A Three Day
International Symposium & Workshop

COMPUTATIONAL DESIGN

COMPUTATIONAL DESIGN (DRAFT) PROGRAM

JUNE 20-22, 2012

20 JUNE 2012, Wednesday

09:00-09:30 Registration

09:30-09:40 Opening Speeches

09:40-10:20 ICKT (Information, Communication & Knowledge Technology) and sustainability relationship in built environment
Prof. Dr. Ir. Sevil Sarıyıldız
Chair, Professor of Design Informatics, Department Building Technology, Delft University of Technology, Netherlands

10:20-11:00 Distributed intelligence' in design: Redefining the relationship between designers, tools, knowledge and form in the digital age
Dr. Tuba Kocaturk
Design, University of Salford, Greater Manchester, UK

11:00-11:20 Coffee Break

11:20-12:00 Computational intelligence for architectural design
Dr. Ir. Michael Bittermann
Post-doc and lecturer, Design Informatics, Delft University of Technology, Netherlands

12:00-12:40 Computational creativity and digital architects: A paradigm shift?
Dr. Riccardo Balbo
Lecturer, Architectural and Urban Design Studio 1 Coordinator, Polytechnic of Turin, Italy

12:40-14:00 Lunch

14:00-14:40 BIM, knowledge counts! Optioneering design, finance and feasibility
Arch. Jalal el Ali
RMJM, Emirates and Founding Member of Design Computing Community, London, UK

14:40-15:20 Experimental pavilions: From computational design to fabrication of complex geometries
Arch. Gudjon Thor Erlendsson
M. Arch AA, Lecturer, İzmir University of Economics, Faculty of Fine Arts & Design, Department of Architecture

15:20-15:40 Coffee Break

15:40-16:20 Performance-driven parametric design for passive solar architecture

Arch. Michela Turrin

Phd researcher and lecturer, Design Informatics, Delft University of Technology, Netherlands

16:20-17:00 Applications of evolutionary computation to architectural layout design and urban configurations

Arch. Ioannis Chatzikonstantinou

Lecturer & researcher, Design Informatics, Delft University of Technology, Netherlands

21 June 2012, Thursday

09:30-17:00 Workshop (1)

Content of the workshop (1) (Delft group)

- Performance driven digital design: tools, techniques and methods with focus on parametric design.

Towards performance-based design using parametric modeling

Dr. Ir. Michael Bittermann, Arch. Michela Turrin, Arch. Ioannis Chatzikonstantinou

In order to reach architectural designs with a high performance, that is, designs that greatly satisfy the design requirements, many design alternatives and variations should be explored. Usually, the extent in which generation and evaluation of alternatives is exercised is limited mainly due to time restrictions imposed on the process. Parametric design allows for rapid generation of design variations, which are visualized by means 3D models and, even more importantly, subject to numerical analysis in order to evaluate the performance.

To get experience using this potential, the workshop introduces parametric modeling for performance-driven design. A preliminary introduction to parametric modeling and parameterization approaches in the software Grasshopper™ will be given. Exercises are set in order to guide the participants along two progressive steps. The first step concerns parametric geometry generation; the second one concerns measurement of quantities relevant for performance evaluation. As an exemplary case a residential mid-rise building is taken. As first step during the workshop exercise its overall shape, floors, and a few main building elements will be parametrically modeled. Then its facade will be parametrically modeled as well, and connected to the existing geometry, so that further level of building detail is achieved. Individual workshop participants may experiment with different topologies in this step. Finally several relevant quantities pertaining to the evaluation of the feasibility and performance of the building will be obtained. These include floor surface amount, building volume, size of facade surface, etc. The resulting parametric designs made by the participants will be presented at the end of the workshop followed by a discussion and conclusion.

Content of the workshop (2) (Salford group)

- Research by design: The polemics of scientific versus design research; how to develop research by/though/on/about design, valid methods and techniques in “design research”.

22 June 2012, Friday

09:30-13:00 Workshop (2)

- Discussion on research topics and strategies
- Building sector research needs
- Strategies for external research funding possibilities/applied urgent research topics
- Impact of research on education (research driven education)
- Innovative education strategies and topics for architecture study