

space&designstrategies_research

overview ws 06/07



In 2006, space&designstrategies as a field of study at the Kunstuniversität Linz established a new research platform **space&designstrategies_research**. (www.strategies-research.ufg.ac.at)

Lead by Univ.Prof. Elsa Prochazka, space&designstrategies offers students the opportunity to develop cross-disciplinary skills in the fields of architecture, art, design, digital media, communication studies, and aesthetics.

The associated research platform **space&designstrategies_research** operates independent of the curriculum and will function as a competence centre for Ph.D. studies, research projects, visiting professors, and as a resource for independent projects.

It is aimed at supporting the interdisciplinary work of students by facilitating scientific exchange with external researchers in order to provide a broader framework for discussion, the evaluation of student work, and intensified research.

In relation to main research topics, each semester we organize one lecture, followed by a workshop and a round table session.

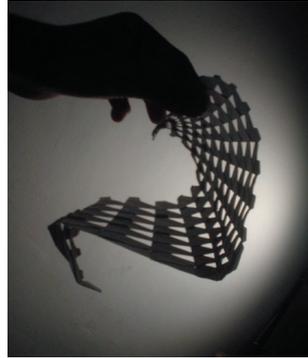
In the year of 2006/07 research activities concentrate on the notion of 'material practice'. In WS 06/07 the architect Benjamin Ball of Ball-Nogues Studio (Los Angeles /US) became invited to give a lecture and to conduct a three-day workshop. Towards the end of the semester we initiated a round table discussion entitled 'from abstract systems to parametric design strategies'.

Sandrine von Klot
project manager

Segolen Koschu
assistance

// material practice

study model,
courtesy of Ball-Nogues Studio



//////////////////IMPLIED TOPICS

An increasing number of designers throughout various creative disciplines have become introduced to digital fabrication technology who are now dealing with the expanding diversity of using laser cutter to five-axis routing, and stereolithography to three-dimensional physical printing.

This is leading to a re-engagement with the means of production by the profession and a rediscovery of craft in architecture. Additive processes including laser sintering, stereolithography and three-dimensional printing produced components that appear to be products of subtractive sculpture but are all formed topographically layer-by-layer. Thus the conventional sculptural distinction between construction and subtraction has been totally subverted. In recent years generative systems in nature have become a source of inspiration for a number of architects and artists.

Rather than viewing design as a top-down, linear, and goal-oriented procedure, they seek to understand underlying rules and principles of natural systems, which produce structural order and material organization of high complexity, efficiency, and beauty.

diversity_ parametric design systems are based on a hierarchy of variable-controlled dependencies; each active variable causes the overall system to change its behaviour and thereby generate variations without losing the overall coherence and integrity of the model

adaptability_ which variations are fitter to solve a particular design problem? Parametric models can be fine-tuned toward specific environmental pressures

responsiveness + feedback_ a parametric model maintains its ability to change throughout the entire design process. Individual components can be linked in ways that allow constant and immediate feedback throughout the model regardless of scale and hierarchy, the design of the network of dependencies becomes a crucial part of the overall design by highlighting certain relationships over others and thereby allowing for specific local changes to impact the model's global scale and behaviour

// // lecture

//////////BALL-NOGUES STUDIO

lecture WS 06/07, took place on Nov.29th 2006
location: Mediendeck / Offenes Kulturhaus O.K Linz

Ball and Nogues are part of a new class of young architects who apply architectural concepts to different types of projects, such as events or installations.

To achieve their results, Ball-Nogues work with uncommon materials, develop new digital tools, and apply architectural techniques in innovative ways. They share an enthusiasm for process as it relates to the built object, letting the properties and the limitations of the chosen material guide the structure's ultimate form. They develop techniques to extend the boundaries of the material's physical potential.

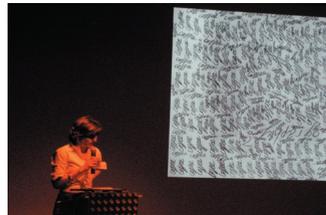


Ripp Curl Canyon Rice Gallery Houston 2006
courtesy of Ball-Nogues Studio

Gaston Nogues and Benjamin Ball met as students at the Southern California Institute of Architecture (SCI-Arc), Los Angeles and both worked for architect Frank Gehry at Gehry Partners.

Nogues worked for eleven years in product design and production where he was known as „the guy who could build anything.“ Ball worked with Gehry Partners as a student, then became a set and production designer in the film industry, working on numerous films, the Matrix series among them.

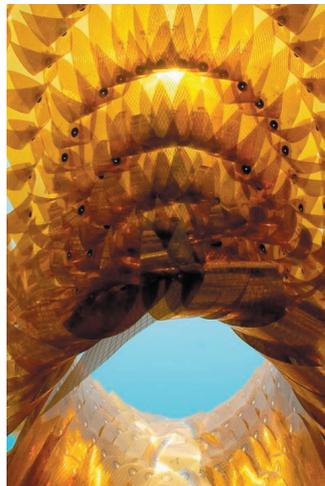
In 2006, Ball-Nogues received Best of Category for Environments in ID Magazine's Annual Design Review for their installation Maximilian's Schell.



lecture: Benjamin Ball / 29th Nov. 2006

„Our interests lie in making physical environments that engage the senses. From a design perspective this means they must be manifest in physical form with a given set of resources - financial, material, labor, etc. Important to understanding our design intentions is knowing how form arises from the physical potential of materials; we are interested in process as it relates to the built object. We allow the physical properties and limitations of chosen materials to guide the ultimate form. We do not imagine form free of materiality - we invent techniques that can produce a range of form and then narrow this range through experimentation with mock-ups in a cycle of feedback with parametric computer models. Our research bears fruit when we have closed the gap between an appropriate (functional and beautiful) form and an invented process.“

Ball&Nogues Studio



Maxilian Schell Installation 2005,
courtesy of Ball-Nogues Studio

//workshop

//////////STRONG EMBRACE

student workshop conducted by Benjamin Ball

1:1 installation in the main building of the University at the Hauptplatz in Linz (Aula)

Workshop Outline

Through a series of exercises involving mock-ups, students will explore the design of structures that envelope space and respond to the conditions of a chosen physical context. Using simple materials such as string, zippers, and paper, students will develop an understanding of a fundamental type of natural structure, minimal surface, and then use that structure as a virtual armature for creating structural skin systems based on parametric „rules“.



//////////////////**CONFIGURATION 1**
net structure becomes configured in particular places through the usage of cable ties (symmetrical layout)

//////////////////**CONFIGURATION 2**
net structure will be suspended from all six existing columns (diameter: 1m) – hanging lose in the open space above the staircase – it exemplifies how it achieves a specific form mainly through gravity

//////////////////**CONFIGURATION 3**
rag pieces will be sorted by colour and knotted to each other forming long structural ropes

they become weaved into the net, enhancing the specific shape of the net structure

//////////////////**CONFIGURATION 4**
some extending textile ropes wrap around existing columns, substituting supporting belt therefore becoming structural elements within the system

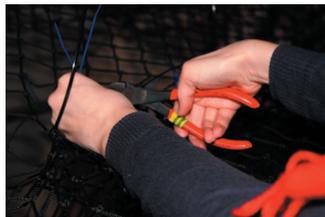
//////////////////**CONFIGURATION 5**
others become weaved into a big knot introducing additional weight with respect to aspects of equilibrium and physical interaction



main elements: net structure, rags
supporting elements: cable ties, belts, additional hardware



rags (textile pieces):
can be twisted, plaid, knotted, tied, stuffed, tightened, colourful



characteristics of net:
light, soft, elastic, flexible, provides a regular system of structural knots

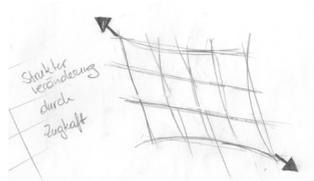
//workshop

//////////EQUILIBRIUM \ GRAVITY

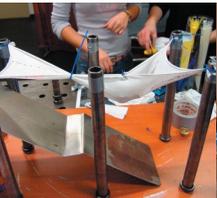
the combination of net structure and textile elements allows to exemplify visually the means of shaping and controlling aspects of force and tension

for the observer gravity becomes visible

the suspended knot enhances equilibrium and at the same time manages to visualize actual weight and tension

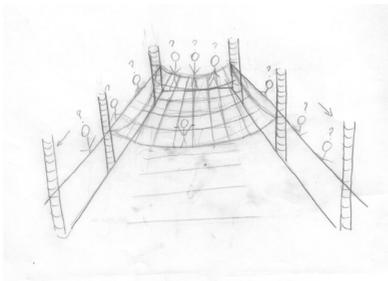


while working resolving temporary issues that come up along the work process



work process lead by creative discontent and structural issues (rule-based)

no metaphoric idea leading the process





existing space

staircase/ central space leading to 1st floor. six columns on the upper first level

producing a symmetrical space

strategy of combining materials

knotting, weaving relying on its natural means of friction

net introduces dimension of elasticity

the net structure as a structural system of regular knots
textile pieces can be knotted to the net points



investigating the structural potential of material



structural consequence

every aspect of tensioning or knotting evokes change in the overall form/ shape – any change will cause structural consequence / consistency in the structural layout



// // roundtable

//////////FROM ABSTRACT SYSTEMS TO PARAMETRIC DESIGN SYSTEMS

round table discussion WS 06/07, took place on
Dec.13th 2006

Mediendeck / Offenes Kulturhaus O.K Linz
moderation: Sandrine von Klot

//////////ROUND TABLE GUESTS

Univ.Prof. Dietmar Dietrich – since 1992
at the Institute of Computer Technology
(ICT), TU Vienna.

Prior to this he worked in the aerospace
industry (computer architecture and bus
systems) and later in the communication
industry (mainly in ISDN development).
His research interests are mainly in
communication systems (esp. on fieldbus
systems) and ASIC design, also including
built-in test systems, boundary scan,
smart card technology, architecture of
process control and control units for
communication systems.

Univ.Prof. Kari Jormakka – since 1998 at
the institute of Architectural Theory , TU
Vienna.

He has received the doctor title in
Philosophy and has been doing various
studies in the fields of film, cultural theory,
computer-edited design besides others.
He is the author of several books, beneath
them ‘Genius Locomotionis’, published in
2005.

Ebru Kurbak – in 2002 she received her
MSc degree in Architectural Design from
Istanbul Technical University.
She is currently engaged in her Ph.D.
studies at the Department of Space &
Design Strategies in Kunstuniversität Linz
, lecturing on 3D Graphics. The title of her
current dissertation is entitled: In Pursuit
of Artificial Ghosts: ‘The Symbiosis of
Immaterial and Material Spaces’. In 2001–
‘03 she worked as a research assistant at
the Department of Visual Communication
Design, Istanbul Bilgi University.



Works like those of Ball-Nogues Studio are informed by intensive research and an experimental approach primarily **involving the application of material dynamics to the organization of form.** One could consider this approach **part of an emerging materialist model for architectural production that privileges the role of matter in the design process:** exploiting the organizational and spatial potentials of the flows of matter and energy that constitute our environment.



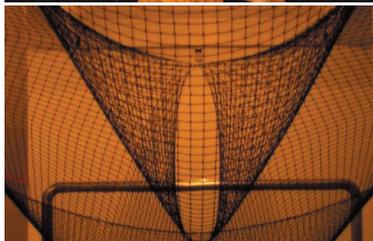
The contemporary building is the place of many processes, optimized and linked by means of information technology and corresponding services such as telecommunication, office-applications, multimedia, security, etc. The advantages of an integrated infrastructure seem evident: seamless functionality and the opportunity to combine isolated processes in a reasonable manner. **The building becomes increasingly integrated into the urban map of soft, continuous change and transformation.** How do we conceptualize the idea of a building today? Who is to design buildings tomorrow?

Since we do we have to acknowledge, that **progressing media will access every level of construction and space** – does this development evoke kinetic as much as cognitive operations on our side, asking for instant, direct response?

Referring to Ball-Nogues Studio, their projects suggest **a user who thrives on immediate, sensual stimulation and material fact.** It is not `what it is´ so much as `how it feels´. The architect as the designer of `effective atmospheres´ ... ?



round table discussion,
dec.13th 2006



"Using material as a source of form-making is an essential modernist idea: the conclusion resides already in the premises, it just needs to be unfolded."

"..that people would be able to access things in the natural, physical world in some direct way and it could be meaningful to oppose this to a mediating experience that we would have in a virtual space – this is a very problematic statement and an ideology which inspires quite a few architects that work in this direction and artists as well."

"I would assume that all the spaces we can experience would be somehow constructed spaces where the construction involves a number of contingent assumptions, cultural conventions, that could be constructed otherwise as well."

"Why does the facade belong to the building, why does it not belong to the streets or.."

"I want to give an example in the automotive area because here things developed faster than in other fields: about 30 years ago we had about 40 electrical components, while today we have about 800 electrical components so the functionality in a car increased dramatically, today 40 percent of the cost goes into the electronic parts – I think the same will be in the building, soon enough we'll have thousands of sensors in our rooms that is for sure."

//feedback



"It is superficial to think of a building as you would think of an animal like a dog walking around where you can sort of see where the dog begins and ends."

"What is it that architects really do better than other people ()?"

"There is a particular tragedy when we are doing architecture – architecture as art is due to be a secondary discourse, it is always in the threat of losing its ground to something that is more fundamental, more objective, more precise, more defined, more scientific or something – and that also includes technology."

"If you have a technological solution and it works well then you have a technology and not architecture anymore. And everybody will accept it because it just delivers what it promises, it just gives us what we want."

"Architecture is so to say conservative, like clothing. () Both have to do with how society functions, and these things change very slowly."

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