinct levels, one related to the built environment and the other to design workflows. Central to Stojanovic's research is the construction of large scale, prototypical models which incorporate the use of computational logic and experimentation with the properties of building materials. He has published a number of peer reviewed papers and presented in conferences in Europe and Asia. His doctoral dissertation is titled "Adaptive Principles in Architectural Design: Analogue, Performative and Prototypical Models". Since 2007, Dr. Djordje Stojanovic has been teaching Design Studio Courses and Theory Seminars at the Masters level, with emphasis on a research based approach to learning. His educational agenda is focused on the investigation of novel and versatile spatial organizations arising from the contemporary social, cultural, economic and environmental conditions.

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Andrea Graziano <sup>4</sup>

### **inFORMed matter**

We believe we are entering a new age of design. A new design paradigm driven by scientific evolution and technological acceleration, leading to a radical new approach to understand and manipulate matter. It will affect, if not completely reshape, architecture and other design-related disciplines.

The progressively blurring boundaries between biology and technology, the increasingly powerful computational tools, the capability to act at smaller and smaller scales of matter and a better understanding of its properties are really the premises of a new way to design and build where “to design” will literally shift its meaning from shaping matter to informing it.

We are witnessing the rise of computation as the design medium within which to drive the organization of matter and its formation processes. The use of computation as a medium to inform matter will also renew the geography of the territories to which design is applied, because we can act at very different levels and scales: environment, architecture, wearables, body. Computation is the bridge between them, the common playground, the compass that helps us map these territories.

The “inFORMed matter” research project focuses on the exploration of additive fabrication processes, aiming to inform as in to produce form through the morphogenetic properties and capacities of matter by embedding further information structures during the fabrication process itself by means of mechanical and/or biological constructor agents. The research outcomes are the result of combining computational design, simulation, material properties and capacities and 6 axis robot opportunities.

Keywords: computation, design, matter, biology, information, robotics

**Andrea Graziano** is an architect and computational designer, member and co-founder of Co-de-iT - Computational Design Italy, currently engaged in teaching international workshops about computational design, digital tools and robotic fabrication in architectural design, lecturing and consultancy work. He runs the internationally renowned digitAG& blog about generative and computational design and scripting techniques in architecture. Andrea acts as an active catalyst through his intense activity of social networking of the paradigm-shift in the fields of architectural research, computation and science. A ‘digital explorer’ and ‘knowmad’ aiming to research, curate and envision the rapid evolution of science, technology, art and philosophy, their possible convergence and tooling into design and architecture.

<sup>4</sup> Andrea Graziano is an architect and computational designer, member and co-founder of Co-de-iT  
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Oliver Frey <sup>5</sup>

### **RESHAPING PLACE BASED URBAN INNOVATION THROUGH DIGITAL SYSTEMS (URBIDIS)**

Urban development in the future is not only depending on different kind of smart technologies in housing, mobility and daily life but also on people’s handling and use of these products and services. It is also as much about the people in urban environments as it is about technological innovation and devices. The ongoing great societal transformation through a technological shift restructures fundamentally the social structure of urban societies. The processes of individualisation and differentiation by specific possibilities of digital generation of data, value and life-styles provides risks and changes for stable urban social structures. Social binders and layers in groups and milieus are liquefying to more subjective oriented actions and behaviours. In consequences the interplay between structures of social classes and individual biographies mediated in urban spaces and places is reconfigured.

On the one hand these processes of strengthening the importance of subjective oriented values, mentalities, interactions and behaviours by using digital systems led to a strategic research question: How social interaction and collective mentalities are transformed, and what opportunities of new forms of urban innovation they enable. In grounding this strategic research to applied questions it will offer new knowledge and understandings of handling new resources, data and information in reciprocally ways of communication systems in urban governing processes: How new data generated by individuals through digital systems can be made usable for city administration processes. Thus technics of digital systems alone are not sufficient for realising ‘good’ societal transformations that serve the people of the city.

<sup>5</sup> Dr. Oliver Frey, University of Technology Vienna, Department of Spatial Planning

Ranka Gajić<sup>6</sup>

### DATA PROCESSING IN URBAN MORPHOLOGY BASED METHODOLOGY

Following already created urban morphology based method for classification of residential super-blocks of New Belgrade (modern part of city of Belgrade), using the typomorphology approach in relation to land use on a small scale, the paper suggested creation of computer based software for the application of the methodology.

The criteria and the input data for the software will be listed as part of the 'data collection' - the first of the three steps to be taken in the process of creating the tool for various urban simulations.

Key words: typomorphology, land use, complexity, computer based software, data collection

**Ranka Gajić**, PhD, is an Assistant professor (subjects: 1/Urbanism and 2/Construction Engineering) at the Faculty of Traffic and Transport Engineering, University of Belgrade. Has graduated, obtained a master's degree and a PhD at Faculty of Architecture in Belgrade. She has been involved, both as an associate and team leader, in drafting town planning documentation for cities in Serbia (particularly Belgrade). As part of theoretical work, she participated in research projects and organizing symposia. Author of one Monograph, supplementary textbook and over 40 published papers. Member of the Steering Committee of Association of Engineers of Belgrade and of the Serbian National Delegation in ISOCARP.

Scope of research: urban morphology, sustainable development of cities, sustainable urban land use

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### SYMBIOTIC ARCHITECTURE BETWEEN SCIENCE AND UTOPIA

On the previous STRAND conferences authors have presented the ideology of Symbiotic architecture, defined it and discussed its philosophical and historical grounds, relations towards traditional and Modern architecture and biocomputing systems. Symbiotic architecture stands for the co-existence of three elements, the symbiots man, house and environment. Symbiotic architecture is addressed as a living being. Its *home* is born, it lives breathing the life of its symbiote man, and eventually dies ending its circle and returning to its origin – the nature. The core of the symbiotic house is the protection and the transformable response to human needs in the natural and social context. Defined like this, Symbiotic architecture can easily be understood as a simple philosophical polemic or utopian project. However, various examples of Symbiotic behaviour can be found in nature and science already takes next steps towards creating micro level where these assumptions are plausible, as biomimetic technology slowly makes its way to architecture becoming our future reality.

This paper will discuss Symbiotic architecture in the contexts of present technological achievements, defining its position between science and Utopia.

**Ksenija Bulatović** (born in Belgrade, in 1967) is a Serbian architect. In 1992 she graduated from the Faculty of Architecture, University of Belgrade in the class of professor and academician Milan Lojanica. As teaching fellow she worked at Faculty of Architecture in Belgrade. As architect she worked at Studio Arcbs, Biro A43, Eurosalon Engineering and Delta Invest. In 2005 Ksenija Bulatović started a successful private practice – architecture office Studio Cubex. She is a member of ULUPUDS (the Association of Applied Arts Artists and Designers of Serbia) and other professional organizations. Ksenija Bulatović is awarded architect and the author of numerous and important realizations in the domain of architecture. She successfully participated at different national and international competitions and exhibitions, including authoring exhibitions.

**Ksenija Bunjak** (born in Belgrade, in 1984) is a Serbian architect. She holds a PhD from the Faculty of Architecture, University of Belgrade. She worked in architecture offices Pich-Aguilera Arquitectos from Barcelona, Studio Cubex from Belgrade etc. and as a visiting researcher at the Technical University of Munich and a visiting PhD researcher at Institute for Architecture Technology, School of Architecture, Royal Danish Academy of Fine Arts, Copenhagen. In 2013 she received prestigious German award Green Talents 2013. Ksenija Bunjak is awarded architect and the author of numerous designs and competition projects. She participated at different national and international exhibitions and scientific conferences and published a number of papers in the domain of architecture. She is an architect dedicated to the ecological and climate responsible design, research work and education. Her main research fields are traditional rural architecture, as well as sustainable architecture and urbanism. Founder of volunteering organization EAT – Eco Art & Theory.

**Sandra Persiani** Linnea Persiani (born in Gothenburg, in 1985) is an architect of Italian and Swedish nationality coming from an international background. She is since 2015 a research and teaching associate at the Technical University of Munich, Associate Professorship of Architectural Design and Building Envelopes, developing her PhD in Environmental Design as a collaboration between the Faculties of Architecture of La Sapienza University of Rome and TU Munich. She has participated to numerous international conferences, researches and authored/co-authored a number of research papers on the topics of adaptive building skins, kinetic facades and biomimicry in the context of Sustainable Architecture. In 2010 she started together with her colleague Luigi Pardo the architecture office Persiani/Pardo architetti, active in the field of Sustainable Architecture and Design. The practice has participated in many international design competitions, and has been awarded numerous prizes, such as the Blue Award and the WSCA award.

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## DISPERSION OF HOME IN CONTEMPORARY CITY CASE STUDY TOKYO

In theoretical discourse personal space has often been defined as a physical distance between person and person and/or between person and its (physical) environment. [1][2][3] In this research the physical dimension is complemented with the inner/ psychic dimension and personal space is defined as an assemblage of persons' significant places, people and processes (tripartite organizational framework [4]) that happen in an ordinary environment.

Through the theoretical exploration of physical self and inner/ psychic self, two centers of personal space are defined: (1) center of self and (2) center of the body. Center of self is the point of return and it's based on the anthropological, cultural and psychological definitions of home [5] [6] [7]. Center of the body is in temporary locations, places and environments for the daily actions (milieu). In this paper case study is Tokyo and Japanese sense of home and homelike activities are explored, discussed and analyzed. Defragmentation of home in contemporary Tokyo and (re)distribution of homelike activities from residential to public and commercial areas, lead to the different comprehension and understanding of the phenomenon [8]. Home becomes a territory, collection of public and private places connected by routes and – by an individual who gives them certain value and meaning. It is transposed from a house to a field of activities and actions, giving the city (and its systems) significant role.

Semi-structured interviews and questionnaires are conducted in order to grasp the rhythm and the dynamics of the daily life and in an attempt to recognize and map significant places where homelike activities happen. Dispersed model of home is defined and juxtaposed to the existing, more traditional, concept. It's discussed and constructed for the further theoretical explorations, multidimensional socio-spatial studies and uses in practical domains.

Keywords: personal space, home, homelike activities, contemporary city

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Marc Frochaux <sup>11</sup>

### 3D PRINTED ARCHITECTURE – A CRITICAL STATE-OF-THE-ART OF AN ONGOING REVOLUTION

3D Printing has been really hype in the last years, but voices having a critical distance towards it are very few, compared to the massive enthusiasm it still generates today among the community of designers. Indeed, 3D printing technologies concretize the dream of creating artefacts directly *out of information*, finally bridging the gap between IT and design. Shared contents, open datas and collaborative design, some commentators argue, make obsolete the usual distinction between producers and consumers. This situation may therefore lead to a complete reorganization of the industrial production, at global scale, and to a new economical order. For this reason the many discourses elaborated around 3DP are built on strong ideological basis, ranging from the usual liberal cult of innovation, the Schumpetherian framework of a « creative destruction » to an economy of contribution or a new Marxian metabolism. Actually, various conflicting utopias have been envisioned to describe the so-called « new industrial revolution ».

Having this in mind, my contribution shall explore the now widely discussed possible applications of 3DP in the architecture. The development of printed components or even 1:1 houses give simultaneity rise to new theoretical questions and very technical issues – both being naturally intrinsically linked. For the aim of the advocates is, here again, to rethink and reduce all the intermediary steps between the design phase and the production phase. The utilisation of 3DP in architecture cannot be reduced to new formal possibilities; it opens the Pandora Box of unthinkable innovations in the field. Scenarios of automated fabrication, mobile construction sites or downloadable BIM files give rise to an integrated coordination, a new scale of intervention and renewed nomadic dreams. Thinking with the digital changes radically the design process itself and forces architects to adopt not only new tools but also a new language and a new attitude, maybe similar to the long revolution that was started with the Renaissance and modern geometry.

*This contribution will focus on a few ongoing researches that lead the innovation, with a special attention to laboratories of the ETH Zurich that I've visited recently (Gramazio+Kohler, Benjamin Dillenburger and Ludger Hovestadt).*

**Marc Frochaux** (\*1981) is an art historian and an architect. He writes currently his dissertation at the gta Institute, ETH Zurich. His work focuses on design and architecture as 'environment' in France, after 1968. He has published two papers on architecture as technology and takes part to architectural competitions in Switzerland.

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Alexander Četković <sup>12</sup>

### THE (NOT SO) INTELLIGENT BUILDING

With the appearance of digital technology in buildings, their interconnection through a net and the control of building functionalities through computer programs the term 'intelligent' buildings became omnipresent. However, depending on the disciplines and people involved, it turns out that 'intelligent' has different meanings, varying between differing contexts and applications. If we acknowledge that architecture acquires a meaning through its usage, then it is obvious that the 'intelligence' of a building depends on how intelligent the user perceives the building. But as long as the user remains only a marginal factor in the design of many buildings with 'intelligent' environments, one has to assert that such buildings, despite the wishful description, are not so intelligent. The term interactive architecture, more often used by architects, seems to be more appropriate. Thereby, interaction as a form of conversing is often seen as a characteristic of intelligence. Another characteristic is adaption. Terms such as interactive architecture or adaptive architecture seem to tell more about a designer's attitude towards the user, as opposed to designers using the term intelligent architecture who seem to be attracted by the level of sophistication of technology used in such architecture.

Keywords: intelligent building, smart house, interactive architecture, user perception, ubiquitous

**Alexander Četković** is a multidisciplinary architect and computer scientist. With a master degree in both disciplines, he worked as a software engineer on major projects and as an architect on many designs and contests. For seven years he taught at the University of Arts and Design in Zürich, Switzerland, Faculty of New Media in the fields of Urban Media, Perception of Space, Information Spaces and Programming Techniques. At the moment he works on multidisciplinary projects challenging his wide range of knowledge, like the ideas-contest "ETH-World" or the platform "Archivio Fluido". He is of Montenegrin, German and Swiss nationality, works and lives in Zürich, Switzerland, and is a PhD Candidate at the Planetary Collegium.

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### NEW DIGITAL AND INTERACTIVE SPACES FOR NEW MUSEUM CLUSTERS

In the 21st century there is a necessity for the international level mutation of the essence of museums spaces on their way to economic and cultural improvement in the interest of the urban phenomena development.

A vast mass of collected data and their spatial perception are the focus of the proposed project. There have been many methods whose purpose was using digital culture tools in order to analyze, map and handle information related to territorial and architectural transformation of observed areas so complex preservation of the architectural and cultural heritage is addressed. The project aims to propose innovative digital platforms, based on the proposals for the unique cultural experiences by collecting data, which is considered useful for "reading" the different contexts by using diverse experimental tools in space design following continuous densification of information. The project analyzes innovative museum clusters of different nature and uses both those under development and those with significant potential.

Is it possible to explore the horizons of digital development within the framework for the concept of public spaces and still control project mutations? With investigating the perceptive, spatial and interactive aspects of chosen context we can implement the collected data to potentially increase the experience of museum clusters – where the final user will simultaneously be both the participant and curator. The proposal of Interactive Spaces for New Museum Clusters puts forward unique platform with systematic changes that are applicable to different contexts, independent from urban frames. A platform that could, in predictable and unpredictable situations, always be in the context of a specific relevance – mobilize the collective action and thus transform the collective meaning of museum notion.

Keywords: Museum Clusters, Interactive Spaces, Digital Technologies, Innovation, Participant-Curator

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Igor Svetel <sup>15</sup>

### MODEL VS. MODELING: IMPLICATIONS FOR THE COMPUTER ASSISTED ARCHITECTURAL DESIGN

Today, architects are faced with abundance of computer applications that are marketed as the design tools. The advent of the building information modeling (BIM) created impression that new computer technologies are developed to simulate design process by operating with intelligent, parametric objects that simulates real-life building components. The impression was fostered by the development of the IFC interoperability format that promised seamless exchange of data without information loss among BIM applications and with other AEC (architecture, engineering and construction) related computer applications. The promise was provision of greater cohesion among traditionally segmented AEC disciplines. Based on these technological promises other advances in the computer assisted architectural design were conceived: connection to applications for energy consumption simulation as the help in green building design, and the association with the free-form geometry modeling applications as the way to include complex geometry components that can be fabricated with the 3D printing technology in the building model.

Contrary to the expectations and promises, today we have market full of diverse applications, each one concentrated on its own idiosyncratic model. The processes that applications apply are dedicated to the creation and management of those application related models. Two BIM applications, Revit and ARCHICAD use two so different core mechanisms that knowledge of one application is often a barrier in learning another one. Interoperability formats, like IFC, are also oriented toward precise transfer of information about particular model instance. The whole field is full of specialized applications and to make her/his path in this complexity a designer needs precise understanding of core software functionality, and knowledge about real potential of interoperability formats. Even when she/he achieves a level of proficiency in the use of these technologies she/he can solve specialized problems, and rarely can use technology to conceive and develop her/his architectural concepts.

The paper argues that larger attention should be paid to the design process, to the "modeling" part in BIM acronym to achieve better use of existing technologies aimed toward computer assisted architectural design. That way architects will reestablish their position in the field and will provide guidelines for innovations in software technology more suitable for architects. In this hype of technological innovations people forget that architects were innovation force in the field long before the computers were imagined.

Keywords: modeling, BIM, architecture, design process

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Milan Nikolić<sup>16</sup>, Mihailo Mitković<sup>17</sup>, Aleksandra Kostić<sup>18</sup>

### **THE INFLUENCE OF CONTEMPORARY DIGITAL ACHIEVEMENTS IN ARCHITECTURAL PLANNING METHODOLOGY THROUGH PARAMETRIC DESIGN**

Advanced technology based on digital processing of a large amount of data are noted as influence on contemporary architectural achievements. Complex algorithms have enabled a variety of methods for solving complex architectural assemblies. Parametric design exists with help of computer technology and it is more represented in architecture as a global style. Design points out to aesthetic characteristics in architecture, but the quality of architectural realization is seen only in aesthetical-function harmony. The influence where the modern design method as the parametric design has to the planning methodology in architecture and the perception of the space is presented in this work. Four aspects are analysed (Perception of space, analysis of the mass and emptiness; Relation between building and the environment; Design standards, anthropological dimensions; Relation between form and function) which are important for the process of the project of conventional perception of the architecture task and architecture based on parametric design. The typology of parametric design in relation to the influence which they have to the perception of the space and the treatment to the architectural methodology are shown. Through the discussion of results are given the comparison to conventional perception of the space.

**Milan Nikolić** was born in Niš in 1990. He finished mathematical grammar school, and graduated at Faculty of Civil Engineering and Architecture, university in Niš, Serbia in 2014 as the master engineer of architecture. He is the student of the second year of PhD of architecture in Niš (Serbia). As the collaborator in teaching he gives sessions at Faculty of Civil Engineering and Architecture in Niš at the subject "Modelling in architecture and urbanism". His interests in scientific-research work are connected to the application of computers in architecture and innovations in the process architectonic project and design.

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**Aleksandra Kostić**, born in 1985 in Pristina, Serbia. She is Ph.D candidate at Faculty of Civil engineering and architecture, University of Nis. From 2010 until to 2014 she is a PhD researcher of the Ministry of Education an Science on the project "Revitalization of preschool facilities in Serbia: The program and methods for environmental, functional and energy efficiency improvement". Starting from the 2010 she worked at the Faculty of Civil Engineering and Architecture in Nis as teaching assistant at Department of Public buildings. In the period from 2009 to 2016 she participated as an author, co-author and an associate in the creating of numerous scientific papers and professional projects in the field of architectural and urban design. She has received a number of awards and scholarships during studies.

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Milos Milovanović<sup>19</sup>

### **THE INFLUENCE OF URBAN PLANNING PRACTICE HISTORY ON VIRTUAL ENVIRONMENT SETTLEMENTS IN ELDER SCROLLS FRANCHISE**

*As a multimillion dollar franchise, Elder Scrolls has influenced on tens of thousands roleplaying gamers around the world. Main aspect of this virtual environment is exploring, so one of the most important goals for Bethesda developers was building interesting and immersive world for users. Although game domain is the realm of fantasy, artificial and natural environment is almost wholly referenced in several points of human urban history. This paper explores III, IV and V iteration of the franchise, questioning evolution of the games settlement development, and exploring the layers of human interaction with virtual environment in a span of more than ten years of game publications. As a fantasy world that has continual growth in interaction between users and developers has evolved, but the question remains, does feedback from thousands of user of virtual public space have any impact on urban planning profession? Transformation of pedestrian communication in the game world is noticeable, and analysis is made of factors that encouraged this transformation.*

As a virtual game environment, ES was created as a user-friendly open world experience. It attracted most of the gaming community by offering freedom in two aspects, character creation and numerous exploration possibilities. Most interactions in ES is based on communication with non-player characters, many of them being voiced individually by professional actors. Interaction with other players is possible through mods created by online community. If players follow suggested storylines, they spend most of their time in settlements which have several functions. Bartering, sleeping, eating, drinking, stealing and interactions are performed through daily cycles, and a city design was largely influenced by medieval urban grids which allowed many aesthetic opportunities for special ambient experience in a fantasy world. This organic street form was not the only answer for player-NPC communication. Many utopian forms were explored in the game, as were mythological concepts implemented in urban and natural environment, but also as a concept in the main storyline.

<sup>19</sup> Milos Milovanović, FGM Architecture, Union Nikola Tesla

Svetlana Batarilo<sup>20</sup>

### **VIRTUAL SPACE / SPACE OF CONTROL Shopping as a means of control**

The development of new technologies has led to major changes: networking through the internet has enabled the rapid exchange of data and a new revolution in the development of shopping; Media have become part of everyday life, and have influenced the conception of each of its different aspects.

In the modern world (invisible) border between the real and virtual space is moving, constantly intertwining. The physical space is increasingly relocated into the virtual space with the help of information as a means of defining urban. By accepting the contents of the material world, the virtual space is becoming a part of it. Entering of shopping into the digital space, as one of the stages in the process of constant changes of consumption spaces, has produced a modern shopping revolution. Virtual shopping does not exhaust urban space, and this is the main difference in relation to the material world shopping. However, the consequences of transiting of shopping into the virtual dimension is not only visual or spatial, but also invisible. Some changes of urban space are happening in the sight of all, but there is also a more subtle level of changes that are not seen clearly. Information has first enabled physical growth of the consumption space, and the expansion of shopping by transferring it to another virtual dimension, but it also has enabled overall commercial control. In the first case, the information is a means of expansion of shopping, but in the second, the information is a means of control.

As a result, the city is increasingly defined through information. Understanding of the city moves from visible to the invisible. This is controlled space - control of physical space by information from the virtual space.

**Dr Svetlana Batarilo**, architect, born in Belgrade, 1970. In her work in practice she completed few objects in Serbia and abroad, independently or as a member of a team. She took part in architecture and urban design competitions, local to international, and she won awards. She exhibited her projects. Between 1996. and 1999. she worked at Faculty of Architecture, University of Belgrade, subjects: Contemporary Architecture and Designing. Since 2001. she works as teaching assistant at Transport and Traffic faculty, University of Belgrade, subjects: Urban Planning, Fundamentals of Urban Planning, Sustainable Development and Environmental Protection, Fundamentals of Construction/architectural segment.

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Dragana Ćirić <sup>21</sup>

### DISAPPEARING BORDERS: ETHICS OF POWER INVISIBILITY

As an agent of “a strategic effort to make difference in space”, an instrument to acknowledge and mark the limits where “normative values of differentiating systems meet” (Van Houtum and Van Naerssen, 2002:129), architecture always performs certain kind of *border-work*. It materializes, spatially defines, and gives form, shape, and type. It makes certain normative territorial and legal claims, structures, systems, procedures, and programs evident, designating boundaries of the given *power-authority*. Therefore, it shares principles with the border ontology and epistemology. This bordering role of architecture, historically used to spatially reinforce different acts of political, military, administrative, economic, social, and cultural division, as well as private-public one, has been significantly altered by the introduction of virtual spatial control and design. Technological move towards virtuality and *soft control* questioned the position of architecture as a material instrument of border-making and privacy protection.

The border developed its virtual double which progressed into completely autonomous entity. It ceased to represent *power* spatially and materially, largely resorting to invisible forms of control and bordering, extending simultaneously modes of border-power representation by digital technologies. Rethought under the imperatives of transparency and dematerialization (Aureli, 2012), digitality, globalization, supranationality, and open economy, additionally being split between real/ actual and virtual realms, the border acquired different status and architectural properties.

Within these conditions, is the experience of the border as we knew it completely disappeared under the urge of *being digital* (Negroponte, 1996) or is this just an illusion and rhetorical claim while traditional borders being stronger than ever? Do control and surveillance theories (Van Houtum, 2011) explain ‘power in operation’ changing its principles and strategies by hiding traces of physical existence and impact? What happened to ‘right to privacy’, quite violated by the mechanisms of dematerialized power ‘not being much about *rare window ethics*’? What is the role and position of architecture within this context while performing transition from massive forms of control towards less visible *smartness* and *intelligence* of non-physical cyber-environment?

Architect, Teaching Assistant, Ph.D. Candidate and Independent Researcher at the Faculty of Architecture, University of Belgrade. Her work includes writing and research, architectural and urban design, and teaching applying new methodologies within the interdisciplinary and post-disciplinary approach. Current fields of interest: architectural design process, design intelligence, architectural theory and history, arts and sciences, interdisciplinary intersections between architecture and art, design studies, culture studies, border studies, humanistic and natural sciences.

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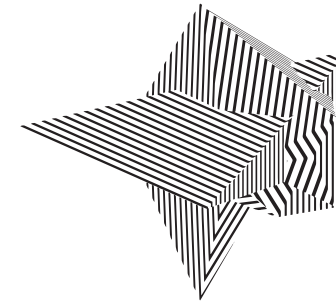
### COLOR CODE: IDENTIFICATION SYSTEM OF SPACE

Many aspects of design in the environment that are helpful to all or most disabled people there are also some specific facilities needed by people with a particular kind of impairment. People with visual impairments such as partial blindness or color blindness have ways for working around barriers such as these. Yet what if there was an established, universally recognized, code for conveying colors to people with visual impairments? Filipa Nogueira Pires, “Feelipa is a color identification system developed to bring greater independence to people who just see the world a different way.” The code relies on associating colors with geometric shapes. Representing more complex colors requires combining shapes to create other shapes in the same way that colors can be mixed to create other colors. Explores the possibility of adding the color-indicating shapes to space, clothes, and even markers or pens. Understanding that many visually impaired or color blind people have personal methods for dealing with these barriers, such as adding specific color-identifying buttons for space.

Key words: color, code, space, universally recognized, geometric shapes

**Dragana Vasiljević Tomić** (1964) graduated the University of Belgrade, Faculty of Architecture (1992). After enrolling the Faculty Staff she continued onto graduate studies and obtained her PhD in 2005 at the Faculty of Architecture, University of Belgrade. Professor Vasiljevic Tomic has combined architectural career with education, research, and writing. Currently she is Associate Professor at the University of Belgrade, Faculty of Architecture, where she lectures Architectural and Urban Design. Her projects have been awarded at international competitions and exhibited domestically and abroad, in addition to her lecturing and publishing in Serbia. She chairs Master Design Studio and lectures Design Theory courses at the Faculty of Architecture, University of Belgrade. She is one of the curators and designers of the exhibition entitled “Wohnlich”, Pavilion of Republic of Serbia at XI International Architecture Exhibition, la Biennale di Venezia, Venice (Italy) 2008.

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**TECHNOLOGY & SCIENCE**

NEUROSCIENCE AND/IN ART  
INNOVATION AND CREATIVITY IN AI AND AL



Paul Verschure<sup>23</sup>

**SCIENCEART SYNERGY: TOWARDS SCIENCE BASED HUMANITIES AND A MEANING  
ORIENTED SCIENCE**

Although many share the intuition that art and science have a lot to offer each other, this ideal has not translated to a ScienceArt practice. In my presentation I will analyze the origins of this lack of progress and show that we can overcome this obstacle by combining a synthesis based science with an analysis oriented art. I will illustrate this approach by describing a number of performances and exhibitions that we have developed along this ScienceArt paradigm and I will demonstrate how this integrated multi-disciplinary approach has given rise to a number of high impact applications which are of direct relevance to our society in the domains of health, education and cultural heritage.

**Paul Verschure** is Catalan Institute of Advanced Studies (ICREA) Professor and director of the Center of Autonomous Systems and Neurorobotics at Universitat Pompeu Fabra where he runs the Synthetic Perceptive, Emotive and Cognitive Systems (SPECS) Laboratory ([specs.upf.edu](http://specs.upf.edu)). He is founder/CEO of Eodyne Systems S.L. (Eodyne.com), which is commercializing a novel science grounded neurorehabilitation technology and founder/Chairman of the Future Memory Foundation ([futurememoryfoundation.org](http://futurememoryfoundation.org)) which aims at supporting the development of new tools and paradigms for the education, conservation and presentation of the history of the Holocaust and Nazi crimes.

He received his MA and PhD in Psychology and Paul's scientific aim is to find a unified theory of mind and brain using synthetic methods and to apply it to quality of life enhancing technologies. His theory of mind and brain, Distributed Adaptive Control, has been generalized to a range of brain structures and robotic systems and has laid the foundation for a novel neurorehabilitation approach called the Rehabilitation Gaming System ([http://specs.upf.edu/research\\_in\\_neurorehabilitation](http://specs.upf.edu/research_in_neurorehabilitation)). Paul explores new methods for the simulation, visualization and exploration of complex data to support his theory ([brainx3.com](http://brainx3.com)). Complementary to his science, Paul has developed and deployed over 25 art installations (<http://specs.upf.edu/installations>) including the biomimetic mixed reality space Ada experienced by over half a million visitors (2002), the hybrid human-machine dance performance Re(per)Curso (2008), the BCI based Brain Orchestra (2009), a Humanoid Robot DJ (2013), The BBC christmass lecture robot orchestra Theremin soloist (2014), a traveling Robot Ecology (2010 - 2015) and three virtual/augmented reality installations for the Memorial Site Bergen Belsen (2012 -) and the Wiener Library (2015). The Bergen Belsen augmented reality application is now the standard educational programme for the memorial site.

Paul manages a multidisciplinary team of 30 researchers ([specs.upf.edu](http://specs.upf.edu)) with whom he has published over 300 articles in leading journals and conferences in a wide range of disciplines running on an approximately 1.2M€/yr budget. Paul collaborates with a wide network of international researchers and experts. Paul has represented Switzerland in the Global Science Forum of the OECD, is chair of the annual Barcelona Cognition, Brain and Technology summer school and co-chair of the annual Convergent Science Network's conference Living Machines for which he also hosts a podcast ([csnetwork.eu/talks/podcast](http://csnetwork.eu/talks/podcast)). He is founder and academic director of the Interdisciplinary master program on Cognitive Systems and Interactive Media, which is one of the most popular official Bologna model master programs at University Pompeu Fabra.

Paul's vision is to realize an integrated science, art and technology paradigm for the study of mind and brain, which generates high impact products and services for our future society. This is also the theme of a book currently being written for Springer.

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Uroš Krcadinac<sup>24</sup>

## TEXTUAL COMMUNICATION DESIGN VIA AFFECTIVE ANNOTATION AND EVOCATIVE ARTISTIC VISUALIZATION

In the interest of enriching user experience of computer-based textual content, we propose a novel text visualization approach, whose visual aspect is grounded in generative art, evocative abstract animation, and visual elements of cartography. Its technical aspect is based on text mining, textual affect recognition, and semantic annotation. Our general approach is centered on the idea that digital technologies increasingly dictate the languages in which we speak and think, and therefore we need to develop new forms of expression. In particular, we believe that these affective computer systems should be able to relate to, communicate, and evoke human emotions. In addition, we discuss how engineers, designers, and artists should be aware of the influence such technologies have as media, not as mere tools. Our study, organized as repeated measures within-subjects experiment, demonstrated that in terms of affect communication, our visualizations are comparable to two common textual emotion visualization techniques: emoticons and avatars. Additionally, our visualizations based on abstract color, motion, and shape proved to be the best in evoking emotions.

**Uroš Krcadinac** received his B.S. degree in Informatics and Software Engineering from the University of Belgrade. Currently, he is a research assistant and a PhD candidate at the Department of Software Engineering, University of Belgrade, Belgrade, Serbia. His research interests include affective computing, information and data visualization, text mining, data storytelling, and new media art and literature. His projects range from Bantustan, an infographic African documentary novel, to Synesketch, an open-source software for textual emotion recognition and artistic visualization. His work was recognized by international festivals and conferences such as International Digital Media and Arts Association, and scientific journals such as IEEE Transactions on Human-Machine Systems and the IEEE Transactions on Affective Computing. Uros's homepage: <http://krcadinac.com>.

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Jelena Guga<sup>25</sup>, Ivana Uspenski<sup>26</sup>

## PROCEDURAL AESTHETICS AND THE EMERGENCE OF NEUROART

Although Neuroart is related to the concept of Neuroaesthetics (S. Zeki), which is based on a scientific approach to aesthetic perception of art, and to the concepts of Neuroplastic arts (G. Novakovic) and Neuromedia (J. Scott) endorsing collaboration between artists and neuroscientists, it is at the same time distinct from them. We are using the term literally to refer to those artworks that are based on neural / brain waves signals and the use of brain-computer interfaces (BCI) or more specifically, EEG headsets in the production and display of artworks. We focus on EEG-based sound art, visual arts, interactive installations, and performance arts, and we identify Neuroart as a novel, emerging form or sub-genre of new media art.

However, we do not limit Neuroart to human-generated artworks only. Given that Neuroart applies to detection or inspection of neural electric signals, we claim that the electric nature of those signals also applies to processes inherent in machine processing or neural computing such as Google Deep Dream and other generic platforms that lay the foundations for computer and/or AI generated art forms including database art, software art, visualization art, sonification art as well as those artworks that result in material artifacts presented in traditional exhibition format.

We additionally claim that regardless whether the artworks of Neuroart are driven by a human or machine, they can have the same aesthetic discursive value, but within a context of a newly defined discipline of aesthetics that is Procedural Aesthetics. The Procedural Aesthetics (or the aesthetics of signal), can be understood as the discursiveness of the very process of signals (intensities) emission before they enter the sphere of conscious cognition. It is a pre-receptive and pre-semantics phenomenon. It deals with the processes otherwise not available to human perceptive apparatus, trying to reveal them, unmask them, by offering them to interpretation as cultural artifacts. And in order to do this, it relies heavily on technology and technical equipment allowing us the access to these 'invisible' processes through visualization, sonification, textualization, mapping and other forms of interpretable representations displayed as artworks.

**Dr Jelena Guga** is a theorist of art and new media, independent researcher, and author. She holds a Ph.D. in Theory of Art and Media from the University of Arts in Belgrade, Serbia. She was a Postdoctoral Researcher working on the Human Cognitive Enhancement project at the New Technologies Research Center, University of West Bohemia (Pilsen, Czech Republic) and a Visiting Researcher at the SPECS Group, University Pompeu Fabra (Barcelona, Spain), where she carried out the project Body Ownership and Agency in Virtual Reality based on empirical neuroscientific experiment.

Her work largely focuses on the ways new media technologies have rearticulated and redefined the notions of identity and embodiment in the age of constant connection and technological augmentation – from identity construction and bodily refunctionalization through various digital interfaces and/or bio-technological interventions, to the convergence of digital and physical environments.

Dr Guga has participated in many international conferences and served on the scientific committees. She authored peer-reviewed conference and journal papers. Her book *Digital Self: How We Became Binary* is published in English (University of West Bohemia, Pilsen, 2015) and Serbian language (*Digitalno Ja: kako smo postali binarni*, ArtKult, Novi Sad, 2015).

**Ivana Uspenski** received her PhD in Media Theory from the University of the Arts in Belgrade. She has worked as a journalist, sound engineer, and lead international media departments of several advertising agencies in Serbia and Germany (OMD Media in Belgrade, PHD Germany in Frankfurt, Mindshare/Cosmo in Dusseldorf). Her research interests range from Information and Communication and Web 2.0 to Mapping and Visualization, Critical Geography, Film Theory, and Cybertextuality. Her publications include a chapter on "Mass Intelligence and the Commoditized Reader," published in *New Perspectives on Consumer Culture Theory and Research*, ed. Pavel Zahrádka and Renáta Sedláková (Cambridge Scholars Publishing, 2012), "Shared in Confidence: A Machine to a Machine" published in the proceedings of the *Beyond AI: Artificial Golem Intelligence Conference* (Pilsen, Czech Republic, November 2013), a translation into Serbian of Ivo Blaha's *Dramaturgija zvuka u audio-vizuelnom delu* (*The Dramaturgy of Sound in Audio-Visual Works*, 2008), and *Fascinacije teorijom ili Ka novoj teoriji vizuelnih umetnosti i culture* (*The Fascination of Theory, or On New Theories in Visual Art and Culture*, 2008), coauthored with Mariela Cvetić, Lidija Prising, and Vida Knezević. She has published articles in *AM: Art and Media Journal for Art and Media Studies* and *International Scientific Journal: Film and Media Studies* and presented lectures and talks in Belgrade, London, Olomouc and Pilsen (the Czech Republic), Vienna, and London.

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<sup>26</sup> Dr Ivana Uspenski, Mindshare/Cosmo Germany

Stahl Stenslie <sup>27</sup>

### SOMATIC SOUND AS AN ELECTRIC SKIN

Wearable, intuitive and haptic designs will become integrated in the new paradigms of interactivity exemplified through our skin turned electr(on)ic, sensual and intrinsic. The skin as interface circumvents the screen as primary communication channel and introduces fundamentally deep phenomenological dimensions to our daily lives. The re-wiring of our perception through multi-modal, computer enabled environments will be exemplified through the Somatic Sound project, an installation where the user can control corporally control and experience a three-dimensional, immersive and physical audio space. By direct or indirect touch of a touch sensitive, near-field, golden sphere the user can move and compose the aural experience of the room. The installation space is physically modelled through sound. The sound produced is phenomenological in the sense that it is a direct, corporally manipulative and dynamic experience.

**Prof. Dr. Stahl Stenslie** works as an artist, curator and researcher specializing in experimental media art, interactive experiences and disruptive technologies. Keywords of his practice are somaesthetics, unstable media, transgression and the numinous. The technological focus in his works is on the art of the recently possible - such as i) panhaptic communication on Smartphones, ii) somatic and holophonic soundspaces, and iii) disruptive, open source design for low cost 3D print. His PhD is on Touch and Technologies, see [virtualtouch.wordpress.com](http://virtualtouch.wordpress.com). He is a full professor in Art and Technology at Aalborg University, Denmark and the director of PNEK.org.

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### EXTREME LABOUR IN THE CLOUD

What are the consequences when creative labour goes in the Cloud enabled by global digital networks? This post-industrial way of cognitive work is especially appealing to the creative individual who sees an opportunity to take back the ownership of the means of production. With just a computer and an internet connection it is possible to join the new global workforce. However, this economy is an unregulated virtual sweatshops that lets people compete for human intelligence tasks—pieces of work that cannot be fully automated and executed by machines—in a worldwide race to the bottom. Creative working in the cloud is a seductive idea. It promises artists and workers alike autonomy, mobile workplace, no collar, accessible income and flexible work hours. It sounds too good to be true. Is it?

**Boris Debackere** is an artist and researcher and teaches at the master information design (MIND) at LUCA School of Arts, KU Leuven. Debackere is currently serving as the head of V2\_Lab in Rotterdam, an instigator of artistic projects that interrogate and illuminate contemporary issues in art, science, technology, and society.

**Prof. Dr. Stahl Stenslie** works as an artist, curator and researcher specializing in experimental media art, interactive experiences and disruptive technologies. Keywords of his practice are somaesthetics, unstable media, transgression and the numinous. The technological focus in his works is on the art of the recently possible - such as i) panhaptic communication on Smartphones, ii) somatic and holophonic soundspaces, and iii) disruptive, open source design for low cost 3D print. His PhD is on Touch and Technologies, see [virtualtouch.wordpress.com](http://virtualtouch.wordpress.com). He is a full professor in Art and Technology at Aalborg University, Denmark and the director of PNEK.org.

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Gordana Novaković<sup>30</sup>

### NEUROPLASTIC ARTS: PLASTIC BRAINS IN THE POST-DIGITAL WORLD

The concept of neuroaesthetics has recently attracted attention, and this paradigm has opened an entirely new area in which both artists and neuroscientists look at the neurobiological basis of creating and experiencing the plastic arts. Mostly working within the scientific concept of the visual brain, neuroaesthetics is strongly focused on vision and static objects. But the area of contemporary artistic practice that neuroaesthetics leaves unexplored is that of multi-sensory experiences within the growing body of process-based arts enabled by digital technologies, in particular interactive art. These art forms, engaging multiple senses, operate in an entirely different conceptual, aesthetic, and methodological framework from traditional plastic arts by substituting objects with processes, and introducing a fundamental shift by replacing a passive observer with an active participant in the act of collective creation in network-based artistic concepts, or in an active role in the final unfolding of an art work in an interactive installation. A possible new direction could be found within the science of brain plasticity, the study of the ways in which the brain can radically reconfigure itself under certain conditions. This has conclusively shown that the brain can no longer be regarded as a fixed, closed, passive receiver of information from the senses—a mere processor for the information that is controlling our body through a kind of one-way communication. We are now seeing the recognition of growing scientific evidence that the brain is in fact almost nakedly open to external influences, and is capable of rapid and radical change by these insights to be extended and explored in the context of art, perhaps in the ways outlined in my Manifesto for Neuroplastic Arts and further discussed elsewhere. But will neuroscience bring the final answers to all perception-related questions, including those arising from digitally enabled artefacts?

Originally a painter, **Gordana Novaković** has been experimenting with digital technologies since the mid-1980s. For the last twenty years she has concentrated on developing interactive projects at the confluence of art, science and technology through extended interdisciplinary collaborations with scientists, composers, and technologists. As long-term artist-in-residence at the Computer Science department, University College London, she founded and curates the Tesla Art|Science discussion forum. She has received funding from a variety of organisations, including Arts Council England and the Arts and Humanities Research Council, and her work has been featured in many international exhibitions and conferences. Gordana is currently working on her concept of neuroplastic art, exploring the possibilities of new interactive art forms based around the emerging science of neuroplasticity – the brain’s ability to rapidly and radically reconfigure itself in response to novel sensory inputs.

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Zane Cerpina <sup>31</sup>

### **THE GLOBAL CHANGE APP: MANAGING THE EARTH IN THE AGE OF THE ANTHROPOCENE**

The Global Change App is a concept for a social network, representing a radical solution for a better future. The current problems are not only rise in population, energy crisis, lack of food, endangered animals and deadly diseases in Africa, but also the way the society perceives these issues and act upon these. In the age of the information overload our society needs to feel the impact of the anthropocene like a fist in the face. The Global Change project offers a new and discursive solution to build online democracy. The app aims to give its millions of global users a new and direct way to change the world: solutions to global problems are presented in the form of questions that users can only answer with "YES" or "NO". The solutions are then implemented according to the global vote. With this reductive attitude, making a global change will become easier than ever before. The purpose of the project has been to study public's interest in how to tackle the emerging global problems in the age of the Anthropocene. Currently the Global Change App is at the concept stage. Yet, based on the success of the conducted artistic research, the project will be further developed as a functioning prototype to demonstrate and test the app in real life situations.

**Zane Cerpina** is an artist, working within emerging media focusing on the themes of the Anthropocene, cultural and social sustainability and interactive technologies. She is educated in Art & Technology at Aalborg University, Denmark and currently lives and works in Oslo. She is developing her independant art projects, as well taking part in different art events and working on various publications. Her artworks and activities are focused on the problems and solutions in times of social and ecological crisis.

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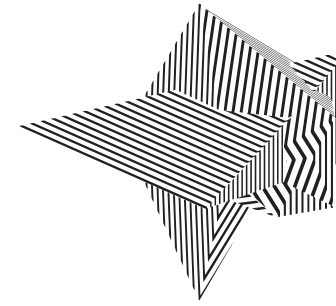
Jovana Karanović <sup>32</sup>

### **SHARING ECONOMY AND SELF-SUFFICIENCY USING 3D PRINTING TO ACHIEVE GENUINE PROGRESS**

It is evident that today's consumer society is unsustainable because natural resources are limited in supply. We do not only need alternative ways of producing and consuming; we need alternative ways of thinking and measuring societal progress. 3D printing might be able to offer 'genuine progress' by enabling localized production, use of truly sustainable materials, less waste, and decreased cost of healthcare products. Producing locally might not be all that new, but the possibility of consumers to take over the production from the hands of capitalists by printing their desired products on-demand, is revolutionary. Moreover, the possibility to transfer any design file digitally paints at the same time a picture of heaven and hell. Inability to enforce intellectual property rights might pose serious challenges and force us to develop different incentives to innovate. This paper establishes 3D printing as an emerging technology that can efficiently integrate on-demand production and collaborative consumption, in this way opening a path towards genuine progression of society. This paper will show how 3D printing can offer genuine progression of society towards self-sufficiency by a) empowering consumers and giving them ability to become producers, b) integrating democratization and disintermediation, c) combining on-demand production and collaborative consumption, and d) offering various benefits on the economic, societal and environmental level, which are essential for sustainable development.

Jovana Karanović is a Research Assistant at Amsterdam Business School, which is part of the University of Amsterdam in the Netherlands. She obtained her Associate Degree from Fullerton College in California and Bachelor Degree in Liberal Arts and Sciences (focus Economics) from Amsterdam University College. She is currently pursuing a research master Business in Society at the University of Amsterdam. Her research interests encompass sharing economy, 3D printing, and sustainable business solutions.

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**TECHNOLOGY & ART**  
NEW MEDIA ARTS



Elif Ayiter<sup>33</sup>

**TO PLAY IN VIRTUAL WORLDS:  
STORIES, METAVERSE ECOLOGIES AND DRESS-UP GAMES**

This paper will bring together three terms originating from disciplines that at first glance may seem to be unrelated to artistic activity in Virtual Environments or Virtual Worlds: 'Storyworld' which is grounded in the field of Narratology, 'Gesamtkunstwerk' from the field of Aesthetics and the concept of 'Play' as described by Johan Huizinga. These three terms will be used as the theoretical framework that explicates on the creation of virtual, three dimensional 'art ecologies' for narrative purposes in virtual worlds, as well as the nature of dress-up games that the avatars who populate these ecologies engage in. One such art ecology and a virtual fashion enterprise created by the author, will be used as examples as to how such narrative activities are built and populated.

**Elif Ayiter** is a designer, educator and researcher whose creative interests are based in three dimensional online virtual worlds and their avatars, as well as in developing and implementing hybrid educational methodologies between art & design and computer science. She teaches full time at Sabanci University in Istanbul. Her texts have been published at academic journals such as the Leonardo Electronic Almanac, the Journal of Consciousness Studies, and Technoetic Arts. She has authored many book chapters in edited academic books and has presented creative as well as research output at many international conferences.

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Anton Dragan Maslic<sup>34</sup>

### **RUNNING CODE TO CONTROL SCULPTURES IN INSTALLATION ART**

Code, algorithms, interactivity, electronics, biology, genetics, physics, engineering and many more attributes or fields are increasingly becoming an intrinsic component of contemporary art. These fast developing innovative technologies and methods are rapidly consolidating their place in this realm. However, a synergy between these new pioneering fields with the more conservative traditional disciplines are consequently provoking necessary and constructive transformations. Throughout my work, an extensive research has been conducted to find strategies to bridge the gap between those traditional disciplines and technology driven methods and concepts. Coding and algorithms integrated through electronic controllers and interactivity are playing an increasingly important role to achieve this. The final outcome never targets a predetermined result, but rather envisions a hybridity of interlinking different time periods, different technologies and disciplines of art, science and its sphere of ideas. New avenues are thus explored to control sculpturally installations through digitally driven manipulations, connecting sound, visuals, tactility, interactivity, materiality and space into an all-immersive experience.

Adorable and clumsy looking inanimate objects are coded so as to mimic recognizable emotional content, affecting a viewer to project her own psychological imprint as well her inevitable shortcomings. Traditional media like painting are released from their rigid and static framework through process-based coded animation techniques. These are some of the issues that set the context and form the building blocks of the works and concepts to be further explored.

Keywords: contemporary art, hybridity, digital, traditional, synergy

Anton Dragan Maslic has been working in a multitude of various media and disciplines. Throughout his work he has explored the relationship of space with politics, social economics, psychology, urbanism, pre- and post war social conflicts, violence, propaganda, cultural identity, group behavior, consumerism, effects of Capitalism, the dichotomy between digital art and physical objects. He participated since 1994 in 40 group exhibitions 3 solos, collaborative projects, art biennials and events internationally. He participated at the Venice Biennale of Architecture in 2014, and had a show in Vienna, at the Museum Quartier, 2016.

Maslic initiated, organized and curated 9 international multidisciplinary exhibitions and events in several European countries. He initiated an international underground network for artists, 'Noise of Coincidence', which provided a platform for exhibitions, theory, discussions, and collaborations. He taught at universities in Nicosia and Famagusta in the fields of Architecture, Design, Interior Architecture, and Visual Arts & Visual Communication.

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Ana Cuzović<sup>35</sup>

### **BROKEN – DIGITAL INSTALLATION**

Art project *Broken – digital installation* is an experiment in the field of composite digital picture. Broken is interdisciplinary project which uses digital technology in order to create immersive digital installation, combining video projection and sound design that embraces the architecture of the place.

The aim of the project is to explore seductive character of digital installation and how image can immerse a viewer into its own space. At the same time, the work is addressing the issue of fragmented images, exploring at which point the broken structure becomes the whole and meaningful. The process of creating and compositing in the digital environment is observed parallel with the process of concluding the meaning of the image in the eye of the beholder.

**Ana Cuzović** is digital artist, graphic designer and researcher from Belgrade. The focus of her work is on exploring different possibilities and the limitations of digital image in artistic practice, regardless the medium - illustration, animation, or an audio-visual installation.

In January 2016, she successfully defended her PhD thesis in digital arts, as part of practice based interdisciplinary studies at The University of Arts in Belgrade. She graduated 2006 from the Faculty of Applied arts in Belgrade with major in applied graphics and book design. During 2014 / 2015 she was visiting scholar at S:PAM (Theatre, Performance and Media Studies department) at Ghent University in Belgium.

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Dejan Grba <sup>36</sup>

### **AVOID SETUP: INSIGHTS AND IMPLICATIONS OF GENERATIVE CINEMA**

The immense poetic and expressive potentials of film have been barely realized within the cinematic cultural legacy, mainly due to industrialization, commercialization and consequent adherence to the pop-cultural paradigms. Unrestrained by the commercial imperatives, motivated by the unconventional views to film and art in general, generative artists have started to engage these potentials playfully and efficiently, with explicit or implicit critique of cinema in a broader cultural, economic and political context.

This paper looks at a number of creative approaches and incentives within generative cinema as one of the emerging fields of digital art. These approaches in different ways point to the open algorithmic concepts for freely, parametrically, analytically and/or synthetically generating the cinematic structure, narrative, composition, editing, presentation and interaction. Their algorithmic essence also provides a platform for critical understanding of the strategies such as market analysis, target group research, script evaluation, and box-office assessment in contemporary film industry.

Keywords: Algorithm, Cinema, Creative Coding, Digital Art, Film, Generative Art, Generative Cinema, Programming.

**Dejan Grba** is a media artist, author and educator. His investigation of the perceptive, cognitive and cultural factors of visual phenomenology is focused on the various ways of the constitution, representation and interpretation of the individual notion of reality in the symbolic and narrative structures.

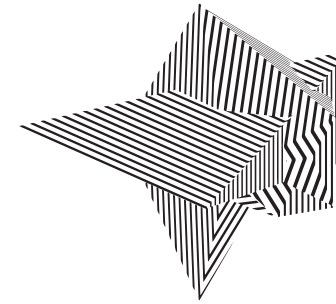
He has exhibited internationally at venues including ISEA Hong Kong, ZKM Karlsruhe, GfZK Leipzig, Montevideo Amsterdam, Museum in Progress Vienna, <rotor> and CCN Graz, Atelier als Supermedium Hague, IFA Berlin, MoCA Belgrade, MoCVA Novi Sad, MoCA Salon Belgrade, Dom omladine Gallery and Remont Gallery Belgrade. He earned his DA from the Faculty of Fine Arts in Belgrade where he had been teaching Drawing from 1998 to 2012. Since 2006 he has been teaching Transmedia Research, and in 2015 he established and now chairs New Media program at the FFA. At the Digital Art Interdisciplinary doctoral program, University of the Arts in Belgrade he teaches Poetics of Digital Art seminar since 2005. He was a guest professor at the Computer Art Program of the Transmedia department at the College of Visual and Performing Arts, Syracuse University, New York in 2007 as a JFDP fellow. He has given lectures and workshops at various venues in Europe and the USA.

He has been publishing papers, articles and texts on visual arts since 1995.

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**NEW MEDIA**

ADVERTIZING IN THE DIGITAL AGE  
PHILOSOPHY AND THEORY OF NEW MEDIA  
VIRTUAL AND AUGMENTED REALITY IN ART AND ARCHITECTURE



Ivana Uspenski<sup>37</sup>

### **CONSUMER MACHINES - IDIOGRAPHIC SIGNALS AS TARGET AUDIENCES IN CONTEMPORARY ADVERTISING**

The history of advertising is heavily tied to the history of audience studies. Starting from the hypodermic needle model (where the messages were uncritically addressed to everyone), over uses and gratification model (where people would be addressed with specific advertising messages based on their socio-demographic profile) and audience reception theories (where psychographics, emotions and emotional needs become crucial), advertising has eventually gave birth to an idiographic signals model, where no human is really targeted, but our respective digital personas, rather. And by digital persona I mean a digital trace, a palimpsest one leaves behind when interacting with messages within an online world. Most of the advertising success measures are consequently done not against real people, but against their digital personifications. Therefore all the optimization measures, how we produce creative advertising messages, what they look like and how they are deployed is also defined accordingly. But let us ask ourselves, does this really matter? As ultimately, maybe our digital personas are the ones making the purchasing decisions after all.

**Ivana Uspenski**, media theorist and advertising professional, lives in Dusseldorf holding a position of a Media Director with the Mindshare advertising agency. She has started her career in radio, moving to advertising in 2001, cooperating mainly with leading international agencies: Lowe Idols&Friends, Initiative, OMD, PHD and Mindshare. The projects she authored received prestigious awards, including a Bronze Lion at the Cannes Advertising Festival, Deutschermediapreis, Plakadiva, Silver Hammer and many others. Ivana also holds a doctorate in Arts and Media Theory, received from the University of Arts in Belgrade. She has participated in numerous international conferences and authored numerous white papers, some of which being: "Hypertext as Internet Textuality and Cybertext Reading Models", "The Theory Fascinations or Towards a new Theory of Visual Arts and Culture", "Mass Intelligence and the Commoditized Reader", "Shared in Confidence: A Machine to A Machine", "The Memory of the Holocaust and the New Hyper/Cyber Textuality".

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Ewa Łukaszyk<sup>38</sup>

### **EMERGENT TOPOLOGIES: TRANSCULTURAL SYMBOLIC SPACE AND ITS ARCHITECTURAL TRANSLATIONS**

The emergent topology of the symbolic space results from the interference of various cultural codes in the peculiar conditions brought about by the globalization. It is possible to translate this abstract concept of symbolic space into actual, i.e. urbanistic and architectonic spaces. What is more, such a translation is a crucial element in city planning dedicated to new global centres; it is also required while creating spaces dedicated to institutions inscribed in their tissue, such as the transcultural museum as an institution hosting and mediating the interference of various interpreting codes, rather than a system of cultural memory.

The first part of this essay presents the basic problem, i.e. the emergence of a new level of symbolic complexity, beyond “cultures” as we understood them traditionally. This new complexity is due to the interference of various cultural codes in the individual consciousness of the inhabitant, in the interaction between the inhabitants, and finally, in the macro-space of the city, as well as its specific micro-spaces such as museums. The concept of emergent symbolic complexity is referred, in the first place, to the “knots” created around the central, defining void.

The conclusive step is to stress the importance of the void in constructing “knotted” spaces. I sketch the idea of the “empty centre” and the “pin-wheel” as a model of whirling dynamics associated to the central emptiness as a possible solution to the problem of translating the transcultural symbolic space.

Born in 1972; cultural theorist and critic, comparatist, author of approx. 200 scholarly contributions, including 5 monographs. Professor at the Faculty “Artes Liberales”, University of Warsaw; coordinator of the Commission of Transdisciplinary Humanities. Interested in relations between the theoretical discourse in humanities and the visual arts, topological inspirations for art and humanities, as well as other borrowings from mathematics and complexity theory. Currently working on a theoretical structure for the field of transcultural universalism, i.e. the dimension in which individual thinkers and creators transgress the imitations inherent to their cultural inscription. This work consists thus in exploring potentialities of experiencing and communicating beyond any particular culture.

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Vera Mevorah<sup>39</sup>

### **DIGITAL CULTURE: FROM INTERNET TO POST-INTERNET ART**

From the moment Internet was marked a truly global phenomena, idea of digital culture couldn't be separated from concepts of cyberspace and cyber culture. Art practices from the beginning of the 1990s until today have been actively involved in dealing with challenges of information society especially within fields of Internet and Post-internet Art. By analyzing the main characteristics of these art forms this paper sets to map the distinctive elements and courses of digital culture, contributions of art discourses to development of such culture, as well as positions of the Art World within it.

Key Words: Internet, Digital culture, Cyberspace, Art

**Vera Mevorah** (1987, Belgrade, Serbia) PhD. Her PhD research was concentrated in the area of Art and New Media Theory, under the title *The Internet and Art in Serbia* from 1996 – 2013. She was engaged at the Faculty of Music Belgrade as a Teaching Assistant on two courses: Applied Aesthetics 1 and Theory and Practice of Media in Musicology. She has published papers in local academic journals and had participated in academic conferences and projects. Her research interests include: art theory, new media theory, Internet, digital humanities, new musicology, holocaust studies and post-colonialism.

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Nora Lefa<sup>40</sup>

### CONCEPTUALITY IN VIRTUAL REALITY

Twentieth century art favors an aesthetic no longer oriented to beauty (which is associated with harmony and unity), but to “sublime”. Immersion by itself is a triumph of the experience the sublime offers over a detached viewpoint of the object-artwork; it mobilizes the entire human body seeking to offer a full experience, which is essential for the artwork to move us; it can fill us, though, with awe and make us weak-willed beings that accept without criticism the value system and the ideological choices inherent in the artwork. Virtual worlds are increasingly seductive, and people immersing in them end up perceiving reality through the lenses of virtual reality; and wanting to create a reality resembling virtual reality. The current paper attempts to investigate how it is possible to achieve a kind of immersion that allows for a full experience not marginalizing thought. It will provide an in-depth analysis of the nature of immersion, and of the means used to achieve it. This will help highlight which kind, and which “quantity” of immersion has to be sought for, in order not to provoke adverse and unwanted results, such as the creation of the feeling of uncanny, or create empty signifiers, that make us lose interest in the artwork.

Sample projects respecting these guidelines, and using restricted means of representation, will attempt to visualize the claim that one’s individuality while immersing in the virtual environment may be retained, while allowing for deep and rich reading real art offers.

Degree in Architecture (University of Patras, Greece). Masters Degree (MA), Arts et Technologie de l’Image Virtuelle (Université Paris 8 and Athens School of Fine Arts). Masters Degree (MSc), National Technical University of Athens. Licenced Architect. From 1992 to 2005 she has worked for and with many renowned architects in Greece (most notably Manos Perrakis). Her artistic and research projects have been presented in venues and international exhibitions in Athens, Mykonos, London, Paris, and Sarajevo, notably *Sarajevska Zima*, and *Futur en Seine*; she has presented papers in several international conferences.

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Ewa Niedziałek<sup>41</sup>

### BECOMING-MEDIUM – THE EXHIBITION AN IMAGINED MUSEUM AS A CASE STUDY FOR REFLECTION ABOUT OF NEW MEDIA

In the article the exhibition An Imagined Museum will be analysed through the media ecology perspective, showing how it embraces the innovation not by multiplying the surfaces of flat, digital screens, but at the very core of “medium” – at its processual and mutable nature, always calling for new connections. It shows that an institution of a museum may evolve not by making alliances with technology, but becoming one itself. In order to do it, it has to engage, or even surrender itself to the process of unfolding the subversive nature of art through the creative encounter with the singular viewer.

The storytelling aspect, based on memory and connection, is the strongest part of the exhibition. It allows it to combine variety of elements (performances, manifesto, special newspaper and digital tool inviting users to make their own Imagined Museum), but most importantly, it invites a viewer to experience the specific kind of immersion inscribed potentially in every artwork. Thus, it reveals active and mutable character of art, that goes beyond delimiting, institutional walls of a museum. To analyse the exhibition An Imagined Museum I will use the ecosophical thought of Felix Guattari, as well as the writings of Andre Malraux and contemporary researchers of digital museum.

**Ewa Niedziałek** – PhD candidate of cultural studies at the Faculty of “Artes Liberales”, University of Warsaw. In her research she combines comparatist approach to literature and cultural activity with the new media analysis.

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Daliborka Mihajlović <sup>42</sup>

### **THE INFORMATION AGE OF IMAGE, ITS SUBJECTION TO POLITICAL, CONSUMER FORMS OF CULTURE AND INTERACTION OF IMAGE AND TEXT IN CONTEMPORARY MEDIA**

The attached study uses analysis as the main method to examine the influence of image through mass media in culture, and its role in social mobility and relocation of visual arts. From a philosophical standpoint, this study questions the fact that image becomes a universal model for transcending language barriers and that it has a great influence on socio-political changes, and changes in the psychological structure of an individual. It is my intention to use empirical-analytical method to analyse the questions of the development of civilization and the necessity of reaching image culture and overall visualization for the purpose of what we now call virtualization. I question the rhetoric of image without the influence of the textual, linguistic part. This study basically relies on the research of W.J.T. Mitchell and his question: "What does image actually want" and the fact that mass media use images as their primary tool. The research also deals with the amount of influence global culture and the omnipresence of certain images and symbols of the popular, politicized consumerist culture have on the boundaries of social affiliation and on the declining significance of language spoken by certain social groups.

Key words: image, language, politics, society, globalization, philosophy, text, typography, information.

Born in 1980. Currently accepted for doctoral studies HBK Braunschweig, Germany. Master Communication Arts Visual argumentations HBK Braunschweig, Germany. Graduated at the Faculty of Applied Arts in Belgrade. Worked at different author and cooperative projects within Kibitzfensta international organization for artistic communication between German speaking artists and artists from the east Balkan staying in Germany. Team work on the visual and topographic identity of the Project Häuser, Vögel, Reisen exhibition, Halle Sale, Germany. Worked on the project as an Illustrator Erberkässe award nominee Düsseldorf. DAAD scholarship for master studies at HBK Braunschweig, Germany. Attended school of Illustration, Italy. Personal and group exhibitions in Serbia and Germany.

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Ivana Bajšev <sup>43</sup>

### **THE INFLUENCE OF GLOBALISATION AND THE NEW MEDIA ONTO EDUCATION AND LEARNING**

Contemporary, so called "digital" culture, brings about some important changes in the different spheres of life. Exponential growth of available and desired information and skills puts education and learners into a crucial and a dominant position of great responsibility. Educational system must constantly adjust to the changes in social environment, with the highly turbulent development of contemporary technological solutions, and ever more complex and unpredictable transitions. The effect of these transitions onto all aspects of human life and work is constantly gaining importance. Such intensity and unpredictability of changes are causing the emergence of new paradigms that are radically reflected in the educational system. Information society is characterised by the great amounts of new knowledge in which the processing and the transfer of information are based on contemporary technological solutions and the methods of information age. Information-communication technology, integrated into schooling system and teaching practice, offers an array of possibilities that can modify learning and improve the possibility of teaching. By popularising the Internet, its expansion, at the moment when it has completely become a part of our everyday lives, distance learning concept marks a great saving in both time and funds. Distance learning is based on using contemporary computers and communication technology with the aim of performing educational programmes through electronic means, most often via the Internet. Electronic learning encourages pupils to practically work with various technologies. This way, pupils not only receive information about the object of their learning, but also acquire additional skills and knowledge about using different technologies. All that enables them to reach and sustain the literacy level mandatory for the 21st century. Education is the essential link of a society whose main role is to transfer the knowledge necessary for the successful and efficient participation in society maintaining and development. The key for effective planning and projecting, when it comes to technology, is the balance between the educational needs and the technical possibilities of society.

**Ivana Bajšev**, born on June 11, 1990, in Novi Sad, received her BA degree in pedagogy at Faculty of Philosophy, University of Novi Sad, in 2013. In 2014, she received her MA degree in the same field, with the GPA of 10.00, she enrolls to doctoral studies and is hired by the Faculty as a graduate student instructor. Her research is mostly focused onto the connection of information-communication technologies and education. So far, she published a paper entitled "The influence of Facebook onto the everyday life of high school pupils", and her two papers have been accepted for publication in the "Pedagoška stvarnost" professional journal. She is constantly working towards her further professional and scientific development.

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Danica Stolica <sup>44</sup>

### THE PERFORMATIVITY OF CYBERSPACE

In this paper I shall analyse the performative features of the cyberspace. By mapping and interpreting changes in the time-space paradigm produced by digital procedures Mark Hansen has described digital interface-vision as *haptic spatiality*, while a long time ago Marshall McLuhan proposed a theorem of the "acoustic space" (initiated in the age of electronic media). Traditional live and analog – linear-successive observation is now replaced by digital, simultaneous and multiperspectival, which leads to the appearance of extended observation and profound and prolonged perception of temporal-spatial paradigm. The digital image is processual, constructed. As Wolfgang Ernst explains "computer-generated aesthetics is closer to that of processual diagrams than to figurative phenomena within the audiovisual regime." Observation of the digital performance in the cyberspace teach us how to relate and/or create a sensual (haptic) relationship with a machine (by clicking on a portion of the image, zooming, initiating different operations through a hyperlinked connections, etc.) and how to adapt to a new sensory experiences. For a case study I shall use Dragan Zivadinov's *Cosmokinetic Cabinet Noordung Theatre* performance "Biomechanics Noordung", in which, as Marina Grzinic elaborates: "Zivadinov inspects the kinetic conceptualizations of new technologies and elaborates on issues of simulation, simulacrum and the cyborgs/cybernetics/cybernauts. The time-and-space paradigm takes on a central role in his performance, as does the problem of the *subject* as an actor and performer (...) *within the cyberspace* where 'the actor has become a terminal, a final location of numerous networks', a transpositional cultural body – cultural agent, who is presenting and performing the reconstruction of the previous cultural data within a current global structure of database.

I was born in Belgrade, Serbia. I received Bachelor's degree in Performing Arts (Acting) at "The Academy of Arts" in Belgrade in 2010, and Master's degree in 2012, in The Interdisciplinary Theory of Arts and Media, at The University of Arts in Belgrade. Currently I am at the third year of PhD studies pursuing the same program – The Interdisciplinary Theory of Arts and Media. Until 2009, I was performing at the number of theatre scenes in Serbia, as well as in Spain and England. As an assistant for acting, stage movement and diction, I was working with prof. Nebojša Dugalić from 2010/2013 on various projects. In 2011/2012 I created a curriculum for the course of Media studies, at "The FIM Faculty" in Belgrade, Department of Creative Industries. Currently I am an assistant professor at "Faculty of Diplomacy and Security" in Belgrade, lecturing Communicology, Debate and Public speaking and Psychology of movement.

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