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tomorrow

eCAADe 2018
Education and research in Computer Aided
Architectural Design in Europe

Lodz University of Technology
19th - 21st September 2018

Organisers:

Lodz University of Technology

Faculty of Civil Engineering,
Architecture and
Environmental Engineering

Institute of Architecture and
Urban Planning

When we consider the aims of research activities, design efforts and mastering towards ideal solutions in the area of digital technologies in the built environment, such as CAD, CAM, CAE, BIM, FM, GIS, VR, AR and others, we may realise the actual reason for that is to make life better, healthier, prettier, happier, more sustainable and smarter. The usefulness of undertaken studies might be tested and proved by the noticeable shared approach of putting humans and their environments in a central position: man and the environment, nature and design, art and technology...

Natural disasters and climate change, crime and terrorism, disabilities and society ageing - architects, designers and scientists active in the built environment domain are not able to eliminate all the risk, dangers and problems of contemporary world. On the other hand, they have social and moral responsibilities to address human needs and take up this multifaceted challenge. It involves a co-operation and, moreover, an interdisciplinary and user-oriented approach.

The complexity of raised problems should not discourage us, on the contrary, it should stimulate activities towards living up to human dreams of a better and sustainable tomorrow.

This calls for a revision of methods and tools applied in research, teaching and practice. Where are we? What are the milestones and roadmaps at the end of the second decade of the 21st century?

Do we really take the most of the abundance of accumulated knowledge? Or we skip to explore another undiscovered domains?

Proceedings Vol1   Proceedings Vol2   eCAADe 2018   CumInCad

KEYNOTES & HONOURABLE GUESTS

DAY 1: 09.30-10.30
Aula Major (0.4)

Developing HiLo: BIM for Geometrically Complex and Integrated Structures.

Tom Van Mele

Tom studied architecture and structural engineering at the Vrije Uni-versiteit Brussel in Brussels, Belgium, where he received his PhD in 2008 for a dissertation on the design and analysis of retractable mem-brane roofs. In 2010, Tom joined the Block Research Group, where his technical and computational developments have formed the back-bone of the day-to-day research and of multiple flagship projects, including the Droneport and the Armadillo Vault, both presented at the 2016 Architecture Biennale in Venice, and the NEST HiLo roof prototype completed in the Robotc Fabrication Lab in 2017. Tom is currently co-director and head of research of the BRG, and lead devel-oper of COMPAS, an open-source computational framework for re-search and collaboration in Architecture and Structures.

DAY 1: 17:30-18:30
Aula Major (0.4)

Between Critical Regionalism, Neo-vernacularism and Localized Modernism.

Krzysztof Ingarden

Architect. Born 1957, educated in Poland and Japan (MA degree in 1982, doc-torate in 1987, habilitation in 2014), started his career in Tokyo (1984-5) and New York (1986) where he worked in the office of Arata Isozaki and J.S. Polschek & Partners respectively. Professor at the Faculty of Architec-ture and Fine Arts, AFM Krakow University. The president of Ingarden & Ewý Architects. Graduated Faculty of Architecture, Krakow Polytechnics in 1982, doctorate in 1987, habilitation in 2014. Between 1983-1985 doc-torate internship in the School of Art & Design, University of Tsu-kuba, Japan; between 1984-5 worked in the office of Arata Isozaki, Tokyo; 1987 - in J.S. Polschek & Partners, New York. In the years 2003-2014 associate professor, since July 2014 professor at A.F.M. Krakow University, teaches architectural design at the Faculty of Architecture and Fine Arts (deputy dean in the years 2003-2011; dean since 10-2017). In the years 2010 – 2013 visiting external exam-iner at the Faculty of Architecture, Dundee University, Dundee, UK. Since 2002 - General Honorary Consul of Japan in Krakow, since 2015 member of Polish Academy of Arts and Sciences. In the year 2009 received the prestigious Honorary Award of Polish Architects Association. Winner of architectural awards in Poland and abroad. For the design of the Polish Pavilion at EXPO 2005 Aichi, Japan, was awarded the Gold Cross of Merit, in the year 2015 awarded Gloria Artis Medal for the Europe Far East Gallery in Krakow. Author of numerous projects, among other: ICE Krakow Congress Centre (2014),The Małopolska Garden of Arts (2012), Wyspianski 2000 Pavil-ion in Krakow (2007), Polish Pavilion EXPO 2005 Aichi, Japan, (2005), Japanese Language School by Manggha Muse-um, Krakow (2004),

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DAY 2: 09:00-10:00

Aula Major (0.4)

A Digital Twin for Cities: A Challenge of Bringing BIM and GIS Together.

Antje Kunze is a Solution Manager for BIM and Smart Cities at Esri Germany. She is focusing on what is needed to build smart, livable, and resilient communities and how innovative technology supports collaborative planning and decision making across scales and disci-plines.
Previously she was a co-founder and CEO of the ETH-Spin-off CloudCities, an online platform for publishing interactive 3D city models, and a researcher at the Chair of Information Architecture at ETH Zurich.
Besides her degree in architecture Antje has a background in com-puter science with a strong focus on urban modelling and simulation, participatory planning and information visualization.

Antje Kunze

DAY 3: 09:00-10:00

Aula Major (0.4)

Cultivating Next-GEN Designers.

Harlen Miller is an Associate Designer and practicing Architect at UN-Studio's Amsterdam office. He is the Lead Coordinator of UNStudio's Computational Knowledge Platform which develops digital strategies and customized tools for rationalizing complex geometry and building systems through computational, parametric and BIM modeling work-flows. Harlen joined UNS in 2012 after moving from Los Angeles where his design background was cultivated in film, narrative arts, and high-concept futurist thinking.

Harlen Miller

DAY 3: 14:00-15:30

Aula Major (0.4)

A Better Tomorrow?

Tom Maver is currently Research Professor in the Mackintosh School of Architecture at the Glasgow School of Art; previously he founded and Directed the world class R+D group ABACUS at the University of Strathclyde. He also founded eCAADe and CAAD Futures and is an Honorary Fellow of the Royal Incorporation of Architects in Scotland, the Design Research Society and eCAADe. He has lifetime awards from IBIPSA, BEPAC, ACADIA and SIGRADI. He holds the Esso gold medal from the UK Royal Society. He was older then; he's younger than that now.

Tom Maver

CONFERENCE INFORMATION

Certificate of Attendance

Your certificate of attendance is included in your conference package.

Coffee & Lunch Breaks

Coffee, snacks and lunch are included in the registration fee and will be provided during the indicated coffee and lunch breaks.

Conference Language

The official language of the Conference is English. No simultaneous interpretation will be provided.

Conference Team

Team members are present at the registration counter. Furthermore, **Conference Team** members are present in all lectures halls. Do not hesitate to approach them with queries - they will gladly assist you. You will recognise them by characteristic black T-Shirts.

Internet Access

The University provides free wireless internet access for eCAADe participants:
SSID: **eCAADe2018,** password: **best3caad3ever**
or
Eduroam / Eduroam2

Lost&Found

Participants can collect their lost items or deposit found items at the registration desk.

Smoking

Thank you for not smoking inside the conference venue. Smoking outside of the building is allowed Please use the ashtrays provided.

SPEAKER & CHAIRPERSON INFORMATION

If you are a Chairperson

- Please locate your session room in due time. Please be at your session room **15 minutes prior to the start of the session.**
- We may remind you that speakers need to strictly obey the time schedule.

If you are a speaker in a session

- Please locate your session room in due time. Please be at your session room **15 minutes prior to the start of the session.**
- We expect you to submit your presentation in due time directly at the session room - latest during the break before the respective session starts.
- Presentation time: **max. 11 min.**
- Due to the tight schedule in the sessions, it is not possible to connect your own presentation device. All necessary conference infrastructure is available in the lecture halls (video projection, WiFi internet connection, etc.).

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SOCIAL PROGRAMME

When collecting your conference package at the registration counter, you will receive vouchers and information on how to get to the location. All vouchers you will find inside your badge.
Please wear your name badge at all times during all the events.

WELCOME RECEPTION
Wednesday, 19th September 2018, starting at 19:00
Location: Pałac Poznańskiego
Address: 15th Ogrodowa Street
Transportation: Buses leave from CheckPoint immediately after Keynote session (no time to visit hotel).

For this event our host, Mayor of the City of Lodz – Hanna Zdanowska, will welcome us in the chambers of the so called "the Louvre of Lodz" – the most spectacular city palace Lodz can amaze you with. The Israel Poznanski's Palace – a Neo-Renaissance and Neo-Baroque styled urban residence of the most powerful entrepreneur of the XIXth century. The feast wouldn't be for your eyes only – but also for the palate – as we'll indulge ourselves with the live music and dishes to feel the spirit and joy of the golden prosperity times!
Please note: Student Registration excludes from participating in this event.

GALA DINNER
Thursday 20th September 2018, starting at 19:00
Location: Pałac Ksawerów
Address: 12th Szkolna Street, Ksawerów
Transportation: Buses leave at 18:20 from CheckPoint (no time to visit hotel).

For this event we will take you out of Łódź to the nearby small town – Ksawerów. We'll spend our evening in a magnificent suburban residence – an Oskar Kindler's Palace. Apart from the fine, end of the XIXth century architecture immersed in the garden greenery, we will pamper our senses with Polish traditional cuisine.
Please note: Student Registration excludes from participating in this event.

OFF-SHORE EVENING
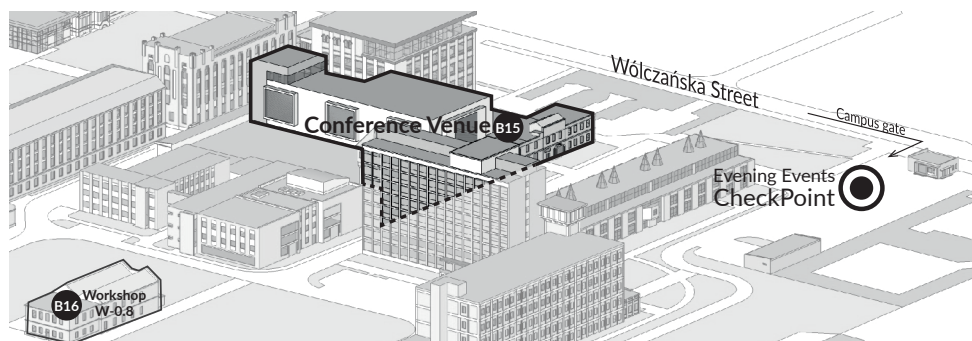**Thursday 21st September 2018, starting at 19:00**
Location: Confidential
Address: Confidential
Transportation: Buses leave at 18:20 from CheckPoint (no time to visit hotel).

"Tasting Polish Culture" - For this evening we will take you somewhere you haven't been yet (or have you already? Well, that's a puzzle!) One thing is certain – and it basically defines the life itself – expect the unexpected. While during this evening almost everything is possible... Will you dare?

Return transport from all of the events to the city centre will be guaranteed.

FLOOR 03

FLOOR 01

PhD Workshop
3.20

Council Meeting
3.20

Workshop W-0.6
3.03a

Workshop W-0.9
3.03b

Workshop W-1.3
1.05

Workshop W-1.4
1.05

Workshop W-1.5
1.04

Workshop W-0.2
1.02
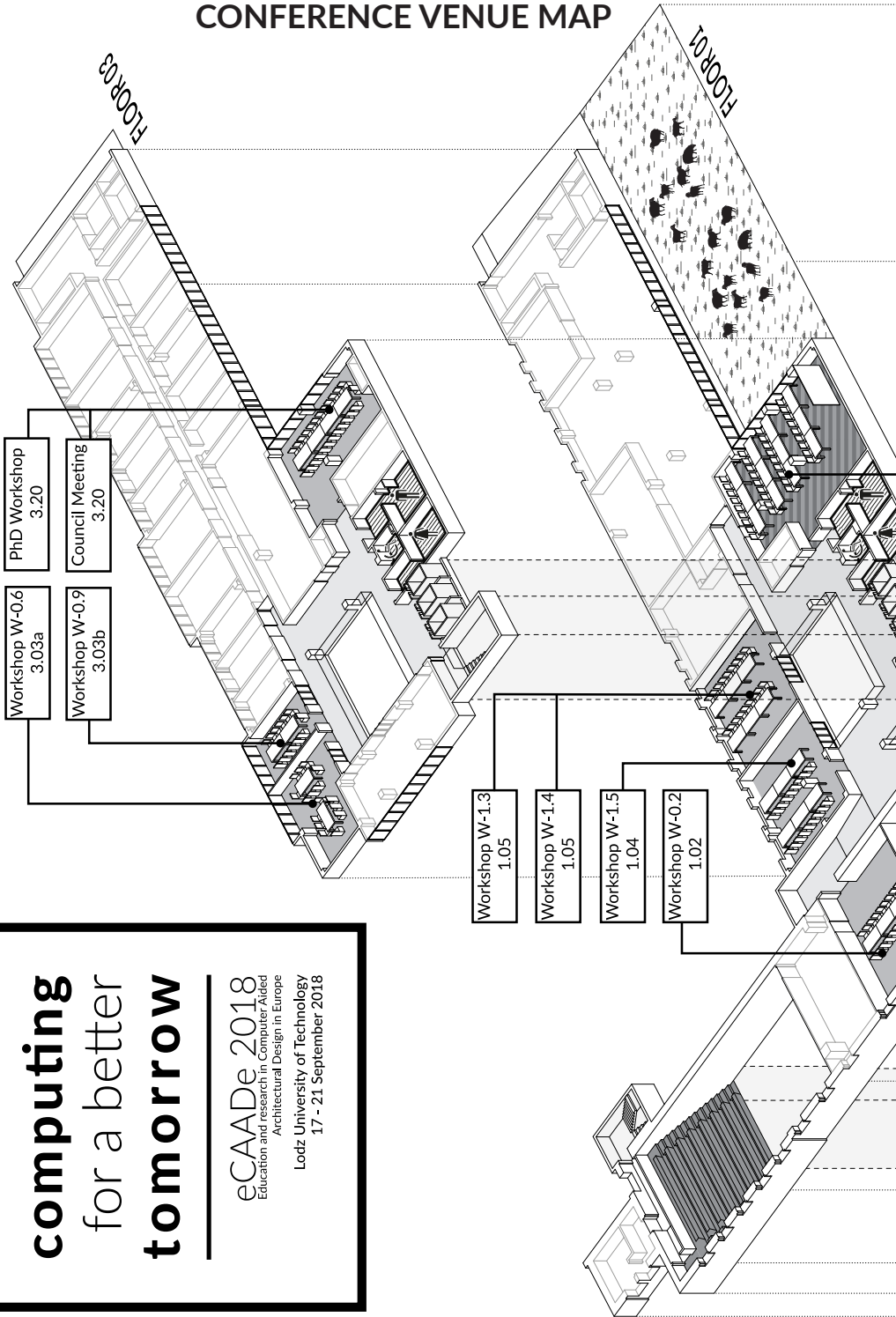
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eCAADe 2018
Education and research in Computer Aided
Architectural Design in Europe

Lodz University of Technology
17 - 21 September 2018

FLOOR 00

Comp LAB
1.12

Workshop W-1.2
1.12

Arena MAGICA
0.17

Workshop W-1.1
0.17

Workshop W-0.4
0.19

Workshop W-0.3
0.25

RECEPTION

Aula MAJOR
0.4

Aula MINOR
0.8

ENTRANCE
B16

WORKSHOPS ROOMS

SESSION AULAS

COMMON SPACE

COMMUNICATION

RECEPTION DESK

TOILETS
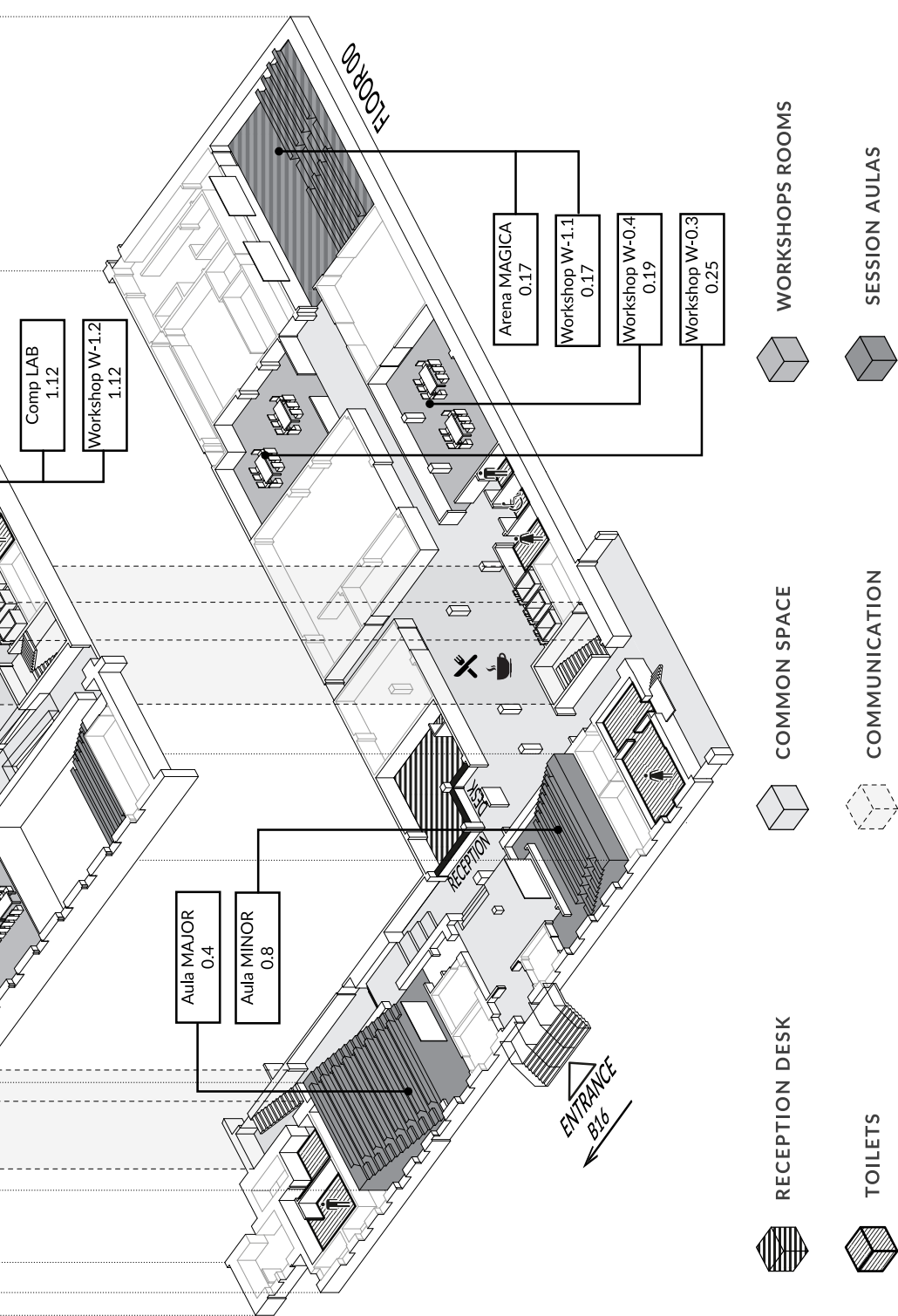
WORKSHOPS PROGRAMME

Monday, 17th September

8:45 - 16:30	Registration
9:00 - 13:00	Session 1
Room B16	**Form-Adapt: Using Adaptable Form-work for Fabricating Double-Curved Surfaces** Serdar Aşut, Friso Gouwetor, Jerzy Latka
Room 1.04	**Dynamo: Applications for Design and Optimization** Subhajit Das
Room 3.03b	**Contextualized Digital Heritage Workshop - Lodz** Danilo Di Mascio, Bartosz M. Walczak
Room 0.25	**Co-Design in HYVE-3D: Representational Ecosystem, Design Conversations and Knowledge Construction Activities** Tomás Dorta, Emmanuel Beaudry Marchand, Hadas Sopher
Room 1.02	**Non-manifold Topology for Architectural and Engineering Modelling** Wassim Jabi, Robert Aish
Room 1.12	**Application of Artificial Intelligence in Architectural Generative Design** Morteza Rahbar
Room 3.03a	**Beyond Genetic Algorithms: Understanding Simulation-based Optimization** Thomas Wortmann
13:00 - 14:00	Lunch break
14:00 - 18:30	Session 2
Room B16	**Form-Adapt: Using Adaptable Form-work for Fabricating Double-Curved Surfaces** Serdar Aşut, Friso Gouwetor, Jerzy Latka
Room 1.04	**Dynamo: Applications for Design and Optimization** Subhajit Das
Room 3.03b	**Contextualized Digital Heritage Workshop - Lodz** Danilo Di Mascio, Bartosz M. Walczak
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Room 1.12	**Application of Artificial Intelligence in Architectural Generative Design** Morteza Rahbar
Room 3.03a	**Beyond Genetic Algorithms: Understanding Simulation-based Optimization** Thomas Wortmann

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WORKSHOPS PROGRAMME

Tuesday, 18th September

8:45 - 16:30	Registration	
9:00 - 13:00	**Session 3**	
Room B16	**Form-Adapt: Using Adaptable Form-work for Fabricating Double-Curved Surfaces** Serdar Aşut, Friso Gouwetor, Jerzy Latka	
Room 1.04	**Dynamo: Applications for Design and Optimization** Subhajit Das	
Room 3.03b	**Contextualized Digital Heritage Workshop - Lodz** Danilo Di Mascio, Bartosz M. Walczak	
Room 0.25	**Co-Design in HYVE-3D: Representational Ecosystem, Design Conversations and Knowledge Construction Activities** Tomás Dorta, Emmanuel Beaudry Marchand, Hadas Sopher	
Room 1.02	**Non-manifold Topology for Architectural and Engineering Modelling** Wassim Jabi, Robert Aish	
Room 1.05	**Introduction to Parametric design with Rhino and Grasshopper with a Focus on BIM (ARCHICAD)** Ákos Karóczkai	
Room 0.19	**New Methods for Urban Analysis and Simulation with Grasshopper: Using DeCodingSpaces-Toolbox** Reinhard Koenig, Martin Beilik, Katja Knecht, Abdulmalik Abdulmawla, Ekaterina Fuchkina	
Room 0.17	**Smart Communities: Unleashing the Potential of Data for Smart Communities** Antje Kunze, Michael Marz, Edyta Wyka	
Room 1.12	**Application of Artificial Intelligence in Architectural Generative Design** Morteza Rahbar	
Room 3.03a	**Beyond Genetic Algorithms: Understanding Simulation-based Optimization** Thomas Wortmann	
13:00 - 14:00	Lunch break	
14:00 - 18:30	**Session 4**	
Room B16	**Form-Adapt: Using Adaptable Form-work for Fabricating Double-Curved Surfaces** Serdar Aşut, Friso Gouwetor, Jerzy Latka	
Room 1.04	**Dynamo: Applications for Design and Optimization** Subhajit Das	
Room 3.03b	**Contextualized Digital Heritage Workshop - Lodz** Danilo Di Mascio, Bartosz M. Walczak	
Room 0.25	**Co-Design in HYVE-3D: Representational Ecosystem, Design Conversations and Knowledge Construction Activities** Tomás Dorta, Emmanuel Beaudry Marchand, Hadas Sopher	
Room 1.02	**Non-manifold Topology for Architectural and Engineering Modelling** Wassim Jabi, Robert Aish	
Room 1.05	**Parametric BIM Models in ARCHICAD with the Grasshopper - ARCHICAD Live Connection** Ákos Karóczkai	
Room 0.19	**New Methods for Urban Analysis and Simulation with Grasshopper: Using DeCodingSpaces-Toolbox** Reinhard Koenig, Martin Beilik, Katja Knecht, Abdulmalik Abdulmawla, Ekaterina Fuchkina	
Room 0.17	**Smart Communities: Unleashing the Potential of Data for Smart Communities** Antje Kunze, Michael Marz, Edyta Wyka	
Room 3.03a	**Beyond Genetic Algorithms: Understanding Simulation-based Optimization** Thomas Wortmann	

CONFERENCE PROGRAMME

DAY 1: Wednesday, 19th Sept 2018

	Aula Major (0.4)	Aula Minor (0.8)	CompLAB (1.12)	Arena Magica (0.17)
08:30 - 17:00	Registration			
09:00 - 09:30	Opening Ceremony	streaming		
09:30 - 10:30	Keynote Lecture **Tom Van Mele**	streaming	*Developing HiLo: BIM for Geometrically Complex and Integrated Structures.*	
10:30 - 11:00	Coffee break			
11:00 - 13:00	Session 1.1.1 **FABRICATION** Robotics Chair: Marc Aurel Schnabel	Session 1.1.2 **SHAPE, FORM & GEOMETRY** Concepts Chair: Aulikki Herneoja	Session 1.1.3 **GENERATIVE DESIGN** Chair: Tomohiro Fukuda	Session 1.1.4 **AI FOR DESIGN AND BUILT ENVIRONMENT** Chair: Andre Brown
13:00 - 14:00	Lunch			
14:00 - 16:00	Session 1.2.1 **FABRICATION** Design & Application Chair: Martijn Stellingwerff	Session 1.2.2 **SHAPE, FORM & GEOMETRY** Applications Chair: Jose Duarte	Session 1.2.3 **BIM** Applications Chair: Danilo Di Mascio	Session 1.2.4 **DESIGN TOOLS DEVELOPMENT** Chair: Wolfgang Lorenz
16:00 - 16:30	Coffee break			
16:30 - 17:30	Session 1.3.1 **CAAD EDUCATION** Practices Chair: Adam Jakimowicz	Session 1.3.2 **PARAMETRIC MODELLING** Applications Chair: Armando Trento	Session 1.3.3 **BIM** Concepts Chair: Birgul Colakoglu	Session 1.3.4 **DESIGN CONCEPTS & STRATEGIES** Applications Chair: Antonio Fioravanti
17:30 - 18:30	Keynote Lecture **Krzystof Ingarden**	streaming	*Between Critical Regionalism, Neovernacularism and Localized Modernism.*	
19:00	Welcome Reception at Pałac Poznańskiego Note: Buses leave from CheckPoint immediately after Keynote lecture. No time to visit hotel!			

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CONFERENCE PROGRAMME

DAY 1: Wednesday, 19th Sept 2018

SESSION 1.1.1: FABRICATION | Robotics

11:00 - 13:00	Chair: Marc Aurel Schnabel	Aula Major (0.4)

425   **Thermal Compositions Through Robot Based Thermal Mass Distribution**
Isak Worre Foged, Mads Brath Jensen

221   **Computing Craft: Early stage development of a robotically-supported 3D printing system for cob structures**
Alejandro Veliz Reyes, Mohamed Gomaa, Aikaterini Chatzivasileiadi, Wassim Jabi, Nicholas Mario Wardhan

402   **On-Site Fabrication and Assembly for Arid Region Settlements**
Gili Ron, Sara Shallaby, Theofano Antonako

298   **Modelling A Complex Fabrication System: New design tools for doubly curved metal surfaces fabricated using the English Wheel**
Gabriella Rossi, Paul Nicholas

415   **A Robotically Fabricated Connection System as a Possible Solution for a Free-form "ROBO-WEB" Gridshell which Takes Inspirations from English Fan Vaulted Cathedrals**
Anand Shah, Jose Pedro Sousa

311   **Bring in the Noise: A robotic-aided framework for the indirect shape translation and molding of inexact geometries**
Elena Vazquez, Marcus Shaffer

418   **Robotic Methods in Acoustics: Analysis and Fabrication Processes of Sound Scattering Acoustic Panels**
James Walker, Isak Worre Foged

266   **Multi-dimensional Medium-printing: Prototyping Robotic Thermal Devices for Sculpting Airflow**
Catty Dan Zhang, Allen Sayegh

SESSION 1.1.2: SHAPE, FORM & GEOMETRY | Concepts

11:00 - 13:00	Chair: Aulikki Herneoja	Aula Minor (0.8)

255   **Programmable Paper Cutting: A Method to Digitally Fabricate Transformable, Complex Structural Geometry**
Foroozan Danesh, Ali Baghi, Saleh Kalantari

263   **Combining geometries and descriptions: A shape grammar plug-in for Grasshopper**
Bianchi Dy, Rudi Stouffs

214   **See the Non-existing but Still Visible : An "unplugged" way to deal with perspective illusions**
Marcin Górko

163   **Adapting Modern Architecture to a Local Context: A Grammar for Hajjar's Hybrid Domestic Architecture**
Mahyar Hadighi, Jose Duarte

398   **The Didactic ASpect of Ars Combinatoria in Architectural Design**
Mattheos Papavasiliou

303   **Biological Computation of Physarum: from DLA to spatial adaptive Voronoi**
Liss C. Werner

151   **Mapping Urban Information as an Interdisciplinary Method for Geography, Art and Architecture Representations**
Ursula Kirschner, David Sperling

moved from Session 2.2.4

CONFERENCE PROGRAMME

DAY 1: Wednesday, 19th Sept 2018

SESSION 1.1.3: GENERATIVE DESIGN

11:00 - 13:00	Chair: Tomohiro Fukuda	CompLAB (1.12)

167 **Ceramic Components: Computational Design for Bespoke Robotic 3D Printing on Curved Support**
Ana Anton, Ahmed Abdelmahgoub

106 **Subdivisional Growth Logics**
Christoph Klemmt

~~315~~ ~~Mereologies: Combinatorial Design and the Description of Urban Form~~   moved to Session 2.3.2
~~Daniel Koehler, Sheghaf Abo Saleh, Hua Li, Chuwei Ye, Yaonaijia Zhou, Rasa Navasaityte~~

169 **Learning from Generative Design System in the 60's: Case Study of Agricultural City Project**
Kisho Kurokawa by Maki Kasahara, Kiwa Matsushita, Akihiro Mizutani

393 **Cooperative Trees by Adding Inosculated and Discrete Definitions to a DLA Design**
Salvador Serrano Salazar, José Carrasco Hortal, Francesc Morales Menárguez, Juan Pablo Gutiérrez Salazar

286 **Markovian Drift: Iterative substitutional synthesis of 2D and 3D design data using Markov models of source data**
Erik Swahn

276 **Crystal Formations and Symmetry in the Search of Patterns in Architecture**
Müge Kruşa Yemişcioğlu, Arzu Gönenç Sorguç, Çağlar Fırat Özgenel

SESSION 1.1.4: AI FOR DESIGN & BUILT ENVIRONMENT

11:00 - 13:00	Chair: Andre Brown	Arena Magica (0.17)

139 **Artificial Intelligence Aided Architectural Design**
Jan Cudzik, Kacper Radziszewski

438 **Interactive Artificial Life Based Systems, Augmenting Design Generation and Evaluation by Embeding Expert Opinion: A Human Machine dialogue for form finding**
Subhajit Das

111 **Learning Machine Learning as an Architect, How to?: Presenting and evaluating a Grasshopper based platform to teach architecture students machine learning**
Nariddh Khean, Alessandra Fabbri, M. Hank Haeusler

105 **Design-Bot - Using Half-Automated Qualitative Interviews as Part of Self Communication within the Design Process**
Matthias Kulcke

108 **Applied Automatic Machine Learning Process for Material Computation**
Dan Luo, Jingsong Wang, Weiguo Xu

389 **Stochastic Hybrids: From references to design options through Self-Organizing Maps methodology**
Jose Algeciras-Rodriguez

200 **A Novel Approach for Classification of Structural Elements in a 3D Model by Supervised Learning**
Gizem Yetiş, Ozan Yetkin, Kongpyung Moon, Özkan Kılıç

CONFERENCE PROGRAMME

DAY 1: Wednesday, 19ᵗʰ Sept 2018

SESSION 1.2.1: FABRICATION | Design & Application

14:00 - 16:00	Chair: Martijn Stellingwerff	Aula Major (0.4)

309	**re-flex: Responsive Flexible Mold for Computer Aided Intuitive Design and Materialization** Serdar Aşut, Peter Eigenraam, Nikoletta Christidi
261	**Rationalization and Optimization of Concrete Façade Panels** Guy Austern, Isaac Guedi Capeluto, Yasha Jacob Grobman
234	**CNC Adjustable Mould to Eliminate Waste in Concrete Casting** Paul Loh, David Leggett, Daniel Prohasky
277	**Digital Design and Fabrication of Freeform Concrete Blocks: the experience of 'Cobogo Trança'** Veronica Natividade
194	**Break It Till You Make It: A design studio for problem-finding** Jose Paixao, Florian Fend, Urs Hirschberg
174	**Design Research Based Method for Digital Fabrication Teaching** Marcin Strzala
332	**Reinforced, Reusable, Reconfigurable Molds for Cast Voussoirs** Pedro de Azambuja Varela and José Pedro Sousa

SESSION 1.2.2: SHAPE, FORM & GEOMETRY | Applications

14:00 - 16:00	Chair: Jose Duarte	Aula Minor (0.8)

336	**De-coding Rio de Janeiro's Favelas.: Shape grammar application as a contribution to the debate over the regularisation of favelas. The case of Parque Royal** Valeria Ena
312	**Integration of Design Geometry with "Computational Making" in Basic Design Studio: A Case Study of Lanterns Project** Gamze Gündüz, Hülya Oral, Tuğrul Yazar
310	**Topologic: A toolkit for spatial and topological modelling** Wassim Jabi, Robert Aish, Simon Lannon, Aikaterini Chatzivasileiadi, Nicholas Mario Wardhana
408	**Ornament & Distortion: Superficial Techniques for Spatial Distortion by Means of CAD-CAM Technologies** Javier Martin, Daniel Martin
351	**New Concepts for Application of Topological Interlocking In Architecture** Maciej Piekarski
216	**From Pattern Making to Acoustic Panel Making Utilizing Shape Grammars** Ecenur Yavuz, M. Birgül Çolakoğlu, Begüm Aktaş

CONFERENCE PROGRAMME

DAY 1: Wednesday, 19th Sept 2018

SESSION 1.2.3: BIM | Applications

14:00 - 16:00	Chair: Danilo Di Mascio	CompLAB (1.12)

135 **Living Wall: Information Workflow and Collaboration**
Danelle Briscoe

295 **BIM for Heritage Documentation: An ontology-based approach**
Eloisa Dezen-Kempter, Camila Kimi Cogima, Pedro Victor Vieira de Paiva, Marco Antonio Garcia de Carvalho

226 **A CAD-Blockchain Integration Strategy for Distributed Validated Digital Design: Connecting the Blockchain**
Theodoros Dounas, Davide Lombardi

284 **BIM Implementation in Architecture Firms: Interviews, case studies and action research used to build a method that facilitates implementation of BIM processes and tools**
Elodie Hochscheid, Gilles Halin

159 **Developing a Methodology for Learning BIM through Education-Practice Collaboration**
Hatidza Isanovic, Birgul Çolakoğlu

193 **Generative BIM Automation Strategies for Prefabricated Multi-Family Housing Design**
Karolina Ostrowska-Wawryniuk, Krzysztof Nazar

184 **Abstracting and Trimming Reality: One-Click-Region-Growing and Surface Trimming in Point Clouds**
Christian Tonn, Harald Schmidt, Oliver Bringmann, Daniel Klawitter

SESSION 1.2.4: DESIGN TOOLS DEVELOPMENT

14:00 - 16:00	Chair: Wolfgang Lorenz	Arena Magica (0.17)

227 **EventMode: A new computational design tool for integrating human activity data within the architectural design workflow**
Panagiotis Chatzitsakyris

297 **HIVE Parametric Tool: A simplified energy simulation tool for educating architecture students**
Amr Elesawy, Stefan Caranovic, Justin Zarb, Prageeth Jayathissa, Arno Schlueter

210 ~~A Computational Tool for Mapping the Users' Urban Cognition: A Framework and a Representation for the Evolutionary Optimization of the Fuzzy Binary Relation between the Urban Conceptions of "Us" and "Others"~~
~~Mohammed Ezzat~~   moved to Session 2.2.4

367 **Computational Color Design Process Towards Aesthetic Community Revitalization**
Hannah Ju, Hyunsoo Lee

123 **A Structurally Informed Design Process by Real-time Data Visualisations**
Lennert Loos, Lars De Laet

371 **Parametric Climate Responsive Design: A Tool for Evaluative Site Design**
Nicolai Steinø, Kristian Mortensen

319 **Follow the Sun: Architectural model-making with electronic components**
Helga Tauscher

CONFERENCE PROGRAMME

DAY 1: Wednesday, 19ᵗʰ Sept 2018

SESSION 1.3.1: CAAD EDUCATION | Practices

16:30 - 17:30	Chair: Adam Jakimowicz	Aula Major (0.4)

237 **Modular, Flexible, Customizable Housing and 3D Printed: An experiment in architectural education**
José Beirão, Nuno Mateus, João Siopa Alves

209 **15 Years of Immersion: Evolution and assessment of a pedagogy**
Laurent Lescop, Bruno Suner

107 **Use of Immersive Virtual Environment in the Design Studio: an Assessment Model**
Hadas Sopher, Dafna Fisher Gewirtzman, Yehuda E. Kalay

120 **A Comparative Study of Formal and Informal Teaching Methods in the Digital Architectural Curricula**
Guzden Varinlioglu, Gozde Damla Turhan

SESSION 1.3.2: PARAMETRIC MODELLING | Applications

16:30 - 17:30	Chair: Armando Trento	Aula Minor (0.8)

138 **Integrated Data Analysis for Parametric Design Environment: mineR: a Grasshopper plugin based on R**
Abdulmalik Abdulmawla, Sven Schneider, Martin Bielik, Reinhard Koenig

292 **Generative Hydrology Network Analysis - A parametric approach to water infrastructure based urban planning**
Martin Dennemark, Andreas Aicher, Sven Schneider, Tesfaye Hailu

327 **Parametric Design as Interpreter of The Urban Compositional Problem: One basic application to city block modeling**
Massimo Izzo

186 **Interaction Between Parametric Modelling and Criteria of Product Development in China's Non-standard Practice**
Sining Wang, Kristof Crolla

SESSION 1.3.3: BIM | Concepts

16:30 - 17:30	Chair: Birgul Colakoglu	CompLAB (1.12)

412 **BIM's Complexity and Ambiguity: BIM v. Paper Architecture**
Robert Flanagan

156 **Building Information Dashboard as Decision Support during Design Phase**
Adam Tamas Kovacs, András Micsik

273 **A Smooth Introduction to BIM in Interior Design Studies: The reversed 'in steps' design procedure**
Agnieszka Modzelewska

170 **Towards the Application of Uncertainty Analysis in Architectural Design Decision-Making: A Probabilistic Model and Applications**
Fatemeh Shahsavari, Rasool Koosha, Milad R. Vahid, Wei Yan, Mark Clayton

CONFERENCE PROGRAMME

DAY 1: Wednesday, 19th Sept 2018

SESSION 1.3.4: DESIGN CONCEPTS & STRATEGIES | Applications

16:30 - 17:30	Chair: Antonio Fioravanti	Arena Magica (0.17)

195	**Design and Automation for Seniors: Robot aided design of an environment for the elderly and disabled** Karolina Dąbrowska-Żółtak, Jerzy Wojtowicz, Stefan Wrona

322	**Blockerties: The Distributive Design of the Blockchain Technology and its Impact on Urban Form** Daniel Koehler, Anna Galika, Junyi Bai, Qiuru Pu

204	**KINE[SIS]TEM'17: A methodological process for a Nature-Based Design** Maria João de Oliveira, Vasco Moreira Rato, Carla Leitão

420	**Spatial Sonic Network: Designing and prototyping acoustic mirrors for communication** Brady Peters, Mitchell Akiyama, Ous Abou Ras, Sean Lamb

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CONFERENCE PROGRAMME

DAY 2: Thursday, 20th Sept 2018

	Aula Major (0.4)	Aula Minor (0.8)	CompLAB (1.12)	Arena Magica (0.17)
08:30 - 17:00	Registration			
09:00 - 10:00	Keynote Lecture streaming		*A Digital Twin for Cities:*	
	Antje Kunze		*A Challenge of Bringing BIM and GIS Together.*	
10:00 - 10:30	Coffee break			
10:30 - 12:45	Session 2.1.1	Session 2.1.2	Session 2.1.3	Session 2.1.4
	CAAD EDUCATION Concepts & Strategies	**PARAMETRIC MODELLING Concepts**	**VR, AR & VISUALISATION EXPERIMENTS**	**DESIGN CONCEPTS & STRATEGIES Explorations**
	Chair: Wolfgang Dokonal	Chair: Liss C. Werner	Chair: Laurent Lescop	Chair: Urs Hirschberg
12:45 - 14:00	Lunch			
14:00 - 16:00	Session 2.2.1	Session 2.2.2	Session 2.2.3	Session 2.2.4
	FABRICATION Virtual & Physical Prototyping	**CITY MODELLING & GIS**	**SIMULATION, PREDICTION & EVALUATION Explorations**	**INFORMATION TECHNOLOGIES IN CULTURAL HERITAGE**
	Chair: Jose Pedro Sousa	Chair: Nicolai Steinø	Chair: Gabriel Wurzer	Chair: Odysseas Kontovourkis
16:00 - 16:30	Coffee break			
16:30 - 18:00	Session 2.3.1	Session 2.3.2	Session 2.3.3	Special Panel Session
	HUMAN-COMPUTER INTERACTION IN DESIGN	**SMART CITIES**	**SIMULATION, PREDICTION & EVALUATION Tools**	**DIGITAL HERITAGE** Chair: Bob Martens Invited Panelists: Laurent Lescop, Tom Maver, Takehiko Nagakura
	Chair: Henri Achten	Chair: Burak Pak	Chair: Katerina Novakova	
19:00	Gala Dinner at Pałac Ksawerów Note: Buses leave from CheckPoint at 18:20. No time to visit hotel!			

CONFERENCE PROGRAMME

DAY 2: Thursday, 20ᵗʰ Sept 2018

SESSION 2.1.1: CAAD EDUCATION | Concepts & Strategies

182   **Designing Affordable, Portable, and Flexible Shelter for the Homeless and the Refugees**
Mona Ghandi

152   **New Pattern For Architectural Computing Education: Positivist vs. Constructivist Approaches**
Adam Jakimowicz

381   **Escaping Flatlands: Interdisciplinary Collaborative Prototyping Solutions to Current Architectural Topics**
Sarah Louise Jenney, Michael Mühlhaus, Nils Seifert, Frank Petzold, Alexander Wiethoff

224   ~~**A Sensory and Bodily Approach to Curriculum Construction for Design Education**~~
~~Ipek Kay, Bahar Akgün, Deniz Tümerdem, Cemal Koray Bingol~~   CANCELLED

317   **ICARUS Project: An open source platform for computer programming in architectural teaching and research**
Odysseas Kontovourkis, Constantine C Doumanidis

208   **Representational Ecosystems in Architectural Design Studio Critiques: Do changes in the representational ecosystem affect tutors and students behaviors during design critiques?**
Julie Milovanovic, Daniel Siret, Guillaume Moreau, Francis Miguet

335   **Architects & Algorithms: Developing Interactive Visualizations for Architectural Communication**
Nils Seifert, Frank Petzold

289   **Evaluating an Immersive Virtual Learning Environment for Learning How to Design in Human-Scale**
Orkun Sönmez, Arzu Gönenç Sorguç

397   **Improving the Online Design Education Experience**
Martijn Stellingwerff, Johannetta Gordijn, Udo Ouwerkerk, Peter Kiela   moved from session 3.1.4

SESSION 2.1.2: PARAMETRIC MODELLING | Concepts

339   **Spaceship Tectonics: Design Computation Pedagogy for Generative Sci-Fi Building Skins**
Pavlos Fereos, Marios Tsiliakos, Clara Jaschke

197   **Design Space Exploration Framework: A modular approach to flexibly explore large sets of design variants of parametric models within a single environment**
Ekaterina Fuchkina, Sven Schneider, Sven Bertel, Iuliia Osintseva

342   **Wind-formed Architectural Shapes**
Lenka Kormaníková, Angelos Chronis, Stanislav Kmeť, Dušan Katunský

414   **Square Tessellation Patterns on Double Layer Minimal Surface Structures: Geometric Investigation and Design Algorithms**
Katherine Liapi, Andreana Papantoniou

110   **Prototyping Adaptive Architecture: Balancing flexibility of folding patterns and adaptability of micro-kinetic movements**
Binh Vinh Duc Nguyen, Thanonchai Watlom, Chengzhi Peng, Tsung-Hsien Wang

325   ~~**Parametric Models and Algorithmic Thinking in Architectural Education**~~
~~Alexandros Peteinarelis, Socrates Yiannoudes~~

270   **Multiverse of a Form: Snowflake to Shelder**
Arzu Gönenç Sorguç, Müge Kruşa Yemişcoğlu, Çağlar Fırat Özgenel

380   **Furniture Design with Digital Media: A participative educational experiment of digital craftsmanship**
Ioanna Symeonidou

CONFERENCE PROGRAMME

DAY 2: Thursday, 20th Sept 2018

SESSION 2.1.3: VR, AR & VISUALISATION | Experiments

10:30 - 12:45	Chair: Laurent Lescop	CompLAB (1.12)

124 **Digital Architectural Composition in Virtual Space**
Aleksander Asanowicz

188 **Parametric Modelling Within Immersive Environments: Building a Bridge Between Existing Tools and Virtual Reality Headsets**
Adrien Coppens, Tom Mens, Mohamed-Anis Gallas

133 **How present am I: Three virtual reality facilities testing the fear of falling**
Sara Eloy, Lázaro Ourique, Uwe Woessner, Joachim Kieferle, Wolfgang Schotte

145 **Point Cloud Stream on Spatial Mixed Reality: Toward Telepresence in Architectural Field**
Tomohiro Fukuda, Yuehan Zhu, Nobuyoshi Yabuki

141 **The Perception of Architectural Space in Reality, in Virtual Reality, and through Plan and Section drawings: A case study of the perception of architectural atmosphere**
Anders Hermund, Lars Simon Klint, Ture Slot Bundgaard, Rune Noël Meedom Meldgaard Bjørnson-Langen

230 **Visualising Architectural Lighting Concept with 360° Panoramas**
Anette Kreutzberg

220 **Spatial User Interfaces in Mixed Reality: Online Shopping Experience Design**
Begum Moralioglu

114 **Augmented Reality in the Design Process: Using visual effects (VFX) motion tracking techniques to conduct quantification research on the performance of augmented reality**
Harris Paneras, Michael Yip, Tiara Dobbs, Ben Doherty, Alessandra Fabbri, Nicole Gardner, M. Hank Haeusler

SESSION 2.1.4: DESIGN CONCEPTS & STRATEGIES | Explorations

10:30 - 12:45	Chair: Urs Hirschberg	Arena Magica (0.17)

353 **Sketch - Computer - Imagination: Reflections on Architecture Education Methodology**
Nina Juzwa, Tomasz Krotowski

373 **Theatrical Performance as Experimental Architecture**
Sang Lee, Stefanie Holzheu

363 ~~**Diagrammatic Approaches in Architectural Design: Addressing architectural and urban design through the use of diagrams**~~
~~Carlos L. Marcos, Pedro Pignatelli Fernández de Arévalo~~   CANCELLED

201 **Kinetic Architecature: Reinterpreting Persian Mathematics and Astronomy**
Parinaz Mansourimajoumerd, Mohammadjavad Mahdavinejad

331 **Contextual Capabilities Meet Human Behaviour: Round the Peg and Square the Hole**
Armando Trento, Antonio Fioravanti

279 **Surveying Fitness Landscapes with Performance Explorer: Supporting the Design of a Better Tomorrow with Interactive Visualizations**
Thomas Wortmann, Zuardin Akbar, Thomas Schroepfer

262 **Strategies for the Integration of Smart Technologies into Buildings and Construction Assemblies**
Andrzej Zarzycki

155 **A Research Framework of Digital Leadership**
Tadeja Zupancic, Aulikki Herneoja, Yves Schoonjans, Henri Achten

CONFERENCE PROGRAMME

DAY 2: Thursday, 20ᵗʰ Sept 2018

SESSION 2.2.1: FABRICATION | Virtual & Physical Prototyping

14:00 - 16:00	Chair: Jose Pedro Sousa	Aula Major (0.4)

386 **Towards a Digitally Fabricated Disassemble-able Building System: A CNC fabricated T-Slot Joint**
Filipe Brandao, Alexandra Paio, Nuno Antunes

104 **From Control to Uncertainty in 3D Printing with Clay**
Benay Gürsoy

439 **Designing Shelters for 3D-printing: A studio experiment**
Duarte Jose, Shadi Nazarian, Negar Ashrafi

233 **Spatial Graded Patterns: A case study for large-scale differentiated space frame structures utilising high-speed 3D-printed joints**
Iacovina Kontiza, Theodora Spathi, Patrick Bedarf

422 **Prototyping Method for Complex-Shaped Textile Composite Panels: Developing a digitally controlled reconfigurable mold**
Kihong Ku, Satpal Gurjar

196 **PET(s)culpt: crowd-printing recycled polyethylene tereftalate**
Kateřina Nováková, Šimon Prokop, Jiří Vele, Henri Achten

427 **Printing a Coffee Bar: An investigation into mid-scale 3D printing**
Heike Matcha, Ante Ljubas, Harun Gueldemet

SESSION 2.2.2: CITY MODELLING & GIS

14:00 - 16:00	Chair: Nicolai Steinø	Aula Minor (0.8)

296 **High precision visibility and dominance analysis of tall building in cityscape – on a basis of Digital Surface Model**
Klara Czyńska

178 **GIS Technologies Implementation Based on the EU Directive INSPIRE: A case study of the Pabianice city**
Tomasz Kroc, Bartosz Walczak

385 **Data Flow: a GIS based interactive planning tool for educational facilities**
Daniel Schulz, Felix Reiter, Alexander Metche, Liss C. Werner

274 **City Information Modelling (CIM) and Urban Design: Morphological Structure, Design Elements and Programming Classes in CIM**
Todor Stojanovski

265 **An IFC-to-CityGML triple graph grammar**
Helga Tauscher, Rudi Stouffs

158 **The Dynamic Geometric Network Model for Representing Verticalized Urban Environment and its Generation**
Jing Zhou, Hubert Klumpner, Afredo Brillembourg

360 ~~**Area and Volume Quantification of Open Spaces in Urban Structures Using 3d-Negative (N3D)**~~
~~Adam Zwoliński~~
CANCELLED

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CONFERENCE PROGRAMME

DAY 2: Thursday, 20th Sept 2018

SESSION 2.2.3: SIMULATION, PREDICTION & EVALUATION | Explorations

14:00 - 16:00	Chair: Gabriel Wurzer	CompLAB (1.12)

172   **The Employment of Digital Simulation in the Planning Departments in US Cities: How does it affect design and decision-making processes?**
Firas Al-Douri

405   **From Design to Optimized Design: An algorithmic-based approach**
Catarina Belém and António Leitão

187   **The Effect of Reducing Geometry Complexity on Energy Simulation Results**
Aikaterini Chatzivasileiadi, Anas M. Hosney Lila, Simon Lannon, Wassim Jabi

165   **Considering Variant Movement Velocities on the 3D Dynamic Visibility Analysis (DVA): Simulating the perception of urban users: pedestrians, cyclists and car drivers**
Dafna Fisher-Gewirtzman, Elad Bruchim

257   **Spatial Redesign Method based on Behavior Data Visualization System: UWB interior positioning technology based office space redesign method research**
Zhe Guo, Hao Yin, Philip F. Yuan

329   **Facade-Floor-Cluster: Methodology for Determining Optimal Building Clusters for Solar Access and Floor Plan Layout in Urban Environments**
Francesco De Luca, Andrei Nejur, Timur Dogan

394   **Application of Available Digital Resources for City Visualisation and Urban Analysis**
Paweł Rubinowicz

SESSION 2.2.4: INFORMATION TECHNOLOGIES IN CULTURAL HERITAGE

14:00 - 16:00	Chair: Odysseas Kontovourkis	Arena Magica (0.17)

231   **A Critical Evaluation of Two Contextualized Digital Heritage Workshops: Descriptions, reflections and future directions**
Danilo Di Mascio, Anetta Kepczynska-Walczak, Nicholas Webb, Marc Aurel Schnabel

121   **Museum and Cultural Heritage in the World of Digital Technology**
Georgios Dimopoulos

392   **Cultural Heritage Knowledge Context**
Silvia Gargaro, Michela Cigola, Arturo Gallozzi, Antonio Fioravanti

151   ~~**Mapping Urban Information as an Interdisciplinary Method for Geography, Art and Architecture Representations**~~
~~Ursula Kirschner, David Sperling~~   moved to Session 1.1.2

248   **Tangible and Intangible Digital Heritage: Creating Virtual Environments to Engage Public Interpretation**
David Silcock, Hannah Rushton, Jessie Rogers, Marc Aurel Schnabel

382   **Using Big Data to Design User-Centric Museums: From visitors loyal to museums to museums loyal to users**
Vasiliki Tsitsipa, George Achillias, Panagiotis Parthenios

122   **Virtual Reality for a Better Past**
Guzden Varinlioglu, Altug Kasali

210   **A Computational Tool for Mapping the Users' Urban Cognition: A Framework and a Representation for the Evolutionary Optimization of the Fuzzy Binary Relation between the Urban Conceptions of "Us" and "Others"**
Mohammed Ezzat   moved from Session 1.2.4

CONFERENCE PROGRAMME

DAY 2: Thursday, 20ᵗʰ Sept 2018

SESSION 2.3.1: HUMAN-COMPUTER INTERACTION IN DESIGN

16:30 - 18:00	Chair: Henri Achten	Aula Major (0.4)

| 399 | ~~UCHRON: An Event-Based Generative Design Software Implementing Fast Discriminative Cognitive Responses from Visual ERP BCI~~ | |
| | ~~Pierre Cutellic~~ | CANCELLED |

| 243 | **Architecture-human-machine (re)configurations: Examining computational design in practice** |
| | Nicole Gardner |

| 258 | **Metaphor: A tool for designing the next generation of human-building interaction** |
| | Jingoog Kim, Mary Lou Maher, John Gero, Eric Sauda |

| 180 | **HOPLA: Interfacing Automation for Mass-customization** |
| | Krystian Kwieciński, Jacek Markusiewicz |

| 213 | **Multi-Dimensional Interface Based Spatial Adaption: A Prototype for a Multi-Sensory User Interface Employing Elastic Materials** |
| | Theresa Lohse, Ryuta Fujii, Liss C. Werner |

| 388 | **Funken: Serial Protocol Toolkit for Interactive Prototyping** |
| | Alexander Stefas, Andrea Rossi, Oliver Tessmann |

SESSION 2.3.2: SMART CITIES

16:30 - 18:00	Chair: Burak Pak	Aula Minor (0.8)

| 301 | **Adaptive & Morphogenetic City Research Laboratory** |
| | Ana Cocho-Bermejo, Zeynep Birgonul, Diego Navarro-Mateu |

| 164 | **Big-Data Informed Citizen Participatory Urban Identity Design** |
| | Mei-Chih Chang, Peter Buš, Ayça Tartar, Artem Chirkin, Gerhard Schmitt |

| 375 | **The City as Playground: Game tools for interactive planning** |
| | Meram-Irina Pienaru |

| 246 | **CityAR: Wellington: Exploring Cities through Mixed Realities** |
| | Cyrus Qureshi, Marc Aurel Schnabel, Tane Moleta |

| 198 | **Envisioning Future Urban Scenarios: The outcomes of the international Mobiance 3 workshop on Sharing Cities, Ambient Commons and Urban Futures** |
| | Myriam Servières, Barbara Piga, Eugenio Morello, Ignacio Requena, Gwendoline L'Her, Steven Saulnier-Sinan, Daniel Siret |

| 315 | **Mereologies: Combinatorial Design and the Description of Urban Form** |
| | Daniel Koehler, Sheghaf Abo Saleh, Hua Li, Chuwei Ye, Yaonaijia Zhou, Rasa Navasaityte |

moved from session 1.1.3

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CONFERENCE PROGRAMME

DAY 2: Thursday, 20th Sept 2018

SESSION 2.3.3: SIMULATION, PREDICTION & EVALUATION: TOOLS

16:30 - 18:00	Chair: Katerina Novakova	CompLAB (1.12)

403 **ORe – A simulation model for Organising Refurbishments**
Ugo Maria Coraglia, Gabriel Wurzer, Antonio Fioravanti

280 **A Weighted Graph Model to Estimate People's Presence in Public Space: The Visit Potential Model**
Pieter Herthogs, Bige Tunçer, Markus Schläpfer, Peijun He

354 **SafePath: An Agent-Based Framework to Simulate Crowd Behaviors**
António Leitão, Sofia Sousa, Francisco Loio

166 **The Game of Urban Attractiveness: Shape Grammars and Cellular Automata Based Tool for Prediction of Human's Behaviour in Cities**
Paweł Unger, Luís Romão

134 **Options for Obtaining a 'Gründerzeit' flat: A wet dream explored by means of a Cellular Automata model**
Gabriel Wurzer, Wolfgang E. Lorenz

112 **Data Influenced Infrastructure Generation: Combining holistic urban datasets through a digital Slime Mold algorithm for cycle path generation**
K. Daniel Yu, M. Hank Haeusler, Katrina Simon, Alessandra Fabbri

SPECIAL PANEL SESSION: DIGITAL HERITAGE

16:30 - 18:00	Chair: Bob Martens	Arena Magica (0.17)

Invited Panelists: Laurent Lescop, Tom Maver, Takehiko Nagakura

The round table itself is limited to short opening statements so as to ensure time is allowed for viewpoints to be exchanged and for the conference attendees to join in on the issues discussed. The panel will review past practices with the potential for guiding future direction.

CONFERENCE PROGRAMME

DAY 3: Friday, 21st Sept 2018

	Aula Major (0.4)	Aula Minor (0.8)	CompLAB (1.12)	Arena Magica (0.17)
08:30 - 16:00	Registration			
09:00 - 10:00	Keynote Lecture **Harlen Miller**	streaming	*Cultivating Next-GEN Designers.*	
10:00 - 10:30	Coffee break			
10:30 - 12:45	Session 3.1.1 **MATERIAL STUDIES** Chair: Rudi Stouffs	Session 3.1.2 **APPLICATIONS IN CONSTRUCTION & OPTIMISATION** Chair: Joachim Kieferle	Session 3.1.3 **VR, AR & VISUALISATION Explorations** Chair: Aleksander Asanowicz	Session 3.1.4 **COLLABORATIVE & PARTICIPATIVE DESIGN** Chair: Tadeja Zupanic
12:45 - 14:00	Lunch			
14:00 - 15:30	Round Table Session **"A Better Tomorrow?"** Chair: Tom Maver Invited Panelists: Robert Aish, Antje Kunze, Urs Hirschberg, Harlen Miller, Martijn Stellingwerff			
15:30 - 16:00	Coffee break			
16:00 - 17:10	Special Session **WORKSHOPS OUTCOMES**			
17:15 - 18:15	Final Session **AGM + PRIZES + ANNOUNCEMENTS**			
19:00 -	Off-Shore Evening Note: Buses leave at 18:20. No time to visit hotel!			

CONFERENCE PROGRAMME

DAY 3: Friday, 21st Sept 2018

SESSION 3.1.1: MATERIAL STUDIES

10:30 - 12:45	Chair: Rudi Stouffs	Aula Major (0.4)

370 **A Computational Method for Tracking the Hygroscopic Motion of Wood to Develop Adaptive Architectural Skins**
Sherif Abdelmohsen, Passaint Massoud, Rana El-Dabaa, Aly Ibrahim, Tasbeh Mokbel

162 **Toward an Environmental Database: Exploring the material properties from the point cloud data of the existing environment**
Miktha Alkadri, Michela Turrin, Sevil Sariyildiz

344 **Programming Material Intelligence Using Food Waste Deposition to Trigger Automatic Three-Dimensional Formation Response in Bioplastics**
Noor El-Gewely, Christopher Wong, Lili Tayefi, Areti Markopoulou, Angelos ChroniS, Alexandre Dubor

260 **Design by Computation: A material driven study**
Alexandros Kallegias

125 ~~Designing with Biomaterials for Responsive Architecture: A soft responsive "bio-structural" hydrogel skin~~
~~Chin Koi Khoo, Jae-Won Shin~~   CANCELLED

215 **Material Agency in CAM of Undesignable Textural Effects: The study of correlation between material properties and textural formation engendered by experimentation with G-code of 3D printer**
Ashish Mohite, Mariia Kochneva, Toni Kotnik

437 **Robotic Materialization of Architectural Hybridity: Modelling, Computation and Robotic Production of Multi-materiality**
Sina Mostafavi, Henriette Bier, Benjamin N. Kemper, Daniel L. Fischer

285 **Programmable Bending: grain-informed simulation and design**
Shota Tsikoliya, Imrich Vasko, Veronika Miškovičová, Ivan Olontsev, David Kovařík

SESSION 3.1.2: APPLICATIONS IN CONSTRUCTION & OPTIMISATION

10:30 - 12:45	Chair: Joachim Kieferle	Aula Minor (0.8)

132 **Topology Optimisation Influence on Architectural Design Process: Enhancing Form Finding Routine by tOpos Toolset Utilisation**
Sebastian Białkowski

130 **´Solar Spline´: Expanding on traditional sun-sail typologies and Frei Otto´s lightweight approach with the help of computational design procedures**
Timo Carl, Frank Stepper, Markus Schein

268 **FOAM: Custom Single Task Construction Robot**
Jeremy Jenn Ren Cheang, Paul Loh

314 **Architecture Challenge 16 - Robotic Contouring: Researching Robotic Bending of Straight Profile Plastic Beams for Full Scale Production**
Andrei Gheorghe, Philipp Hornung, Sigurd Reiss, Robert Vierlinger

434 **3D Printing of High Strength and Multi-Scaled Fragmented Structures**
Ertunç Hünkar, Bruno Acácio Ferreira Figueiredo

247 **Derivative-free Methods for Structural Optimization**
Guilherme Ilunga, António Leitão

323 **Multi-Objective Qualitative Optimization (MOQO) in Architectural Design**
David Newton

409 **Mass-customization of Joints for Non-Standard Structures through Additive Manufacturing. The Trefoil and the TriArch projects**
Jose Pedro Sousa, Pedro de Azambuja Varela, João Carvalho, Rafael Santos, Manuel Oliveira

CONFERENCE PROGRAMME

DAY 3: Friday, 21st Sept 2018

SESSION 3.1.3: VR, AR & VISUALISATION | Explorations

10:30 - 12:45	Chair: Aleksander Asanowicz	CompLAB (1.12)

232 **VR-visualization of High-dimensional Urban Data**
Louna Al Bondakji, Anna-Maria Chatzi, Minoo Heidari Tabar, Lisa-Marie Wesseler, Liss C. Werner

424 **From Body Movement to Sculpture to Space: Employing Immersive Technologies to Design with the whole Body**
Günter Barczik

347 **Do Training Bikes Dream of Electric Cities?**
Wolfgang Dokonal

377 **Influence of Immersive Contextual Environments on Collaborative Ideation Cognition: Through design conversations, gestures and sketches**
Emmanuel Beaudry Marchand, Tomás Dorta and Davide Pierini

366 **Virtual Reality, Videogames, Architecture and Education: From utopian drawings to inconstructible navigable environments**
Constantinos Miltiadis

238 **The Virtual Mirror: Cognitive Loads in VR and VR Visualisations**
Tane Moleta, Brandon Wang, Marc Aurel Schnabel

251 **BIM-based Virtual Reality and Human Behavior Simulation For Safety Design**
Hyejin Park, David Stephen Panya, Hyungmo Goo, Teahoon Kim, Jihyo Seo

361 **VREVAL: A BIM-based Framework for User-centered Evaluation of Complex Buildings in Virtual Environments**
Sven Schneider, Saskia Kuliga, René Weiser, Olaf Kammler, Ekaterina Fuchkina

SESSION 3.1.4: COLLABORATIVE & PARTICIPATIVE DESIGN

10:30 - 12:45	Chair: Tadeja Zupanic	Arena Magica (0.17)

219 **Customized Collaborative Urban Design: A Collective User-based Urban Information System through Gaming**
Nan Bai, Wenqia Ye, Jianan Li, Huichao Ding, Meram-Irina Pienaru, Raoul Bunschoten

433 **Participation-based Parametric Design in Early Stages: A participative design process for spatial planning in office building**
Elie Daher, Sylvain Kubicki, Burak Pak

176 **Integrating Crowdsourcing & Gamification in an Automatic Architectural Synthesis Process**
Dafna Fisher-Gewirtzman, Nir Polak

190 **Need of a BIM-agile Coach to Oversee Architectural Design: From one pedagogical experiment to another**
Henri-Jean Gless, Gilles Halin, Damien Hanser

264 **Virtual Place-making - The re-discovery of Architectural Places Through Augmented Play: A playful emergence between the real and unreal**
Mohammad Qabshoqa

229 **Digital Design Ecology: An Analysis for an Intricate Framework of Architectural Design**
Jessie Rogers, Marc Aurel Schnabel

397 ~~Improving the Online Design Education Experience~~
~~Martijn Stellingwerff, Johannetta Gordijn, Udo Ouwerkerk, Peter Kiela~~   moved to session 2.1.1

189 **The Role of Digital Technologies in Promoting Contemporary and Collaborative Design Processes**
Paola Zardo, Andréa Quadrado Mussi, Juliano Lima da Silva

CONFERENCE PROGRAMME

DAY 3: Friday, 21ˢᵗ Sept 2018

ROUND TABLE SESSION: "A Better Tomorrow?"

14:00 - 15:30	Chair: Tom Maver	Aula Major (0.4)

Invited Panelists:
Robert Aish, Antje Kunze, Urs Hirschberg, Harlen Miller, Martijn Stellingwerff

Panellists will have 10 minutes to address some of the following questions. Thereafter ALL participants will be invited to contribute.

- Do we do enough to evaluate the efficacy of the software we produce, regarding a better tomorrow? OR like cuckoos and most architects, just "lay it and leave it"?
- Are we sufficiently concerned with the interests of building users, building owners and the community, particularly in regard to a better tomorrow?
- Does practice and academia have a suitable forum and focus for exchange; in eCAADe or elsewhere? Can we improve the exchange to produce a better tomorrow?
- In the earliest days, it was the best students who pushed the ideas; are we doing enough to engage them with a better tomorrow: - a healthier, prettier, happier, more sustainable, smarter tomorrow?
- Any other issue that you wish to address.

SPECIAL SESSION: WORKSHOPS OUTCOMES

16:00 - 17:10	Chair: Sebastian Białkowski	Aula Major (0.4)

Form-Adapt: Using Adaptable Form-work for Fabricating Double-Curved Surfaces
Serdar Aşut, Friso Gouwetor, Jerzy Latka

Dynamo: Applications for Design and Optimization
Subhajit Das

Contextualized Digital Heritage Workshop - Lodz
Danilo Di Mascio, Bartosz M. Walczak

Co-Design in HYVE-3D: Representational Ecosystem, Design Conversations and Knowledge Construction Activities
Tomás Dorta, Emmanuel Beaudry Marchand, Hadas Sopher

Non-manifold Topology for Architectural and Engineering Modelling
Wassim Jabi, Robert Aish

Introduction to Parametric design with Rhino and Grasshopper with a Focus on BIM (ARCHICAD)
Ákos Karóczkai

Parametric BIM models in ARCHICAD with the Grasshopper - ARCHICAD Live Connection
Ákos Karóczkai

New Methods for Urban Analysis and Simulation with Grasshopper: Using DeCodingSpaces-Toolbox
Reinhard Koenig, Martin Beilik, Katja Knecht, Abdulmalik Abdulmawla, Ekaterina Fuchkina

Smart Communities: Unleashing the Potential of Data for Smart Communities
Antje Kunze, Michael Marz, Edyta Wyka

Application of Artificial Intelligence in Architectural Generative Design
Morteza Rahbar

Beyond Genetic Algorithms: Understanding Simulation-based Optimization
Thomas Wortmann

USEFUL EXPRESSION

Dzień dobry	*jane DOH-brih*	Good morning Good afternoon	Tak	*tahk*	Yes
			Nie	*nyeh*	No
Dobry wieczór	*DOH-brih VYEH-choor*	Good evening	Na Zdrowie!	*nah ZDROH-vyeh*	Bless You! /Cheers!
Dobranoc	*doh-BRAH-notes*	Good night	Jak się masz?	*yahk shay mahsh?*	How are you? (informal)
Cześć!	*CHeshch*	Hi!	Nie rozumiem	*nyeh roh-ZOO-myem*	I don't understand
Do widzenia	*oh vee-DZEN-ya*	Good bye			
Proszę	*PROH-sheh*	Please Here you are	Ile to kosztuje?	*ileh toh kosh-TOO-ye?*	How much for this?
Dziękuję	*jen-KOO-yeh*	Thank you	Jedno piwo proszę	*YED-no PEE-voh PROH-sheh*	One beer please
Przepraszam	*psheh-PRAH-shahm*	I'm sorry Excuse me	Gdzie jest łazienka?	*gjeh yest wah-ZHEN-kah*	Where is the restroom?
Dobrze/Źle	*dobjeh/jleh*	Good/Bad			

NOTES

computing for better tomorrow