[X]-tra

Voluptuous bodies and emergent qualities

. Synopsis

The aim of the workshop is to give an introductory understanding of key concepts such as topology, information (in morphogenesis), redundancy and pluripotency as a mean to undisclose performative potential through morphology, from biological development to architectural design, within a general framework of an ecology of design.

Efficiency and performance in nature are the result of processes of self-organization in material systems which rely entirely on information exchange flows and the organization of these flows. Within such a framework, redundancy and flamboyancy coexist with optimization at different scales, triggering emergent potential extra-qualities.
The use of digital tools is strongly and inevitably involved for their unique capacity to embed complexity in the design process via information flow management and rule-based patterns. Participants will investigate specific geometric strategies such as those of lightweight and voluptuous bodies: folds, frazzles and plications as a mean for efficiency and performance (structural, movement, thermal). Animation and other techniques will be used to tease out differentiations and gradients between key configurations (attractors), as well as exploring the emergence of complexity and effects out of simple starting elements.

. Aim

Aim of the workshop will be (one of these 2 options):

a. to design an open-air stage for a dance festival.

b. to design a beach facility

Getting advantage from the parametric features of Autodesk® 3D Studio MAX®, participants will generate and represent the the project's materials, from form generation and management up to renderings and, in best cases, animation.

Participants will use the software Autodesk® 3D Studio MAX® as main parametric modeling software. Optional linkages can be made to other software listed below:

. McNeel Rhinoceros® + Grasshopper (free plugin)

Upon completion of this workshop, participants will understand:

. Creating objects – modifying – transforming
. use modifiers as parametric features
. design and modeling integrity and data consistency
. Constraints

. Schedule

Each day counts 8 hrs of teaching and/or working.

/// day 01_30.05

_ introduction

. Welcome – workshop introduction and task
. Introductory lecture & tutors presentation:

. MAG LAB
. **Co-de-iT**

_ digital tool class 01

:: foundation

. basic mesh modeling (2 h)

. 3D Studio environment
. primitives creation, precision drawing
. euclidean transformations (move, rotate, scale, copy)
. mesh basic operations: extrude edges & faces, bridge, edge loops and rings, weld
. loft operations

. lecture: Generative strategies (Alessio Erioli - 1 h)

_ digital tool class 02

. basics of visual (1-1.5 h)

. basic rendering techniques (clay render, sun+sky);

. modifiers (3h):

. edit Poly (with animation)
. mirror modifier
. cage deform
. path deform
. patch deform
. morphing system - create a bi-directional blend between two conditions
.build a modular panel system in which one can quickly test different patterns.

/// day 02_31.05

_ digital tool class 03

:: advancements

. parametric – responsive design
. responsive Planar Polys - how to keep shapes planar while the geometry is moved
. animation snapshot
. parametric Panel – Responds to Sun
How to make a parametric panel with splines which opening in the panel is then constrained to a max sun system.

:: project

. introduction to project topic (1/2 h)
. group organization (2-3 people MAX each)
. work on project

/// day 03_01.06

. tutored work on projects (single or groups of 2-3 people max)

:: finalization

. video presentations

. workshop wrap-up

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:: advanced/extra (bonus - if possible)

. day_01

. wire parameters
. wired sliders
. McNeel Rhinoceros® <> 3DSMAX – additional modeling techniques
. affect region

. day_02

. fluids /fields particles formations
. clothes, springs and relaxation

. Credits

Conference Organization:

Research:
Genetic Architectures Research Group & Ph.D

Teaching:
Biodigital Architecture Master's Degree

Profession:
Genetic Architectures Office, Barcelona

_Conference chair (director):

Prof.DDr.Alberto.T.Estévez

_Workshop directors:

MArch.Aref Maksoud

MAGLAB Director, Syria – Spain – Italy (Materials- Advanced Architecture – Generative Laboratory), professor of architecture, College of architecture, fine arts and design
AIU "Arab International University", Syria

PhD MArch Alessio Erioli

Professor in Architectural Design and Researcher at Università di Bologna (Italy)
Co-founder, designer and coder at Co-de-iT

MAarch Alejandro Muiño

Professor in Architectural Design and Researcher at ESARQ (UIC) Barcelona.

. Information

. Final review - panel presentation. For this occasion a local and international jury will be invited to value obtained projects. The presentation pinup is not printed but just projected on the wall.

. The workshop proceedings and materials will be published in real time on a blog as well as on architectural magazines (Ibdaat Magazine – Syria).

Workshop blog: http://xtrabcn.wordpress.com/