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Summary Review

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Krystyna Januszkiewicz
Editor in Chief

From the Editor

This year's Pritzker Prize for Shigeru Ban is not only the promotion of creativity aimed at the sustainable development of our planet. It is also turning attention to the humanitarian role of an architect related to the threats resulting from climate changes on Earth. This problem, although it is not brought up very often, opens the second issue of Archivolta this year, highlighting the implementation of the Open Source idea in architecture and its design.

The integration of science, art and digital technology in pursuance of sustainable urban development is exemplified by the design center "Dongdaemun" (DDP) in Seoul by ZHA, opened in March this year. It is the first South Korean public utility object, manifesting the advantages of using digital technologies. The expression of the efforts to meet the needs of an emerging information society in Europe is Mediatheque, in historic urban fabric, honoured in the contest LEAF Awards 2013. The rapid development of digital tools and ease of design raises the question of the limits of human imagination, especially in relation between Nature and architecture, in terms of achieving eco-efficient architectural solutions. In addition, the issue of creating immersive environments and design experience is dealt with as well. *We are also presenting a comprehensive coverage of the international eCAADe conference and workshops, held in Poland for the second time.*

Agnieszka Janowska

Shigeru Ban Named Pritzker Laureate 2014 pp. 10-11

The Hyatt Foundation, which sponsors the Pritzker Architecture Prize, has announced Shigeru Ban as the recipient of the award for 2014. Since opening his firm, Shigeru Ban Architects, in Tokyo in 1985, Ban (who now has additional offices in Paris and New York) has followed a bipartite career characterized both by inventive, socially conscious responses to emergency relief situations and a varied modernist approach to private, institutional, and commercial projects. The Pritzker jury, seemingly mindful that, in earlier times, the award, which began in 1979, tended to go to glamorous design types (Philip Johnson, Richard Meier, Richard Rogers, Norman Foster, Renzo Piano, etc.), cites Ban for his "contributions to humanity" as well as excellence in design. Ban's efforts have "expanded the role of the profession," the jury notes, due to the laureate's interaction with governments, public agencies, philanthropists, and local communities. Ban explains "I started working in disaster areas because I was a little disappointed about my profession. Architects mostly work for the privileged (...). I thought architects should have more of a social role. If people lose houses in a disaster area, there is no architect to help."



Maciej Janowski

Shigeru Ban - Ecology for Mission pp. 10-11



This year's winner of the Pritzker Prize Shigeru Ban declares that the works of his life are temporary facilities for refugees and victims of natural disasters. People are deprived of everything as a result of natural disasters and refugees Ban tries to give at least temporary shelter, to create basic spaces for living and working. He uses the assumptions of ecological architecture, but adapted to the circumstances, local and cultural conditions in which comes to his work. For him ecological design is not a goal in itself, but a useful set of tools whose use does lead to an increase in quality of life and also protects them in the real, in fundamental sense of the word. The projects of Paper Log Houses for Japan, Turkey and India and container housing in Onagawa provide basic needs of the people and gradually expanding them to the needs of a higher order. Ban draws to its activities both local communities and the residents themselves, using their experience and skills. He do not forget about the fact that ecology is to serve man and not vice versa, can be cheap and easy to use. The beauty and functionality of Ban's architecture is the result of its limitations, and not from the application of advanced technologies and materials.

Borys Siewczyński

Architecture and the idea of Open Source pp. 17-20



Development of information technologies, followed by the need of free access to knowledge and ideas formed the basis for initiatives such as the *open source* movement, intended to provide free access to the intellectual content and conceptual solutions. The article describes examples of initiatives related to the implementation of the *open source* principles in the field of architecture: theoretical concepts allowing the construction of a digital environment, serving the use of collective and participational designing, as well as contemporary examples of practical implementation of the idea of *open source*. The humane and altruistic aspect of using of the philosophy of intellectual open solution was emphasized. The described projects have a chance to make a positive contribution to the process of shaping the architectural environment, in the context of sustainable development.

Krystyna Januszkiewicz

Dongdaemun Design Plaza & Park w Seulu pp. 22-33

by Zaha Hadid Architects



Inaugurated on 21 March 2014, the Dongdaemun Design Plaza (DDP) by Zaha Hadid Architects provides Seoul with a hub for art, design and technology, plus a landscaped park that serves as a much-needed green oasis, and a public plaza linking the two. The building opened to mark the start of Korean Fashion Week, but is also hosting five art and design exhibitions, alongside a collection of Korean art from the Kansong Art Museum.

"The design integrates the park and plaza seamlessly as one, blurring the boundary between architecture and nature in a continuous, fluid landscape," said Zaha Hadid Architects in a statement. The complex is made up of eight storeys, of which four sit above ground level and four are set below the plaza. Facilities include exhibition galleries, convention and seminar rooms, a design museum, and a library and education centre. The DDP is an architectural landscape that revolves around the ancient city wall and cultural artefacts discovered during archaeological

excavations preceding DDP's construction. These historic features form the central element of DDP's composition; linking the park, plaza and city together. The building features a shapely facade made up of 45,000 aluminium panels of varying sizes and curvatures. This was achieved using advanced 3-dimensional digital construction services, making DDP the first public building in Korea to utilise the technology.

Nina Sołkiewicz-Kos

Mediatheque at Mont de Marsan, Francia pp. 35-38

by Archi 5 (LEAF Awards 2013)



The need to improve the quality of life in the city leads us to constant changes within our environment. Various activities are to ensure our comfortable existence in harmony with the historical past and contemporary cultural trends of urban space. Architectural Studio "archi 5" attempted to create a cultural space within the historic urban area. The implemented Mediatheque project has become a powerful symbol of the cultural space in Mont de Marsan cultural space. Written in the context of the environment, creating a new quality of space, the building became the winner of the prestigious annual "LEAF Awards". The jury's verdict highlighted a unique proposal of the city square design which introduced contemporary elegant aesthetics to the historic layout of buildings.

General accessibility and the attractiveness of the new site encourage the city residents to interact with the manifestations of culture, art and social activities. As an organized cultural space Mediatheque is an important place shaping the environment and the character of the city area.

European 12 | KALMAR see land (ed.) p. 40 **– international competition**

An exhibition of all the winning projects will be set up for the Inter-sessions Forum in September 2014 in Pavia (IT), which will give municipalities and young teams from different countries the opportunity to exchange at a European scale.



The 13 juries for the 12th session of EUROPAN have made their choice amongst the 1,762 projects submitted for the competition on 51 sites in 16 different European countries. The winning teams are officially announced on December 13th, 2013. The juries named 106 prize-winning teams, 43 winning teams, 63 runner-up teams and 64 special mentions. The 106 winning teams are based in 19 different countries – 50% of them won in their country of residence; half the teams hence won abroad, confirming the willingness of young professionals to tackle a context outside their experience. The teams that were most motivated to compete abroad come from Spain (15 teams out of the 21 winning teams based in Spain won a prize on a foreign site), France (12 teams out of 25), Italy (10 out of 14) and the Netherlands (5 out of 11).

Second Prize Ex Aequo for architects from Poland:

Konrad Basan, Ewa Odyjas, Agnieszka Morga, Kuba Pudo

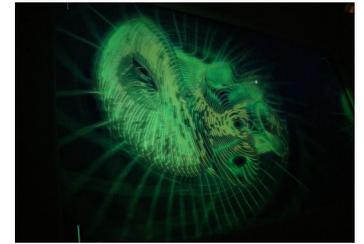
The main idea of the design is an adaptation in its spatial and social aspects, including the existing natural conditions and probable scenarios adjustment. Each topic is specified at regional or local level. Voronoi diagram is a method of spatial subdivision. The regional level layout is based upon nature: native terrain preservation and emphasis, changing landscape adaptation, rural nature maintenance. Simultaneously it is supported with some built environment principles: zone planning proposals, water transportation spots, waterfront-parallel land transportation system, business areas, agricultural hubs, existing housing expansion, regional service network. The social

aspect of the proposal brings: age-based housing profile with 1500 dwellings and pro-community nest type habitation. Analogical spatial setup at the local level once again is inspired by nature. It is reflected in self-adaptation to the water level rise scenario, waterfront public use and archipelago structure preservation. The layout concept is as important as some built environment proposals: clear zoning, native terrain based housing, maximum 200 inhabitant urban cells, topography-based urban interior, densification of the transportation network, pedestrian and automotive routes integration and finally common space as a public square and a water harbor. At this level the social aspect is emphasized by not only 380 dwellings and natural new communities, but also by large scale open fields.

Krystyna Januszkiewicz, Adam M. Szymiski

The limits of human imagination pp. 41-46

Nature and Architecture in the era of digital technology



The issues concerning the relationship between Nature and the architecture in the era of digital design tools are being dealt with. The patterns provided by Nature have been an inspiration for building forms since time immemorial. These forms have represented a kind of a bridge between men and their natural environment. Today, we learn from Nature about the efficient management of energy and material, we find effective engineering solutions and structural designs for new building materials. The paper presents here how to use digital technologies and techniques to achieve a higher level of functionality and environmental efficiency in architecture. Starting from Fuller's designing concept, as Nature does, today we use the knowledge from other fields (biology, physics) in order to explain the principles of computer processes which imitate the natural form-shaping and adaptive processes. It is attempted to adopt these processes in the architectural design. In this context, the question of the limits of human imagination appears.

Jakub Marcinowski

Zbigniew Bać for the protection of spatial planning p. 47
and development of architecture



On May 26th, 2014 the President of Poland Bronisław Komorowski decorated distinguished artists and animators of culture: filmmakers, actors, directors, composers, museum experts and architects. Professor Zbigniew Bać was among the 38 honored people, and he received Officer Cross of the Order of Rebirth of Poland for his outstanding contribution to the protection of spatial planning and development of architecture. Zbigniew Antoni Bać was born in Rzeszów, is an architect, professor at Wrocław University of Technology and University of Zielona Góra, the founder and leader of the HABITAT School of Science at the Faculty of Architecture of Wrocław University of Technology, as well as the Chairman and the Chairman of the Committee of Architecture and Urban Planning of the Polish Academy of Sciences, is a proof of respect for Professor enjoys in the scientific environment of architects. Zbigniew Bać is one of the few in the country professionals and researchers in the field of design and housing environmental protection in the interdisciplinary perspective.

Krystyna Januszkiewicz

The surface as new cultural conditioning
Immersive environments and experience design pp. 48-53



For an information society, dominated by electronic media, the surface becomes a new interface between what is physical and what is virtual.

On the one hand, the blurring of differences between culture and commercialism is being revealed, and on the other - new intellectual substrate is emerging, based on knowledge and research. Two aspects, significant for the philosophy of contemporary culture, are being presented, i.e. immersive environments and *Experience Design* in relation to architecture as a carrier of cultural values. In the conducted discourse, the culture of media and the culture of architecture designed in synthetic digital spaces are referred to.

Experience Design is presented as a new creative trend that is based on knowledge of numerous disciplines such as cognitive psychology and the psychology of perception, linguistics, scientific cognition, architecture, environmental design, industrial design and design of information and visual communication in conjunction with the technique and technology.

Adam Jakimowicz

eCAADe for the second time in Poland pp. 56-61

eCAADe Regional Workshop Białystok 2014, 9-10 May 2014



The ECAADe (Education and Research in Computer Aided Architectural Design in Europe) International Workshop and Regional Conference titled “Hybrid Environment for Architecture” was hosted on 9 – 10 May by the Faculty of Architecture, Białystok University of Technology.

It discusses the issue of hybrid design environments application in architecture. It is the cyclic event, and this year ECAADe granted the right to organize this to the Białystok Faculty of Architecture. The president of ECAADe, prof. Johan Verbeke from KU Leuven represents the organization at the event. There are representatives of the universities from Poland, Belgium, Austria, Denmark, Lithuania, Belaruss attending the workshops, as well as from several IT companies (Graphisoft, Procad, i3D, Bibus Menos, 3D Master). Łódź University of Technology and Podlasie Regional Chamber of Architects were the co-organisers of the event. The conference was formally opened by the Dean of the Białystok Faculty of Architecture, prof. Zdzisław Pelczarski. Media patronage is delivered by architectural magazine ARCHIVOLTA.

The workshops’ themes cover the scope of advanced technologies for architectural design: VR, parametric design, 3D scanning and printing, CAVE (the Faculty of Architecture of the Białystok University of Technology is the only school of architecture in Poland, having a full 3 walls CAVE installed). The workshops and the conference is the first scientific – practical event of this kind in Poland. It is chaired by dr hab. Aleksander Asanowicz and dr Adam Jakimowicz (from AuReLa lab, which is the unit of the Architectural Design Chair at the Białystok Faculty of Architecture) Website: <http://www.architektura.pb.edu.pl/>



WORKSHOP: multi-agent form simulation

Tutors: dr Gabriel Wurzer, dr Wolfgang Lorenz, Vienna University of Technology

WORKSHOP OUTLINE

Design can be seen as a flow problem. The architects’ hand produces an initial sketch by traveling through an information space containing, for each cell, the qualities that have been established during the initial analysis. The architect can either pick up some of these qualities in his design (i.e. requirement-driven design) or ignore them and produce only form (driven by aesthetics). For the workshop, we simulate this process using Agent-Based Simulation: Given an initial data matrix containing the results of the site analysis in the form of percentages, we seed a flock of agents

at specific spots in 3D space (e.g. on the surface of a center sphere or diagonally along the edges). By letting the agents travel through the data matrix according to rules (written in the NetLogo simulation language), we arrive at trails that can then be recorded and brought into a 3D software.

PARTICIPATION AND RESULTS

We had around ten workshop participants with no previous knowledge of programming or multi-agent simulation. Therefore, we had to initially bring a short tutorial, split into two parts:

- The initial data generation from site analysis, in the form of a short impulse lecture given at the begin of the day.
- The actual NetLogo programming intro, which took until midday.

Over the course of the afternoon, we applied this knowledge to elaborate a full-fledged simulator and transfer its results into a 3D modelling package. Students included their own behavioural rules into the agent simulator, thereby arriving at different forms. However, their success was somewhat limited by the steep learning curve they had just experienced, read: Their programming knowledge was still too little to be at ease with specifying any complex rules in a formal way. A second aspect to consider was that it wasn't "easy" to produce results in the way that our participants imagined; they would rather have to go fiddle with the rules and run the simulation to observe its results, which seemed a bit implicit for them. The workshop results (slides, tutorial programs, extras) were made available under www.iemar.tuwien.ac.at/?page_id=1299, which is a page where we want to also host further work in the matter of Agent- Based Design.

ACKNOWLEDGEMENTS

We want to thank the workshop organisers and supporting staff for having us in Bialystok. Likewise, we want to thank all participants for their work, it was amazing to see so many people learn such a non-trivial subject matter so quickly. (Gabriel Wurzer, Wolfgang Lorenz)

WORKSHOP: parametric urban design

Tutor: Nicolai Steinø, Aalborg University

The workshop offered an introduction to the basic principles of parametric urban design as well some first hands-on experiences. Based on an introductory online lecture and an online text, the workshop was organized as a sequence of small exercises in which the participants designed and scripted site designs, building envelope designs, and facade designs respectively. During the workshop, the participants worked with hand-drawn sketches as well as with the advanced procedural modeling software CityEngine. None of the participants had any prior knowledge of the software, and most of them had no prior programming experience. Nonetheless, most of the participants managed to write partially useful scripts, and four managed to complete their scripts, all in one day. While the most important result of the workshop was the participants' new knowledge of parametric urban design, the visible result was a site plan in which three different building envelopes were fitted (none of the participants working on facades managed to complete their work). Given the challenges of the workshop, most of the 11 participants showed much dedication and endurance and performed impressively well. A sequence of the successful results, adapted with gradually changing parameters can be seen in the following pages. An animated version can be seen at <http://bit.ly/1jjOawk> (Nicolai Steinø)



WORKSHOP: coding an idea

Tutors: dr Anetta Kępczyńska Walczak, Sebastian Białkowski, Lodz University of Technology

The group of 12 architecture students took part in the intensive 1-day workshop, during which they were exploring the digital tools that support the design process. The design task that was involved during the workshop was to design a new spatial structure within the existing main hall of the Faculty of Architecture in Bialystok. First, students got acquainted with the 3D modeling tool - McNeel's Rhinoceros, that is based on Nurbs and curves modelling. The second part of the workshop was focused on Grasshopper 3D, the Rhinoceros add-on, the graphic linear programming tool. It enables to create the user's own algorithms in a user friendly graphical interface. The research issue that was explored during the workshop was the idea of the dynamic surface relaxation. The students worked out their own digital tools that enabled them to simulate



the experiments with the forms that were designed. The script consisted of two parts. First, based on the schematic set of curves, the algorithm built the initial spatial structure. Then, in the second stage, the geometry was given some physical properties. Each vertex of the designed structure was assigned with the vector imitating the influence of gravity, and edges were assigned a behavior of a spring. The models built in this way were explored with the assigned properties. The process was to achieve the self-optimizing structures.

Thanks to the generative tools, the students had the opportunity to test many different options of the forms they were designing and to evaluate the variants. At the end of the workshop the results were explored in full scale CAVE environment.

WORKSHOP: design 3D scan sketches

Tutors: dr hab. Aleksander Asanowicz, Tomasz Matys
Białystok University of Technology

Computers in designing were usually considered as a tool for preparing technical documentation, storage and managing information, coordinating of flow of design process, modelling and all kind of visualisations (renderings, animation, and VR mode). The problem of creative usage of computers was not the area of interest.

Even nowadays, at the early design stages, when an idea of the form is created, computer is not used very often. This statement is the start point of this workshop.

We are proposing to treating computer as a partner in the creative process where graphic computer transformation allows for a fuller exploration of design metaphors, for the metaphorisation of the process of form creation. The workshop will focus on exploring the possibilities of 3D scanning (scanners that will be used – Artec Eva and NextEngine) and rapid preparation of 3D models for usage in 3D visualisation, 3D printing and CAVE environment. We have used a 3D scanner to transcribe the formal surface qualities of handmade models directly to the computer. The transposition of the digital spaces of spatial forms makes their later transformation possible. It is possible to scan not only the handmade models but also other forms, which then become an inspiration for creating an architectural form. Thanks to CAD software, 3D forms may be moulded or carved. The result of the designing was presented in CAVE space and printed. The availability of 3D scanning, VR presentation and 3D printing affords a greater freedom of movement between real and digital modelling environments.

The workshop shows that digital media offer the possibility to create spatial forms in new way. The possibilities of the computer, its form-creating potential and interactive abilities, together with the presentation of what was created and also of the entire process of creation, describe to us the areas where we can find the beginning of some new conventions. (Aleksander Asanowicz)



WORKSHOP: CAVE experiments

Tutors: dr Adam Jakimowicz, Bogumił Sawicki
Białystok University of Technology

„Cave Experiments” workshop was mainly focused on testing the possibilities of this technology to be applied in architectural design.

The potential possibility to create and modify objects in real time in CAVE was the issue that was the most discussed among the workshop participants. The intensive experiments that was supported by the specialists from the i3D company from Gliwice, enabled participants both to test available software platforms (Quazar3D, Unity) and intensive exchange of opinions among the CAVE visitors and users. Conclusions can be framed into a few points:

- actually the market lacks the user-friendly and intuitive in use VR software that would be oriented on architectural design,
- the effective application of CAVE technology still requires a close cooperation between the coders, graphics and end-users, as this makes the whole process too indirect and difficult
- there is a broad field to produce new solutions for CAVE to be applied in creative industries, which require transdisciplinarity (design, coding, technology) – through both user oriented adaptation of the already functioning open source solutions (RUIS) and making the extensions or domain profiled versions of VR packages that already are available on the market;



Klaudia Grygorowicz-Kosakowska

Lech Frąckowiak at the Museum of Caricature pp. 72



On 5th May 2014 at the Museum of Caricature in Warsaw, the opening of the exhibition „Jokingly, half-jokingly and quite seriously” took place. We had the honor to see remarkable works of the eminent Polish graphic artist Lech Frąckowiak. The author dedicates his efforts to drawing, painting, editorial and applied graphics; he has numerous prizes at variety of competitions and has taken part in prestigious exhibitions in Poland and abroad. Thanks to his perfect technique, talent and extraordinary personality he is also an excellent educator. Lech Frąckowiak is a respected academic teacher at the Chair of Drawing, Painting, Sculpture and Visual Arts of the Faculty of Architecture at Poznan University of Technology. An important area of his activity are satirical and humorous drawings. As the author himself pointed out, the inspiration of his works is often a man and his secrets. In the artist’s opinion these secrets „are hidden in the human face, hand, gesture, body language, in the contact of two people”. We invite you to discover human secrets through the visions of outstanding artist. The exhibition will last till 15th of June 2014.

Katarzyna Słuchocka

Tomasz Matuszewicz -The Europe Project pp. 73-75



Seeking its proper place in Europe and common thematic ground, European integration: a question raised on several dimensions.

The Poznań painter and sculptor Tomasz Matuszewicz commences a dialogue with European-ness seen through the prism of art. Typography and geometrics – seemingly two worlds apart – are a pretext for narrative reflections on the timeless values contained in a work of art. The Roman capital letters – the oldest form of the majuscules, from which all the later Latin script types derive, a synthesis of simplicity and elegance – interpreted architecturally and draped in colours of various European flags, take on a different meaning. They invite to active reception and participation in co-creating a sort of monument called Europe. Simple, geometrical pillars supporting the roof, on which the inscription EUROPE is to be seen.

It gently cuts across the entire space of the temple and creates a composition linking the concept of form, colour and the human being; it also symbolizes social and cultural INTEGRATION. Moderation and restraint in the work of the artist are a kind of blackboard on which each of us can leave his or her individual mark. A mark in the complex and rich culture of the European Union; in the context of art, engagement in this culture means being interested and possessing the desire for positive development.

Krystyna Januszkiewicz

Transgression of Reality - Transgression of Complexity pp. 78-79
between order and chaos



On April 4, 2014, at the Wozownia Art Gallery in Torun, the opening of Paweł Rubinowicz's exhibition “Images of Complexity” took place. The works presented at the "Images of Complexity" exhibition show the way how findings of a scientific research can be used in visual arts. According to Paweł Rubinowicz, the motto and direction of artistic endeavour as well as their scientific interpretation comprise the ‘complexity’, a phenomenon which applies to complicated chaotic and emergent systems. During his research on urban development, Rubinowicz noticed that the contemporary theory of complexity can be understood in its abstract geometric dimension, as well as in reference to the structure of a man-made environment and his analysis of the way in which human needs are met.