

tn-//
richdank
-Guin/

V15.2



SYNOPSIS

THE INTERWEAVING OF ART AND ARCHITECTURE WITH/IN THE FIELD OF DIGITAL MEDIA IS RICHARD DANK'S (1975* IN GRAZ/AUSTRIA) MAIN MÉTIER - SCIENTIFICALLY AND IN PRACTICE.

02

COLLABORATING WITH SEVERAL ARCHITECTS, ARTISTS AND INSTITUTIONS WORLDWIDE HIS OEUVRE OSCILLATES BETWEEN DESIGNING AND DESIGN - FROM GRAPHICS AND VIDEOS, OVER INSTALLATIONS AND WEB APPLICATIONS, TO CONSTRUCTION AND BUILDING -, ALWAYS WITH THE FOCUS ON ALGORITHMIC AND INTERACTIVE PROJECTS ON- AND OFFLINE. IN THE COURSE OF THESE ENCOUNTERS INTENSE WORKING RESIDENCES AND STUDY JOURNEYS TO AMERICA, ASIA AND ALL OVER EUROPE HAVE BEEN REALIZED.

SINCE 2000 HE IS WORKING INDEPENDENTLY AS RICHDANK.COM, MOREOVER, SINCE 2007 AS A PARTNER IN THE ARCHITECTURE CLUSTER 0704. HE RECEIVED HIS DIPLOM'INGENIEUR (MASTER OF SCIENCE) IN ARCHITECTURE FROM THE GRAZ UNIVERSITY OF TECHNOLOGY IN 2006 WITH HONORS. BY THE END OF 2014, AFTER MORE THAN A DECADE AT THE INSTITUTE OF ARCHITECTURE AND MEDIA HE LEFT HIS TEACHING/RESEARCHING POSITION AS FULLTIME UNIVERSITAETSASSISTENT (ASSISTANT PROFESSOR).

SYNOPSIS 02

INSTITUTE OF ARCHITECTURE AND MEDIA 05

AUARLA	06
PALLANTIS - ALGORITHMIC CHANDELIER	10
THE FRAMED PAVILION	14
BOOT THE BOT	18
AUGMENTED STYRIA DESK	22
DM2	26

ADRIART 33

FORECAST : TURBULENCE	34
BIX.PERFORM();	40
LÓGOS	44

RYUGYONG.ORG 47

PROJECT	48
THESIS	52

0704 ARCHITECTURE CODING COLLABORATION 55

[]	56
SWIMMING WATERS	60
STALK	65
MAPHORB	69

TIMELAPSE 73

KULTUR.GRAZ 77

AVL POWERTRAIN 79

DATA APPENDIX 81

CV	82
DESIGN STUDIOS, WORKSHOPS AND LECTURES. ...	84
OTHER COURSES CONDUCTED	86
MASTER THESES SUPERVISED	87
PUBLISHED	87
EXHIBITED	89
AND AWARDED	92
SKILLS / LANGUAGES	93

THE PRIVATE CHAPTER 95

THE FOCUS OF THIS PORTFOLIO IS THE FIRST TWO DECADES OF EXPERIENCE IN THE ACADEMIC WORLD AND IN VARIOUS WORKCLUSTERS OUTSIDE THE UNIVERSITY. EXEMPLARY PROJECTS SHALL BRIEFLY BE PRESENTED AND ILLUSTRATED. VERSION FEBRUARY 2015.

FOR FURTHER DETAILS ON ALL ACTIVITIES PLEASE VISIT
<http://richdank.com/>

iam

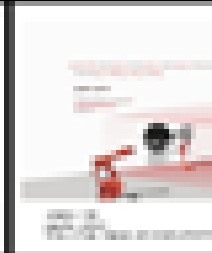
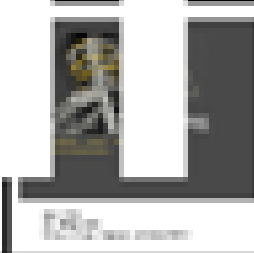
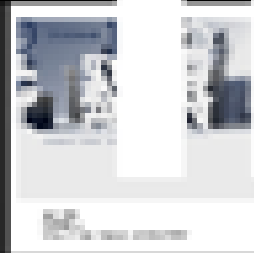
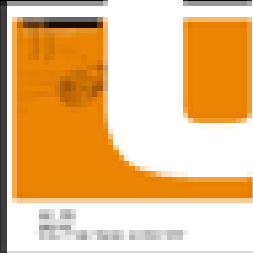
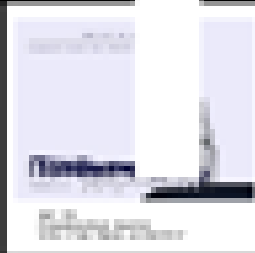
INSTITUTE OF ARCHITECTURE AND MEDIA
A PART OF THE UNIVERSITY OF DUISBURG-ESSEN

STREET: 47057 DUISBURG, GERMANY

THE INSTITUTE OF ARCHITECTURE AND MEDIA (IAM) IS A PART OF THE UNIVERSITY OF DUISBURG-ESSEN. IT IS A CROSS-DISCIPLINARY INSTITUTE THAT BRINGS TOGETHER ARCHITECTS, DESIGNERS, ENGINEERS, AND SCIENTISTS TO WORK ON INTERDISCIPLINARY PROJECTS. THE INSTITUTE IS FOCUSED ON THE RESEARCH AND DEVELOPMENT OF NEW ARCHITECTURAL FORMS AND MATERIALS, AS WELL AS THE INTEGRATION OF DIGITAL TECHNOLOGIES INTO THE DESIGN PROCESS.

Expertise : Algorithmic Architecture

LOW



Institute : of Architecture and Media

LOW is a series of publications that explore the possibilities of algorithmic architecture. The series is edited by the Institute of Architecture and Media (IAM) and features contributions from leading architects and researchers in the field. The publications are available in both print and digital formats.

INSTITUTE OF ARCHITECTURE AND MEDIA

05

AFTER BEING TEACHING ASSISTANT AT THE FACULTY OF ARCHITECTURE, RICHARD DANK BEGAN WORKING AS A VISITING LECTURER EVEN BEFORE GRADUATING AT THE GRAZ UNIVERSITY OF TECHNOLOGY. IN 2009 HE BECAME UNIVERSITÄTSASSISTENT (ASSISTANT PROFESSOR) AT THE INSTITUTE OF ARCHITECTURE AND MEDIA, TEACHING MASTER DESIGN STUDIOS AND DIGITAL DESIGN METHODS. THAT CHAPTER PROVIDES A BRIEF OVERVIEW OF THE RESULTANT WORKS THAT WERE ORIGINATED UNDER HIS (AND HIS COLLEAGUES) DIRECTION.

FOR FURTHER DETAILS ON THIS CHAPTER PLEASE VISIT

<http://richdank.com/?iam>

<http://iam.tugraz.at/>



AUARLA

AUGMENTED ARCHITECTURE LABORATORY

RETROFITTING AN EXPERIMENTAL MEDIA LAB
(MASTER DESIGN STUDIO)

2013/14

WITH CHRISTIAN FREISSLING AND URS HIRSCHBERG
FOR THE INSTITUTE OF ARCHITECTURE AND MEDIA / TUG

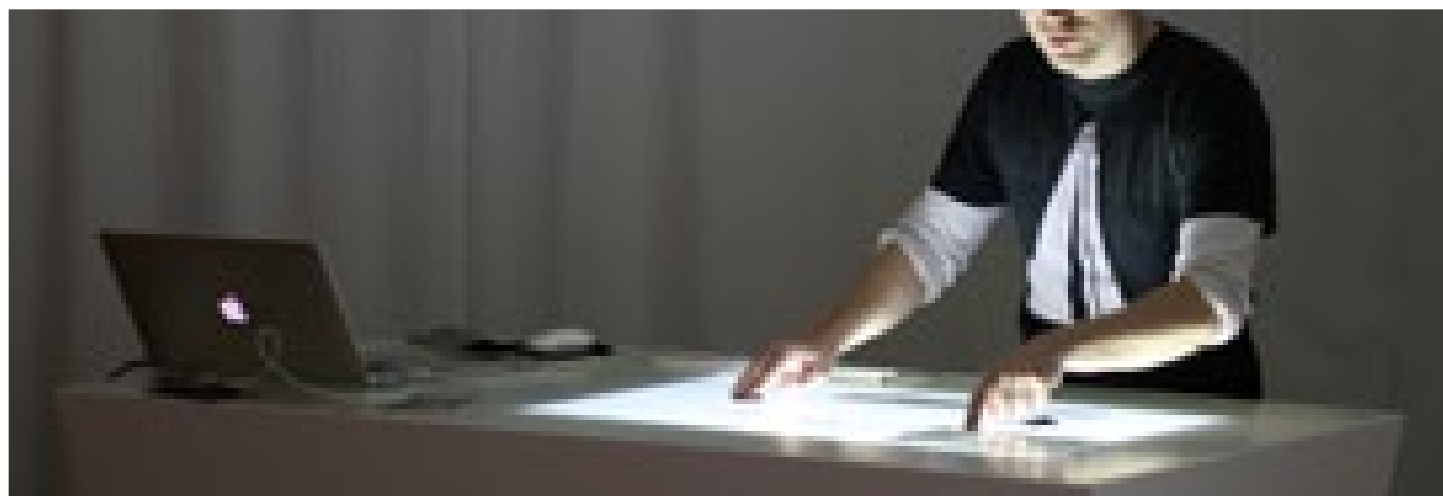
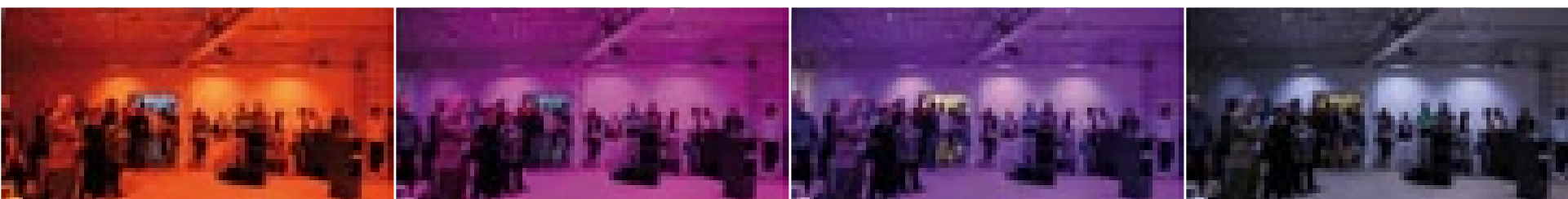
06

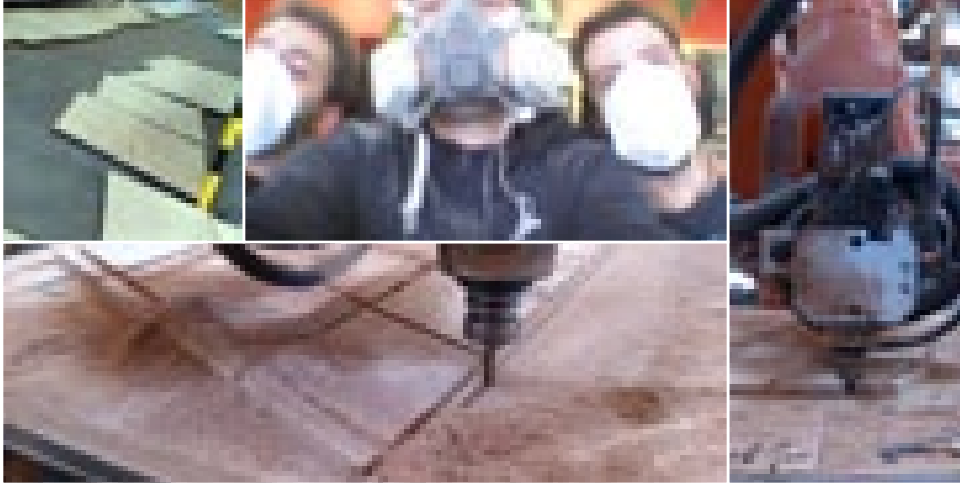
SINCE THE BEGINNING OF THE CURRENT MILLENNIUM, THE ESTABLISHMENT OF THE INSTITUTE OF ARCHITECTURE AND MEDIA AS AN INDEPENDENT CHAIR AND ITS RELOCATION TO THE NEW, THIRD CAMPUS OF THE GRAZ UNIVERSITY OF TECHNOLOGY, WE HAVE BEEN OPERATING AN EXPERIMENTAL SEMINAR ROOM AT INFFELDGASSE. THERE WE AND COLLEAGUES FROM AROUND THE GLOBE WERE TRYING TO EXPLORE THE IMPACT OF NEW MEDIA TECHNOLOGIES ONTO ARCHITECTURE IN NUMEROUS WORKSHOPS AND PRESENTATIONS. BUT THE THEORETICAL BASIS AND TECHNOLOGICAL DEVELOPMENT ARE PROGRESSING STEADILY. AND SO OUR PLAYGROUND HAD TO BE ADAPTED.

FOR FURTHER DETAILS ON THIS SECTION PLEASE VISIT

<http://iam.tugraz.at/studio/w13/>

<http://iam.tugraz.at/studio13w/category/auarla/>





TWOFOLD TASK

FIRST, WE WANTED TO GIVE THE ROOM A NEW LOOK, INCLUDING A LARGE VARIETY OF LIGHT AND PROJECTION TECHNOLOGIES, IMMERSIVE ENVIRONMENTS, TACKING-SYSTEMS, SENSORS - ALLOWING FOR GENUINE SPATIAL AUGMENTATION. SECONDLY, THE INTANGIBLE DESIGN RESOURCES, SUCH AS LEDS AND VIDEO BEAMERS, REQUIRED A SMART CONCEPT - BOTH FOR FLEXIBLE MOUNTING AND STRAIGHTFORWARD USAGE. MOREOVER, THE COMPLETE SETUP NEEDED TO BE CONTROLLABLE VIA A SINGLE DEVICE: AN INTERACTIVE TABLE WITH A CORRESPONDINGLY APPEALING INTERFACE, OPEN FOR INTERCONNECTIONS IN ANY DIRECTION.



DESIGN AND PRODUCTION

THE PARTICULARLY PROMISING CONCEPT WAS TO MAKE THE ENTIRE TECHNOLOGY APPARENT, VISIBLE - NOT HIDING, BUT STAGING IT. SOMETHING LIKE THE CLEAN AND TIDY CHAOS OF A SERVER RACK, MAYBE.

A WARPED GRID OF SLOTS ON THE CEILING STRUCTURES THE LABORATORY ANEW. IN PARTS THE FRESH SKIN BLENDS DOWN ON THE FLOOR INTO FUNCTIONAL WALL ELEMENTS AND FURNITURE.

OF COURSE, CONTEMPORARY DIGITAL FABRICATION METHODS PLAYED A MAJOR ROLE. INDIVIDUALLY PRODUCED WOODEN PANELS WERE VARNISHED WHITE, THEN MACHINED BY A ROBOT, AND FINALLY SCREWED ONTO A SUBSTRUCTURE. THE RECESSED, WEDGE-SHAPED SLOTS ARE ABLE TO CARRY EVERY CONCEIVABLE HARDWARE, ENSURE THE EASY WIRING, HIDE THE FIXTURE POINTS, BUT REVEAL THE TEXTURE OF THE LAMINATED TIMBER.



.DESK AND .CONTROL

THE 24 LED-DOWNLIGHTS ARE INDIVIDUALLY CONTROLLABLE OVER THE NETWORK VIA DMX512 SUPPORTING THREE DIFFERENT MODES OF OPERATION: CTC, RPB AND CIE, BASICALLY VERY ENERGY-EFFICIENT, TRUE-COLOR LIGHT SOURCES. THEY ARE WIRED WITH SINGLE POWER-DMX-CABLES, JUST SLID IN THE GRID, AND THEREFORE EASILY TRANSPOSABLE.

THE DIFFERENT DATA PROJECTORS ARE AGAIN FREELY MOUNTABLE, ADDRESSED OVER THE NETWORK, BUT VIA P.JLINK-PROTOCOL.

AND THE VICON-TACKING-SYSTEM, OTHER SENSORS (FOR EXAMPLE FROM ARDUINO) OR EXTERNAL INPUT DEVICES (SUCH AS TOUCH-PADS) ALL COMMUNICATE VIA OSC WITH THE BRAIN OF THE LAB: THE AUARLA.DESK.

THAT COUNTER ON CASTORS CONSISTS OF A STAND-ALONE WORKSTATION, A REAR PROJECTION OVER A MIRROR ONTO A TRANSLUCENT GLASS PANE, INFRARED-CAMERA-TRACKED MIXED-REALITY-MARKERS AND SEVERAL CONNECTION PLUGS. THE COMPLETE SYSTEM IS RUNNING ON AUARLA.CONTROL - A JAVA-BASED OPEN SOURCE ENVIRONMENT. ALL SELF-DESIGNED AND -IMPLEMENTED.

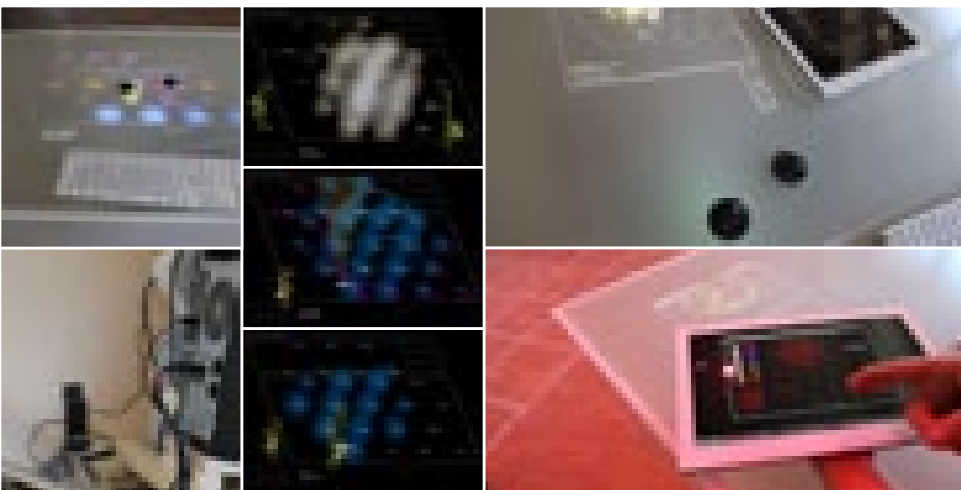
CREDITS

WE WERE FORTUNATE TO DEVELOP THE STUDIO, ALL THE DESIGN PROPOSALS PLUS THE FINALLY CHOSEN AND REALIZED SCHEME BY MELANIE REIF (WITH SEBASTIAN WATTENBERG) IN CLOSE COLLABORATION WITH TWO INDUSTRY PARTNERS. THERE WAS LUMITECH/KITEO WITH EXTENSIVE EXPERTISE IN LED TECHNOLOGY AND SUBSTANTIAL SUPPORT. SECONDLY, THE ENGINEERING CENTER WOOD, WHERE THE WHOLE GROUP COULD PREFABRICATE THE BITS AND PIECES IN THE PROTOTYPE WORKSHOP ON AN ABB ROBOT SYSTEM.

TWOFOLD CAPABILITY

FINALLY THE AUARLA WAS OFFICIALLY REOPENED IN THE COURSE OF THE INSTITUTE'S 10-YEAR ANNIVERSARY CELEBRATION IN MAY 2014 WITH MANY FACULTY MEMBERS AND INTERNATIONAL VISITORS.

THE COMPLETELY REVAMPED SPACE, ON THE ONE HAND, IS NOW ABLE TO SATISFY VARIOUS STANDARD SPECIFICATIONS, SUCH AS LECTURES AND EXHIBITIONS, BUT ON THE OTHER HAND, STILL ADAPTABLE ENOUGH TO ALLOW FOR DIVERSE EXPERIMENTAL APPROACHES IN TEACHING AND RESEARCH.





PALLANTIS

KRONLEUCHTER

ALGORITHMIC | CHANDELIERS

(MASTER DESIGN STUDIO)

2012/13

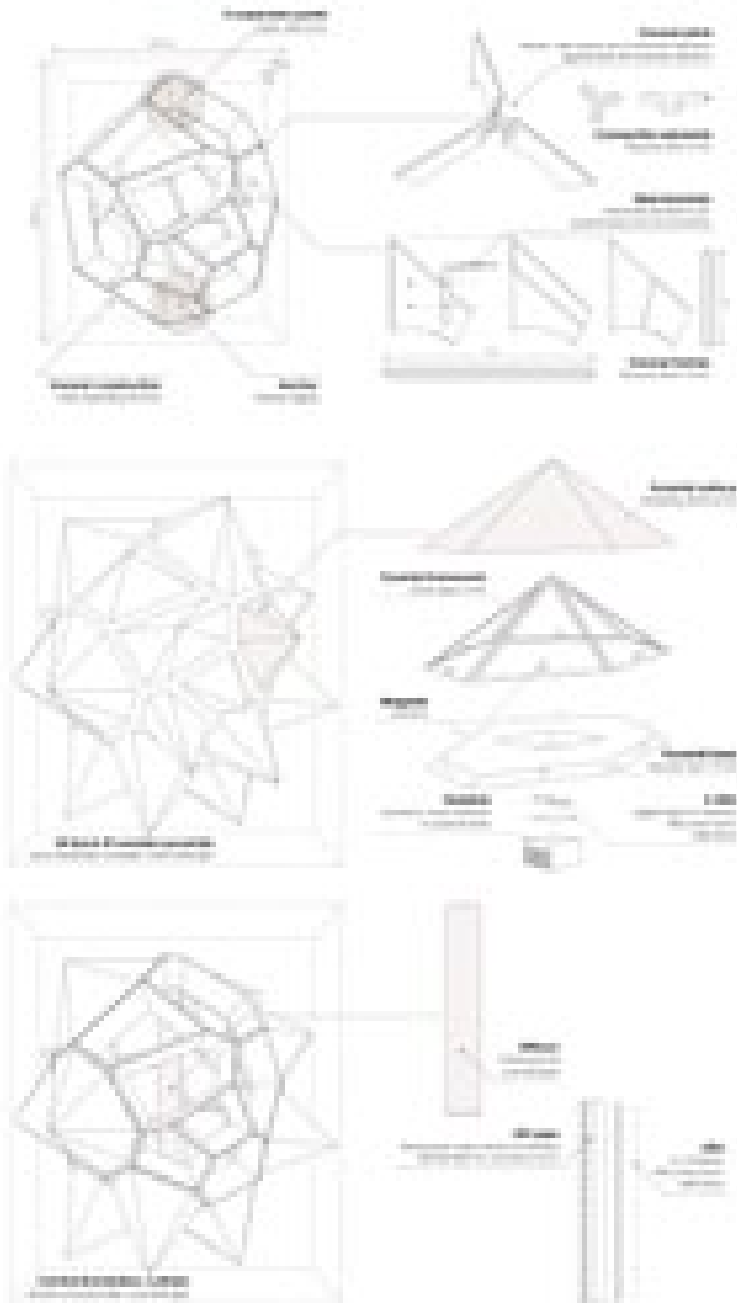
WITH CHRISTIAN FREISSLING, URS HIRSCHBERG AND SOPHIA KLEES
FOR THE INSTITUTE OF ARCHITECTURE AND MEDIA / TUG

THE AIM OF THE MASTER DESIGN STUDIO KRONLEUCHTER AT THE INSTITUTE OF ARCHITECTURE AND MEDIA WAS TO DESIGN AN OBJECT THAT UTILISES CONTEMPORARY CNC FABRICATION PRINCIPLES AND TAKES ADVANTAGE OF THE MANIFOLD FEATURES OF THE MATERIAL WOOD. MOREOVER, THE OPTIONS OF TODAY'S LED TECHNOLOGY AND ITS CAPABILITY OF BEING DIGITALLY CONTROLLED SHOULD FUNDAMENTALLY INFLUENCE THE APPROACH. THE WORKS HAD TO BE FULLY PARAMETRIC IN DESIGN AND PRODUCTION AS WELL AS INTERACTIVELY OPERABLE. TO PUT IT BRIEFLY, THE ASSIGNMENT TARGETED THE QUESTION WHETHER AN OUT-OF-THE-ORDINARY CHANDELIER COULD BE PRODUCED SOLELY IN WOOD.

FOR FURTHER DETAILS ON THIS SECTION PLEASE VISIT

<http://iam.tugraz.at/studio/w12/>

http://iam.tugraz.at/studio/w12_blog/?cat=12



DESIGN

AFTER THREE MONTHS OF INTENSE WORK ON 17 DIFFERENT PROJECTS – EACH OF THE PARTICIPATING STUDENTS DEVELOPED A COMPLETE FULL-SCALE PROJECT –, JUST BEFORE CHRISTMAS 2012, PAUL FRICK'S CHANDELIER DESIGN WAS FINALLY CHOSEN TO BE IMPLEMENTED. HIS CONCEPT IS CALLED PALLANTIS, NAMED AFTER THE GREEK GODDESS OF THE DAWN, ALSO KNOWN AS EOS. IT IS SOMEWHAT LIKE A WOODEN CRYSTAL, COMPOSED OF VENEER PYRAMIDS ON A THREE-DIMENSIONAL VORONOI COCOON.

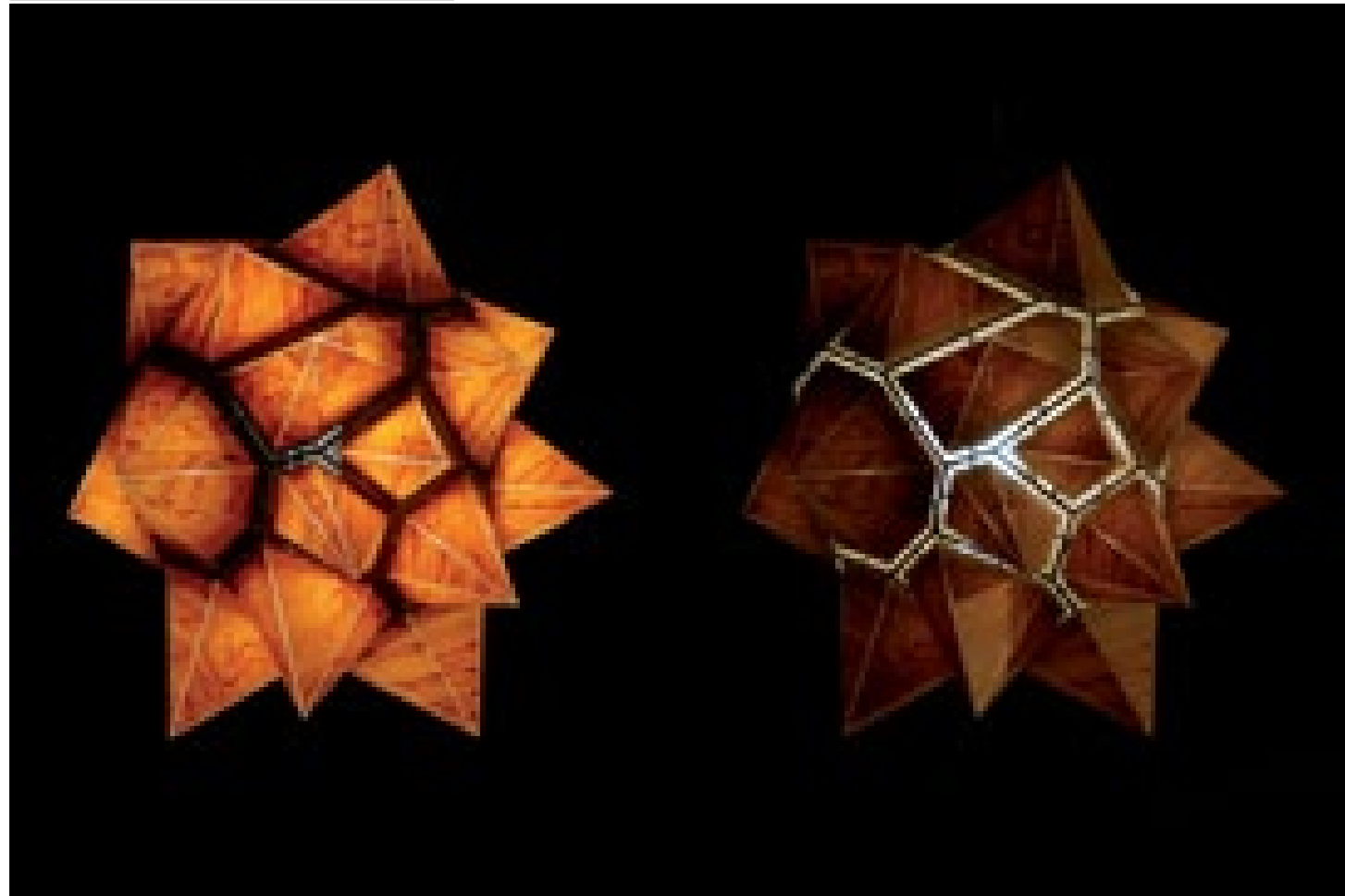
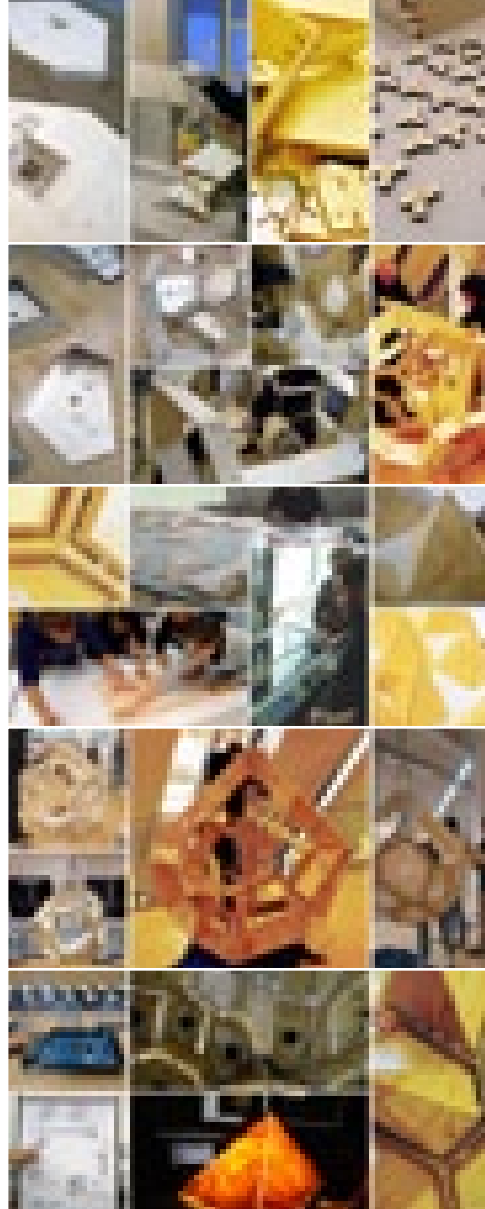
THEREFORE THE IAM TEAMED UP WITH TWO POTENT PARTNERS FROM THE INDUSTRY: THE WOOD INNOVATION CENTRE [HOLZINNOVATIONSZENTRUM] (HIZ) IN ZELTWEG, AUSTRIA AND LUMITECH. THE HIZ IS A CLUSTER, BRINGING TOGETHER THE STRONG STYRIAN WOOD PRODUCING AND PROCESSING BUSINESSES, WHEREAS LUMITECH IS A HIGHLY SPECIALISED COMPANY FOR LIGHTING SOLUTIONS.

CONSTRUCTION

THE ULTIMATELY BUILT COCOON ITSELF DISSOLVES INTO 66 UNIQUE 19 MM BIRCH PLYWOOD RIBS FRAMING 24 OUTER CELLS. AT EVERY JOINT EXACTLY THREE FRAMES INTERSECT AT VARIOUS ANGLES, ENTAILING DIFFERENT DIMENSIONS AND MITRE CUTS. PRODUCED ON A CNC MACHINE WITH DIFFERENT MILLING HEADS AND CIRCULAR SAWS, THEY WERE ALL AGGLUTINATED WITH ASSEMBLY ADHESIVE IN THE MITRE PLANES AND VIA ADDITIONAL CONNECTION ELEMENTS. THAT 6 MM PLYWOOD WAS CUT AND LABELLED WITH LASER-CUTTERS.

THE OUTER CELLS FORM THE BASIS FOR PYRAMIDS OF DIFFERENT HEIGHTS. THOSE HAD TO BE PRODUCED IN DIFFERENT LAYERS. THE INNERMOST LAYER IS THE ACRYLIC GLASS FRAMEWORK, WHICH WAS COATED WITH OLIVE VENEER. IT HOLDS MAGNETS AS WELL, SO THAT EACH TRANSLUCENT PYRAMID EASILY SNAPS ON THE BASIS, WHICH AGAIN IS MADE FROM PLYWOOD. AN ALUMINIUM HEAT SINK WITH TWO 900 LUMEN WARM WHITE LEDS IS SCREW-FASTENED ON THE BACK OF IT. INDIVIDUALLY BENDED STEEL BRACKETS HOLD THE BASE PLANES IN PLACE, CREATING THE IMPRESSION OF FLOATING PYRAMIDS.

IN ADDITION, AN ALUMINIUM RECTANGULAR HOLLOW SECTION IS FIXED WITHIN THE COCOON, ALONG ITS CENTRAL AXIS. IT IS THE SUBSTRUCTURE FOR AN ILLUMINATION CYLINDER. AS THERE IS A 24 MM GAP BETWEEN THE VORONOI STRUCTURE AND THE PYRAMIDS, THE INNER LIGHT SHINES THROUGH AND HIGHLIGHTS THE FRAME CONSTRUCTION.



KEY DATA

DUE TO TRANSPORTATION LIMITATIONS THE COCOON'S BOUNDING BOX WITH THE BASE PLANES IS ABOUT $135 \times 135 \times 180$ CM. THE OVERALL CHANDELIER (WITH THE REMOVABLE VENEER PYRAMIDS SNAPPED ON) IS ABOUT $180 \times 180 \times 200$ CM, WEIGHING JUST A FEW POUNDS LESS THAN 100 KG AND PROVIDING AROUND 100,000 LUMEN OF LIGHTING POWER. ALL WOODEN PARTS ARE VARNISHED WITH LOW FLAMMABLE, STILL TRANSPARENT COATING, TO MEET MISCELLANEOUS STANDARDS FOR PUBLIC VENUES.

IT IS AGAIN IMPORTANT TO POINT OUT THAT NOT ONLY THE DESIGN OF PALLANTIS IS COMPLETELY CREATED AND OPTIMISED PARAMETRICALLY. ALL PROJECT DATA – FROM THE 3D MODEL AND THE CONSTRUCTION PLANS DOWN TO THE NESTED LASER-CUTTER FILES AND CNC MILLING CODE – IS GENERATED ON THE FLY. THE SOFTWARE USED IS THE FREE GENERATIVE MODELLER GRASSHOPPER FOR RHINO WITH SEVERAL SELF-DEVELOPED COMPONENTS.

LIGHT

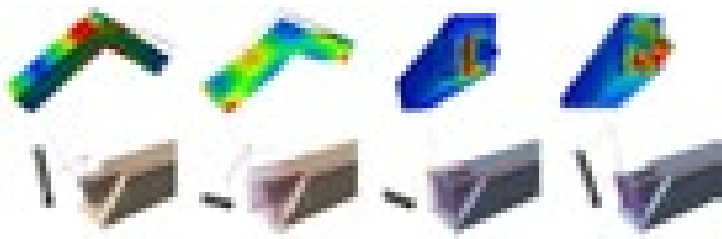
BASICALLY ALL 25 LIGHT SOURCES WERE WIRED INDEPENDENTLY. PLUS THE COMPLETE LED LIGHTING SYSTEM HAD TO BE BUILT AND PROGRAMMED TO CONTROL THE INNER ILLUMINATION CYLINDER AND EACH PYRAMID SEPARATELY.

THE FINAL OUTPUT OF THE LEDS IS DETERMINED BY PULSE-WIDTH MODULATION (PWM) OVER AN ARDUINO BOARD – AN OPEN-SOURCE ELECTRONICS PROTOTYPING PLATFORM. THE BOARD ITSELF NEEDED TO BE PROGRAMMED, AND LIKEWISE, AN APPLICATION HAD TO BE ENVISIONED TO INTERACTIVELY CONTROL THE EFFECTS. IT WAS MAINLY WRITTEN IN JAVA-BASED PROCESSING – AGAIN AN OPEN SOURCE PROGRAMMING LANGUAGE AND ENVIRONMENT.

PRESENTATION

THE BALL OF TECHNOLOGY 2013, WHICH TOOK PLACE UNDER THE HEADING 'ARCHITECTURE INSPIRES' ON THE 25TH OF JANUARY, POSED A PERFECT AMBIENCE TO ILLUSTRATE THE POTENTIAL OF NON-STANDARD SYSTEMS IN DIGITAL DESIGN. MORE THAN 2000 ENTHUSIASTIC BALLROOM DANCERS FROM SCIENCE AND INDUSTRY WORLDWIDE CELEBRATED UNTIL THE EARLY MORNING UNDER THIS WOODEN CRYSTAL IN THE STEFANIENSAAL AT THE CONGRESS GRAZ. A FEW MONTHS LATER PALLANTIS WAS CHOSEN TO BE PART OF THE EXHIBITION 'SELECTED PROJECTS FROM THE FACULTY OF ARCHITECTURE' DURING THE DESIGNMONAT GRAZ.





THE FRAMED PAVILION

BOT/LOG

PARAMETRICS/JOINTS CONSTRUCTED/DESIGNED BY/IN ROBOTS/WOOD
(MASTER DESIGN STUDIO)

2011/12

WITH CHRISTIAN FREISSLING AND URS HIRSCHBERG
FOR THE INSTITUTE OF ARCHITECTURE AND MEDIA / TUG

IT STARTED OUT AS A DESIGN MASTER STUDIO WITH A GROUP OF STUDENTS AND THE STRONG STYRIAN WOODWORKING INDUSTRY ONBOARD.

THE OBJECTIVE: DESIGN A STRUCTURE AND ALL JOINTS SOLELY MADE FROM TIMBER, NO GLUE OR OTHER FASTENERS OR FIXINGS ALLOWED. FOR THE REALIZATION USE THE CAPABILITIES OF A 6-AXES ROBOT ON AN ADDITIONAL LINEAR AXIS. MOREOVER THE ENTIRE PROJECT MUST BE APPLIED PARAMETRICALLY! START TO ANALYZE EXISTING AND TRADITIONAL EUROPEAN AND JAPANESE WOOD JOINTS AND TEST THEIR POSSIBILITIES TO TRANSFORM THEM TO DIGITAL AND PARAMETRICAL MODELS. NEXT STEP IS TO IMPROVE THE PARAMETRICAL MODELS IN CONSIDERATION OF PRODUCING ALL JOINTS WITH OUR ROBOT AND THE MILLING ENVIRONMENT. WITH THIS DEVELOPED DATA START TO DESIGN AND SIMULATE A WALK-IN STRUCTURE. THE STUDIO CONCLUDED WITH 18 INDIVIDUAL FULL-SCALE ALGORITHMIC PROJECTS AND ONE COMPLETELY IMPLEMENTED AND BUILT STRUCTURE – THE FRAMED PAVILION.

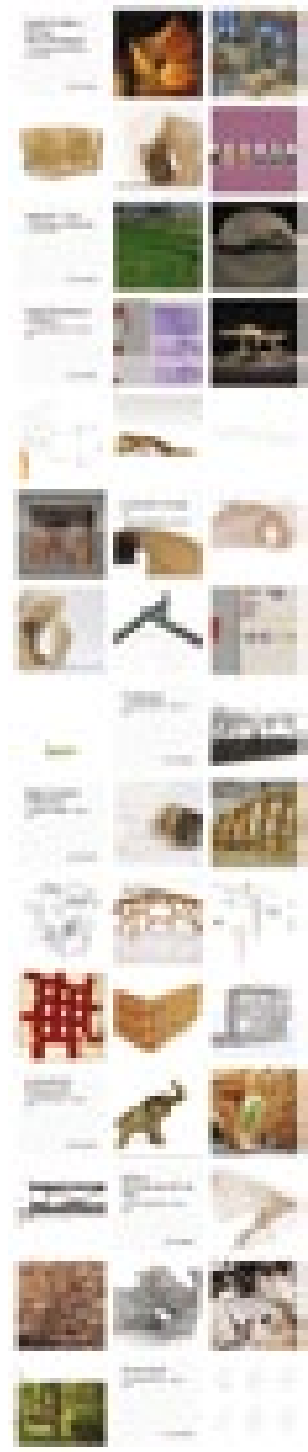
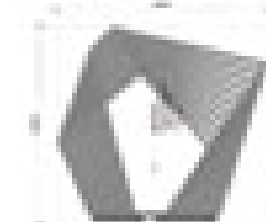
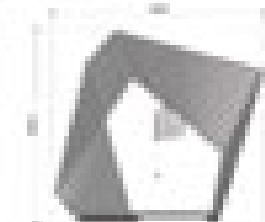
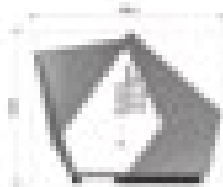
FOR FURTHER DETAILS ON THIS SECTION PLEASE VISIT

<http://iam.tugraz.at/studio/w11/>

http://iam.tugraz.at/studio/w11_blog/?cat=14

<http://vimeo.com/36276315>

<http://richdank.com/theory/tfp/>



PARAMETRIC PROJECT

SABINE LEHNER'S ORIGINAL DESIGN INTENTION WAS TO BUILD IRREGULAR PENTAGONAL FRAMES MUTATING ALONG AN AXIS. THE IMPLEMENTED ALGORITHMIC PROCESS ENABLES THE USER TO CONVERT ANY BASIC SURFACE THAT SEEMS APPEALING. THE APPLICATION ASSISTS TO MEET THE RESTRICTIVE PARAMETERS SUCH AS THE POSITIONING OF THE WOODEN DOWELS, THE MINIMUM AND MAXIMUM BEAM LENGTH AND JOINT ANGLES. THEREBY IT WAS POSSIBLE TO GENERATE A MORPHING SHAPE BETWEEN THE INTERIOR AND THE EXTERIOR WHERE HEIGHT VARIATIONS, GAPS AND OPENINGS DEFINE A SPECIAL AMBIANCE.

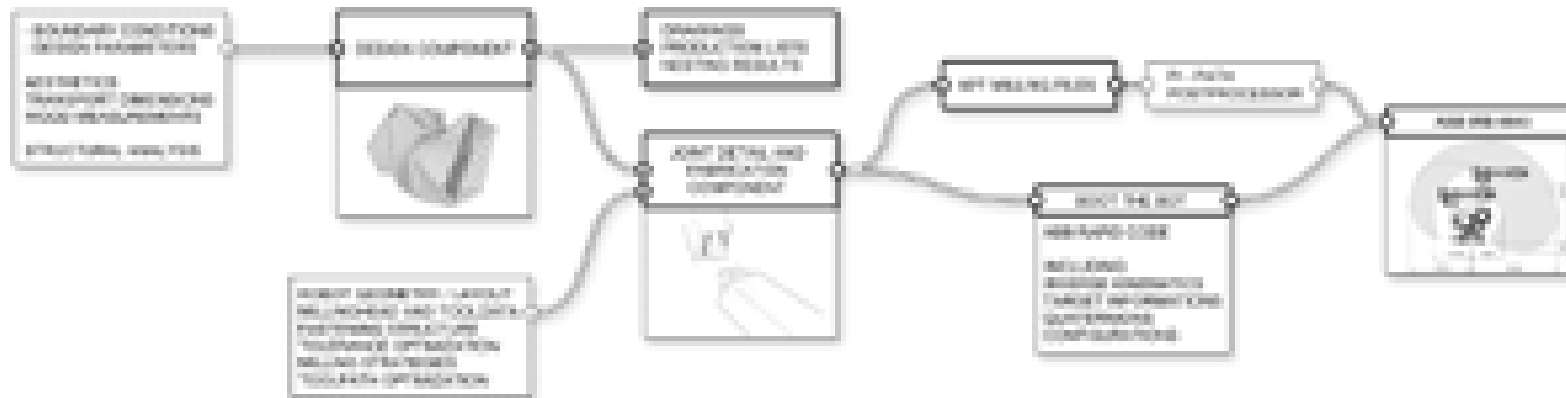
THE FRAMEWORK FOR THE CONCEIVED DESIGN TO PRODUCTION WORKFLOW WAS RHINOCEROS EXTENDED BY ITS VISUAL PROGRAMMING LANGUAGE GRASSHOPPER. THESE TOOLS LET US BUILD A BRIDGE BETWEEN DESIGN, SIMULATION AND FABRICATION AND GIVE ALL THE OPPORTUNITIES TO ENLARGE THEIR FUNCTIONALITY BY SPECIALLY PROGRAMMED ADD-ONS. DUE TO PERFORMANCE AND HANDLING ISSUES OF LARGE DATASETS WE DECIDED TO SPLIT OUR PARAMETRICAL PROCESS INTO TWO COMPONENTS THAT ARE LINKED TOGETHER:

1. DEFINITION OF BOUNDARY CONDITIONS AND MAIN DESIGN ENVIRONMENT.
2. ELABORATION FOR THE JOINT DETAILS INCLUDING ROBOT CODE GENERATION.

EVOLUTION FROM DESIGNED SHAPE TO FINALLY DEFINED FRAMES

BESIDE AESTHETICS, TRANSPORT DIMENSIONS, GIVEN WOOD MEASUREMENTS AND OTHER BOUNDARY CONDITIONS, STRUCTURAL ANALYSIS IS ONE OF THE BIGGEST INFLUENCES TO CONSTRUCT OUR RIGID WOOD FRAME STRUCTURE. IN COLLABORATION WITH THE INSTITUTE OF STRUCTURAL DESIGN (ITE). IT WAS POSSIBLE TO DEFINE MAXIMUM BEAM LENGTH ACCORDING TO ITS CROSS SECTION AND THE CREASE ANGLE RANGE BETWEEN EACH WOODEN BEAM INSIDE THE POLYGONAL FRAME WHERE OUR RIGID JOINT DESIGN IS CARRYING ALL LOADS WITHOUT ANY EXTERNAL FASTENER AND FIXING. THEREFORE FINITE ELEMENTS SIMULATIONS WITH DIFFERENT LOAD SITUATIONS WERE CALCULATED. BASED ON THESE CONDITIONS ALL NECESSARY MACHINING OPERATIONS WERE SPECIFICALLY DEVELOPED TO GENERATE AUTOMATED PRODUCTION DATA.

IN ADDITION TO THE FINAL SHAPE OF "THE FRAMED PAVILION" ALL DRAWINGS, PRODUCTION LISTS, MOUNTING INSTRUCTIONS AS WELL AS MATERIAL NESTING RESULTS WERE GENERATED ON THE FLY WITH OUR FIRST DESIGN COMPONENT. THE DATA FOR EACH BEAM, AS WELL AS FOR EACH JOINT IS DEFINING THE INPUT FOR OUR SECOND COMPONENT, WHERE ALL JOINT INFORMATION IS GATHERED AND ROBOT-MILLING CODE IS GENERATED.





ROBOTIC FABRICATION

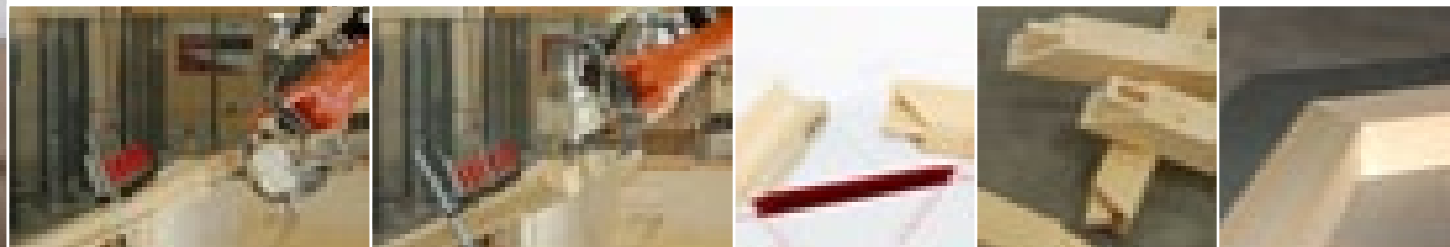
TO KEEP DIFFERENT ROBOTIC PRODUCTION ENVIRONMENTS AND ROBOT MANUFACTURER IN MIND WE DEVELOPED TWO GATEWAYS TO COMMUNICATE WITH THE OUTPUT DEVICES. OUR COMPONENT IS ABLE TO EXPORT APT MILLING FILES WHICH ARE STANDARD IN EXCHANGING MILLING INFORMATION AS EXAMPLE FOR ROBOT POST PROCESSORS LIKE PI-PATH FOR ABB ROBOTS. THE SECOND OUTPUT FORMAT CREATES THE POSSIBILITY TO DIRECTLY WRITE AND SIMULATE ENTIRE ABB RAPID CODE IN REAL-TIME WITHOUT INTERMEDIATE STEPS BETWEEN DESIGN ENVIRONMENT AND PRODUCTION. THEREFORE ALL INVERSE-KINEMATICS, TARGET INFORMATION, QUATERNIONS AND CONFIGURATIONS ARE CALCULATED ON THE FLY – SEE THE JAVA-BASED SIMULATION, CODE GENERATOR AND LIVE CONTROLLER FOR ABB ROBOTS BOOT THE BOT FOR DETAILS.

MILLING AND ASSEMBLY

IN JANUARY 2012 OVER A PERIOD OF THREE WEEKS OUR DESIGN MASTER STUDIO STUDENTS PRODUCED AND ASSEMBLED TFP WITHIN THE PRODUCTION ENVIRONMENT FROM THE ENGINEERING CENTER WOOD (ECW). ALTHOUGH WE COULD SAVE ABOUT 48 HOURS OF MACHINE TIME DUE TO MILLING PATH OPTIMIZATION, THE PRODUCTION OF ONE JOINT STILL TOOK BETWEEN 8 AND 11 MINUTES – DEPENDING ON ITS GEOMETRY.

IN A PARALLEL MANUFACTURING PHASE, THE PENTAGONAL FRAMES WERE ASSEMBLED. THE PRECISE PRODUCTION MADE IT POSSIBLE THAT THE CORNERS GAINED SUFFICIENT STABILITY AND STIFFNESS JUST BY BEING HAMMERED TOGETHER – NO ADDITIONAL ADHESION NEEDED. ELEVEN INDIVIDUAL FRAMES ARE THEN SUCCESSIVELY PLACED ON A CRADLE AND DOWELED TOGETHER – WITH WOODEN PLUGS DRIVEN IN AT THE PREDEFINED SKEW DRILL HOLES – TO TRANSPORTABLE UNITS.

SINCE COMPLETION TFP WAS TRANSPORTED ACROSS AUSTRIA, EXHIBITED IN PUBLIC, DISCUSSED IN ARCHITECTURE MAGAZINES AND AT CONFERENCES AND IS NOW FINALLY DEPLOYED IN THE MUNICIPAL PARK OF THE CITY OF KAPFENBERG.





BOOT THE BOT

PAPIER PEINT

PROGRAMMING IRB 140
(MASTER DESIGN STUDIO)
2010/11

WITH CHRISTIAN FREISSLING AND URS HIRSCHBERG
FOR THE INSTITUTE OF ARCHITECTURE AND MEDIA / TUG

SOON AFTER WE AT THE GRAZ UNIVERSITY OF TECHNOLOGY DECIDED TO ACQUIRE ABB ROBOTS IN 2009/10 IT BECAME CLEAR THAT WE NEEDED TO DIRECTLY CONTROL THE MACHINES IN ORDER TO BE ABLE TO PRODUCE REMARKABLE OUTPUT. WE AGREED THAT, IN THE LONG RUN, IT IS VALUABLE AND REWARDING TO BE ABLE TO MANIPULATE A MACHINE OF THAT CAPABILITY ON AN ADVANCED LEVEL – ESPECIALLY FOR ARCHITECTS AND ARTISTS. WE NEEDED TO UNDERSTAND THE TOOL WE WERE USING AS THOROUGHLY AS POSSIBLE. SO WE – JACOB WEGERER AND I – STARTED TO DEVELOP OUR OWN KINEMATIC SOLVER: BOOT THE BOT (BTB).

FOR FURTHER DETAILS ON THIS SECTION PLEASE VISIT

<http://iam.tugraz.at/studio/w10/>
http://iam.tugraz.at/studio/w10_blog/
<http://vimeo.com/25445351>
<http://richdank.com/theory/btb/>

BTB

WE WANTED THE APPLICATION TO BE AS OPEN AS POSSIBLE. THUS IT IS WRITTEN UNDER THE CREATIVE COMMON LICENSE IN JAVA WITH THE IMPLEMENTED INTEGRATION INTO PROCESSING – EVERYTHING OPEN SOURCE. WE DELIBERATELY DID NOT FALL BACK ON A CAD BACKBONE LIKE MAYA/MEL OR RHINO/GRASSHOPPER AND OF COURSE WE HAD TO TAKE A LOSS THERE. DESIGNERS THAT ARE NOT WILLING AND/OR ABLE TO CALCULATE THE INITIAL POINTS OF THE MOTION PATHS IN 3D WILL NOT BE ABLE TO USE THE FULL POTENTIAL. ON THE OTHER HAND WE WERE ABLE TO OPEN BTB TO ALL SOFTWARE PLATFORMS. MOREOVER, BY USING JAVA WE MADE IT POSSIBLE THAT PROJECTS COULD EASILY ACCESS LIVE AND/OR ONLINE INPUT. BUT AS WE DIDN'T WANT TO ADDRESS PROGRAMMERS ONLY, THERE ARE SEVERAL CONNECTIONS FOR INTERCHANGING DATA. BTB CAN IMPORT FORMATS LIKE 3DM FROM RHINOCEROS 3D, AUTODESK'S CLOSED SOURCE DWG AND THE WIDELY IMPLEMENTED DRAWING INTERCHANGE FILE FORMAT DXF. THUS BTB CAN BE LINKED TO VIRTUALLY ANY EXISTING CAD SOFTWARE OUT THERE. FURTHERMORE IT CAN OPEN AND SAVE A SPECIALLY DESIGNED PLAIN-TEXT EXCHANGE FORMAT. SO ANY SCRIPTING LANGUAGE CAN GENERATE THE BASIC COORDINATES – PLUS ADDITIONAL TARGET DATA IF DESIRED –, PASS IT ON AND USE BTB JUST AS A KINEMATIC SOLVER, SIMULATION ENGINE AND RAPID CODE GENERATOR. BUT MOST OF ALL IT IS DESIGNED FOR LIVE INPUT CONNECTIONS AND AS PROGRAMMING EXTENSION FOR JAVA-BASED APPLICATIONS. THIS MEANS THAT THERE IS E.G. AN ESPECIALLY INTEGRATED PATCH FOR THE PROCESSING SKETCHBOOK WHERE TO WRITE YOUR OWN CODE THAT THEN GENERATES THE TARGETS. CONSEQUENTLY THESE FIGURES CAN ORIGINATE FROM MILLING PATHS, IMAGE DATA, SOME TYPE OF INTERACTION OR ANY OTHER KIND OF ALGORITHMICALLY CONVERTED INFORMATION. IT IS COMPLETELY UP TO THE USER'S IMAGINATION AND CREATIVITY.

18



IN SUMMARY, THERE ARE TWO WAYS OF UTILIZING BTB. FIRST OF ALL ONE CAN JUST TAKE IT AS A MULTI-PLATFORM POST-PROCESSOR FOR CONVERTING TARGET INFORMATION INTO RAPID CODE TO ADDRESS ABB ROBOTS. THE ENVIRONMENT ALLOWS FOR:

- * IMPORTING A VARIETY OF CAD-FORMATS AND PLAIN-TEXT DATA DELINEATING MOTION PATHS
- * DIFFERENT VISUAL AND TEXTUAL SCREEN DISPLAYING MODES, ORTHOGRAPHIC AND PERSPECTIVE VIEWS FOR DEBUGGING
- * ADDITIONAL POSITIONING, MOTION AND TIMING SETTINGS
- * TOOL AND WORK OBJECT IMPORT AND EXPORT
- * FULL SIMULATION OF THE COMPLETE WORKFLOW
- * EXPORT WORKING ABB RAPID CODE.
- * DIRECT PHYSICAL CONTROL OVER THE ROBOT VIA FTP CONNECTION.

NONETHELESS, THE INTRINSIC INTENTION OF BTB IS THE STANDALONE VERSION. IT COVERS ALL THE FEATURES ABOVE BUT ADDITIONALLY ENABLES THE USER TO:

- * COMPUTE THE ROBOT'S MOTION BY SELF-WRITTEN FUNCTIONS COMPLETELY WITHIN BTB .
- * GRAB LIVE INPUT AND/OR INTERACT WITH THE OUTPUT.
- * GENERATE (CONVERT DATA), VERIFY (SIMULATE THE SEQUENCE) AND FINALIZE (WRITE RAPID CODE) ALL IN ONE NON-LINEAR PROCEDURE.
- * RUN IT LOCALLY OR ON THE WEB.

AND AGAIN I NEED TO MENTION THE FACT THAT EVERYTHING IS OPEN SOURCE. SO IF SOMEONE IS NOT HAPPY WITH THE AUTOMATIC CONFIGURATION PARAMETERS, THE INTERPOLATION STEPS, THE INTERPRETATION OF FRAGMENTARY MOTION DATA OR EVEN THE COLORS:

- * EVERYONE CAN ADAPT THE CODE FOR THEIR OWN NEEDS.



PROJECTS USING BTB

BUT OF COURSE ONLY THE IMPLEMENTED PROJECTS BRING SUCH SOFTWARE TO LIFE – AT LEAST FROM THE POINT OF VIEW OF THE CREATIVES. THE CURRENT CHAPTER WILL EXEMPLARILY PRESENT SOME SIGNIFICANT WORKS THAT BUILT UPON BTB. OBVIOUS AREAS OF OPERATIONS – LIKE MILLING AND WIRE-CUTTING – SHALL NOT BE REFERENCED HERE. I WILL FOCUS ON STANDALONE, INTERACTIVE EXPERIMENTS AT THE TRANSITION BETWEEN ART AND ARCHITECTURE. MOST OF THEM ORIGINATED IN THE VICINITY OF THE DESIGN MASTER STUDIO PAPIER PEINT. THE LEADING IDEA WAS BASED ON SEMPER'S NOTION THAT IT IS THE SURFACE OF WALLS THAT MOST STRONGLY INFLUENCES OUR SPECIAL PERCEPTION. IT WAS ABOUT DEVELOPING SURFACE EFFECTS AND THEIR PROTOTYPICAL PRODUCTION WITH THE HELP OF ROBOTS, WITH THE AIM OF REDEFINING A PRECISE ARCHITECTURAL SETTING. ACCORDING TO THEIR DESIGNS, STUDENTS HAD TO WRITE THEIR OWN PROGRAMS, CONSTRUCT THE PROPER TOOLS FOR THE ROBOT, AND FINALLY HAVE THE ROBOT TURN THEM INTO PHYSICAL REALITY 1:1 SCALE.

PAPIER PEINT

FOR EXAMPLE PETER KAUFMANN AND ROBERT SCHMID DECIDED TO PARAMETRICALLY BLEACH TWO DIAGONALLY OPPOSITE STANDING COUCHES. ONE OF THEM SHOWS THE VESTIGE OF THE AUTHORS SITTING, THE OTHER THE LOGO OF THEIR DRAWING STUDIO – A STAG WITH L-SYSTEM-HORNS. THEY PUT TOGETHER A DYE DRIPPING INFUSION BOTTLE TOOL FOR THE ABB ROBOT TO CARRY OUT THE INTERVENTION DIE ANWESENHEIT DER ABWESENENDEN UND HIRSCH.

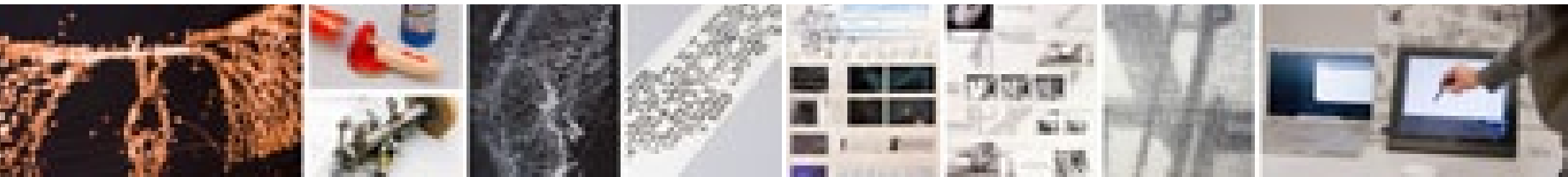
[SYN] THESE IS THE ATTEMPT TO MAKE SOUND GRAPHICALLY TANGIBLE AND LEGIBLE THROUGH NETLIKE DIAGRAMS. PAUL PRITZ RENDERED CHARACTERISTIC VALUES OF THE ASSIGNED COMPOSITIONS WITH A PEN-SQUEEZING SEMI-FLUID PAINT DISPENSER ON SOUND ABSORBING DUNGAREE FOR A REHEARSAL ROOM.

SIMONE MAYR USED SELF-INVENTED FONT TO BRUSH-PAINT ENAMEL ON THERMOPLASTIC ROAD MARKING. OHNE WORTE WAS DESIGNED AS A FLAME-SCARFED GUIDANCE SYSTEM FOR A LARGE ARCHITECTURAL OFFICE, WHERE THE BLANK SPACES OF A THEORETICAL TEXT UNVEILED THE NAMES OF THE SENIOR PARTNERS.

MOTIONMATRIX BY MARVI BASHA TRACKS TRACES OF A STAIR-CLIMBING HUMAN BODY AND THEN SUPERIMPOSES THE ROBOT'S JOINT ROTATIONS. THE RESULTING CURVES WERE THEN REALIZED WITH AN UV-COLOR-PEN IN THE HALLWAY UP TO TUG'S ZEICHENSAAL 3 AND 4. KATHRIN HIEBLER'S RAUMVERFREMUNG IS A VIRTUAL DISSOLUTION OF A ROOF TRUSS CORNER. AN ALGORITHMIC, ANAMORPHIC DISTORTION AND EXPANSION OF THE PURLIN CONSTRUCTION WAS PROCESSED INTO A GRAYSCALE DEVELOPED VIEW AND REALIZED WITH A ROTATING STAMPER. SO DEPENDING ON THE DISTANCE TO THE ARTWORK ONE PERCEIVES THE IMPRINTS OF VARYING INTENSITY OR CATCHES SIGHT OF AN INFINITE NETWORK OF RANDOM WOODEN BEAMS.

STEFAN HÖLL TOOK PAPIER PEINT – FRENCH FOR PAINTED PAPER OR SIMPLY TAPESTRY – LITERALLY. HE PROGRAMMED INDIVIDUAL WALLPAPER WHERE ONE COULD SKETCH ON A GRAPHIC TABLET. DEPENDING ON THE PRESSURE AND DRAFTING SPEED THE IMAGE WAS TRANSMUTED INTO LINE PATTERNS. THE PREDEFINED WALL GEOMETRY THEN LED TO AUTOMATIC TILING FOR THE PRODUCTION WITH DIFFERENT PENS ON PAPER-ROLLS THAT WERE TRANSPORTED INTO PLACE BY A CUSTOMIZED, ARDUINO-CONTROLLED CONVEYOR TABLE.

20





BY ALL MEANS

FINALLY I WANT TO QUICKLY PRESENT THE CHINA-INK PAINTING ROBOT, BECAUSE THE FULL CAPACITY OF BOOT THE BOT CAN BE PERFECTLY DEPICTED THERE. IN 2011 A PRECURSOR WAS SHOWN AT THE 200 YEAR ANNIVERSARY OF TUG. THERE VISITORS WERE INVITED TO BE SKETCHED LIVE IN SILVER ON GLOSSY BLACK CARDBOARD BY AN IRB 140. THEY COULD SIT DOWN IN FRONT OF A REGULAR WEBCAM, SWITCH BETWEEN DIFFERENT DRAWING STYLES AND INTERACT VIA MOUSE AND SCREEN TO FINALIZE THEIR PORTRAIT. WHEN SATISFIED, THE APPLICATION COMPUTED THE MOTION PATHS, GENERATED THE RAPID CODE AND COPIED THE PROGRAM FOR BATCH PROCESSING TO THE ROBOT. A FEW MINUTES LATER THEY COULD TAKE HOME A PIECE OF ART.

AT THE EXHIBITION BY ALL MEANS – ANALOGUE/DIGITAL EXPERIMENTAL SETTINGS IN 2012 THE ROBOT PAINTED TEXTS, PICTURES OF THE EXHIBITION AND THE VISITORS ONTO THE GLASS FACADE OF THE HOUSE OF ARCHITECTURE (HDA). IT WAS A MORE LEISURELY APPROACH, AS THE CHINESE INK AND THE VERTICAL SURFACE REQUIRED A MUCH SLOWER OPERATING PROCEDURE. SO THE PROCESS WAS REDESIGNED AND THE PERFORMATIVE ASPECTS WERE HIGHLIGHTED FOR THE EXHIBIT. FINALLY THE ROBOTS ACTION AND THE IMPERFECTLY PREDICTABLE BEHAVIOR OF THE BRUSH INTERACTING WITH THE TRANSPARENT PAPER MOUNTED ON THE GLASS BACKGROUND CONCLUDED IN A SURPRISINGLY TENSE BLENDING OF THE ANALOG AND THE DIGITAL.





AUGMENTED STYRIA DESK

ATLAS: ZERSIEDELUNG

AUGMENTED STYRIA DESK
(MASTER DESIGN STUDIO)
2010

WITH URS HIRSCHBERG AND STEFAN ZEDLACHER
FOR THE INSTITUTE OF ARCHITECTURE AND MEDIA / TUG

URBAN SPRAWLING IS A WELL-KNOWN PHENOMENON THROUGHOUT THE INDUSTRIALIZED WORLD WITH A MANIFOLD OF ASSOCIATED PROBLEMS – WASTE OF NATURAL AND CULTURAL HERITAGE, INEFFICIENT INFRASTRUCTURE AND COSTLY PUBLIC AND PRIVATE TRANSPORT, INCREASING SOCIAL SEGREGATION IN CITIES, ECOLOGICAL AND ECONOMICAL DYSPLASIA. FOR DECADES NOW THESE FACTS ARE COMMON SENSE. BUT FOR THE GREATER PART REGIONAL DEVELOPMENT AND URBAN PLANNING ARE STILL HEADING INTO THE WRONG DIRECTION. THE EUROPEAN SPATIAL DEVELOPMENT PERSPECTIVE (1995) PUTS IT LIKE THAT: "IT IS THEREFORE NECESSARY TO WORK TOGETHER TO FIND SUSTAINABLE SOLUTIONS FOR PLANNING AND MANAGING URBAN GROWTH."


HOWEVER IT IS ONE THING TO ANALYZE ALL THIS ON AN ACADEMIC LEVEL AND SOMETHING COMPLETELY DIFFERENT TO MAKE THAT CLEAR TO THE REST OF US. MOREOVER IT IS ESSENTIAL TO CONVINCE THE MAJORITY THAT IT'S INEVITABLE TO CHANGE TACK. AND THAT IS WHERE THE DESIGN MASTER STUDIO "ATLAS: ZERSIEDELUNG STEIERMARK" COMES INTO PLAY.

FOR FURTHER DETAILS ON THIS SECTION PLEASE VISIT

<http://iam.tugraz.at/studio/s10/>

http://iam.tugraz.at/studio/s10_blog/?cat=69

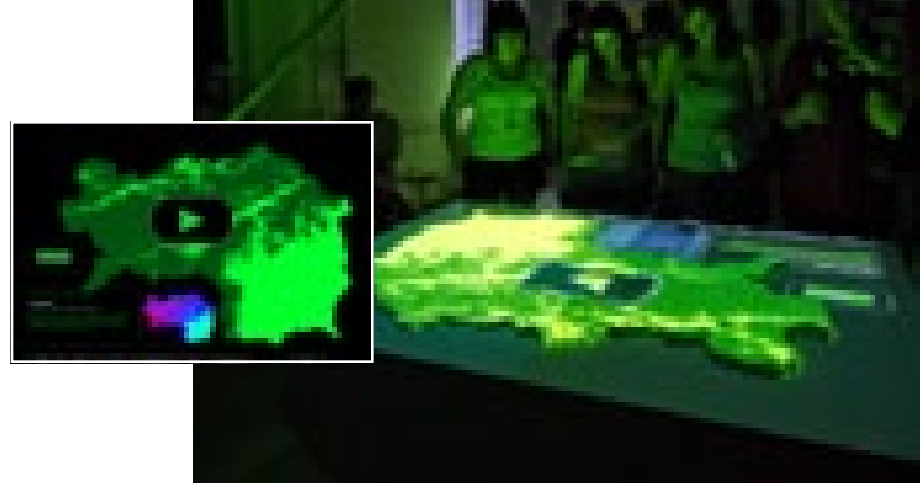
<http://vimeo.com/13934683>

[illegible][illegible]



DIE STEIERMARK

ULTIMATELY THIS IS AN THREE-DIMENTIONAL INTERACTIVE ANIMATION OF DIFFERENT DATA CONCERNING THE POPULATION AND THE AREAS OF SETTLEMENT IN STYRIA. AND NOW THIS DEMO IS PROJECTED ON THE MILLED TOPOLOGICAL MOCKUP...



ORGANISER AND SCREENSAVER

THE BASIC PROJECT ORGANISER TO START THE VARIOUS APPLICATIONS FROM. APART FROM THAT THERE IS THE DEFAULT SCREENSAVER, TOO. THESE VISUALISATIONS ARE BASED ON THE HEIGHT-MAP OF STYRIA. THE PIXELS OF THE IMAGES CHANGE THEIR COLOR, STARTING FROM THE PIXEL WITH THE LOWEST GRAY-VALUE AND ENDING AT THE PIXEL WITH THE HIGHEST GRAY-VALUE.

24

LICHT UND SCHATTEN

A RATHER SIMPLE IDEA: CAST THE ALGORITHMICALLY COMPUTED SHADOW VIA VIDEO BEAMERS NEAR REAL TIME ONTO A GENUINE MODEL WITH ALL THE PLANES AND MOUNTAINS, VALLEYS AND SUMMITS. THE AUGMENTED "VIRTUAL SUN" IN YOUR HAND IS PRODUCING QUITE AN ASTONISHING EFFECT...



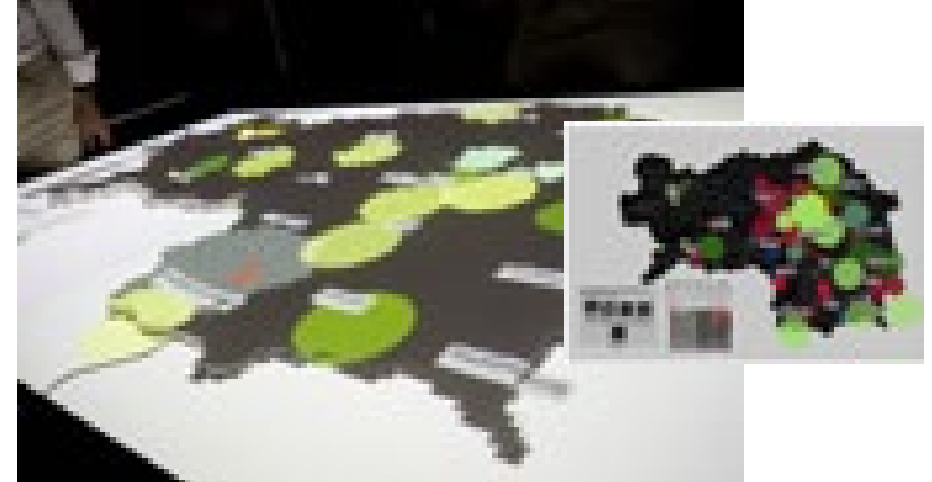
COMMUTER SIMULATOR

COMMUTERS - WHERE DO THEY COME FROM - WHERE DO THEY GO TO. THIS APPLICATIONS GIVES YOU AN INSIGHT ON HOW COMMUTERS MOVE ALONG STYRIA, AS WELL AS THE OPPORTUNITY TO INFLUENCE THEM IN THEIR HABITS.



PAINT YOUR OWN STYRIA

DO YOU KNOW HOW GREEN STYRIA REALLY IS? CHECK OUT YOUR KNOWLEDGE AND FIND OUT THE TRUTH...



AUGMENTED TOURISM TOOL

AUGMENTED REALITY WILL BE AN ESSENTIAL PART OF OUR DAILY LIVES IN THE NEAR FUTURE. SINCE TOURISM IS BASED ON A SUBJECTIVE DATA SELECTION, YET MUCH OF THIS DATA IS NOT READILY AVAILABLE, THE AUGMENTED TOURISM TOOL OFFERS AN INTERACTIVE APPROACH TOWARDS SELECTING YOUR HOLIDAY DESTINATION WITHIN STYRIA.

25

TICKS

THIS IS AN ANIMATION VISUALISING THE TICKS IN STYRIA. IT SHOWS INFORMATION ABOUT THE PLACES THEY LIVE IN, AND HOW OFTEN THE PEOPLE PROTECT THEMSELVES BY FSME-VACCINATION. APART FROM THAT IT ILLUSTRATES THE POSSIBILITY OF RUNNING INTO ONE OF THOSE SMALL ARACHNIDS REGARDING THE SEASONS AS WELL.



WIND

THIS VISUALISATION SHOULD SHOW DIFFERENT KINDS OF RENEWABLE ENERGY SOURCES. AS AN EXAMPLE ITS POSSIBLE TO COMPARE WATER- AND WINDPOWERFACILITIES IN STYRIA. SINCE ITS AS WELL POSSIBLE TO SHOW THE ALTITUDE OF THE SEVERAL FACILITIES ITS EASIER TO UNDERSTAND WHY CERTAIN STATIONS ARE SITUATED IN THIS SPECIAL LOCATIONS.



DM2

DIGITAL DESIGN METHODS

DIALOG

POTYOMKINSKIYE DEREVNI

LAB.YRINTH

PARCOURS AVENTURE

TRANSALP

CUBIC CUBES

HIMMEL + HOELLE

TUERME.N

(MANDATORY BACHELOR COURSES)

2008-15

WITH CHRISTIAN FREISSLING, ANDREAS GRUBER, URS HIRSCHBERG, EMMANUEL RUFFO AND IOANNA SYMEONIDOU (IN CHANGING CONSTELLATIONS)
FOR THE INSTITUTE OF ARCHITECTURE AND MEDIA / TUG

TO SUM IT UP RIGHT AT THE BEGINNING, I CLAIM THAT PEOPLE WHO HAD FIRST HAND EXPERIENCE WITH TYPING THEIR OWN CREATIVE CODE SUBSEQUENTLY HAVE HIGHER CONTROL OF THEIR PROCEEDINGS AND FINALLY BETTER UNDERSTANDING OF THEIR RESULTS EVEN WHEN PLANNING ON A SKETCH ROLL OR OUT OF THEIR SCRAPBOOK.

THE IAM CONDUCTS THE FIRST TWO YEARS OF DIGITAL EDUCATION FOR ALL ARCHITECTURE BACHELOR STUDENTS AT TUG, ENDING WITH A MANDATORY COURSE IN ALGORITHMIC DESIGN: DM2. BESIDE EXPERIMENTS IN OTHER ENVIRONMENTS, IT TRADITIONALLY TRIES TO IMPART PLAINTEXT SCRIPTING SKILLS IN MAYA – WITH VERITABLE SUCCESS.

FOR FURTHER DETAILS ON THIS SECTION PLEASE VISIT

<http://iam.tugraz.at/dm2/>

<http://iam.tugraz.at/?0&0&1&2&5>

http://richdank.com/theory/why_mel/





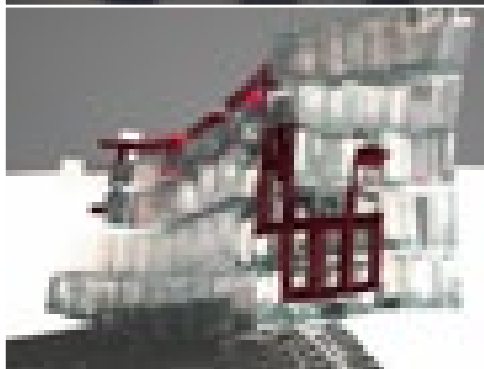
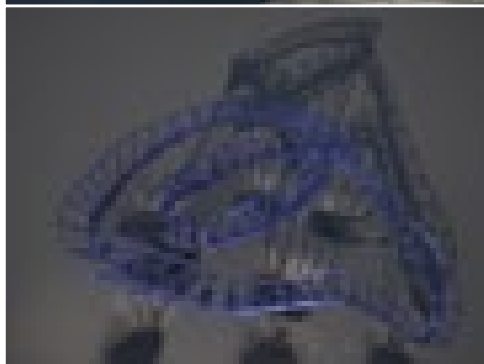
CREATIVE CODING

IN ARCHITECTURE EVEN A PHYSICAL MODEL CAN ONLY BE A CLOSE CAST OF THE COMPLETED BUILDING. AND IT MERELY SUGGESTS THE THREE-DIMENSIONAL SETTING. MOREOVER IT TAKES A SCHOLAR TO GET THE MESSAGE FROM A FLOOR PLAN OR A CROSS SECTION WITH ALL THEIR ICONS AND SYMBOLS. AND THE ROUGH FREEHAND SKETCH IS SOMETIMES EVEN HARD TO APPREHEND FOR THE ONE WHO CONDUCTED THE PENCIL. BUT ALL THESE METHODS AND TOOLS - IN GOOD APPROXIMATION OF REALITY OR RECKLESSLY NONREPRESENTATIONAL - HELP OURSELVES UNDERSTAND OUR OWN PROJECTS AND REFINE OUR IDEAS WHILE DESIGNING. OR AS SOME MAY PUT IT: THE BRAIN LEARNS FROM THE HAND – AND VICE VERSA. SCRIPTING - CONVERTING INTO CODE, INTO COMMANDS, VARIABLES AND FUNCTIONS - CAN BE ASSUMED TO BE THE MOST ABSTRACT COEVALLY MOST PRECISE WAY OF DESCRIBING SOMETHING. YOU NEED TO KNOW EXACTLY WHAT YOUR IDEAS REALLY CONSIST OF AT ROOT TO TRANSCRIPT IT INTO A PROGRAMMING LANGUAGE. HOWEVER THE WAY TO A FULLY WORKING DIGITAL SKETCH IS NEVER LINEAR. IT'S BACK AND FORTH, DESTILLING YOUR STRATEGIES IN ORDER TO IMPROVE THE RESULT. THUS THE "COGNITIVE LOAD" (ROBERT AISH) CAN BE MUCH HIGHER AND OF SUBSTANTIAL MEANING.

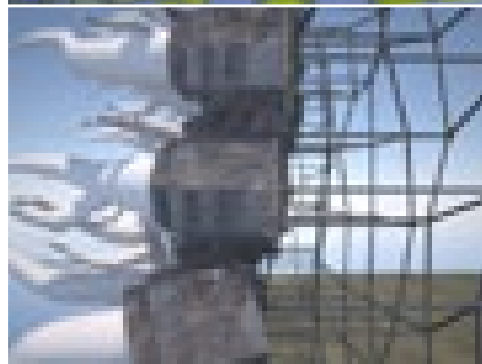
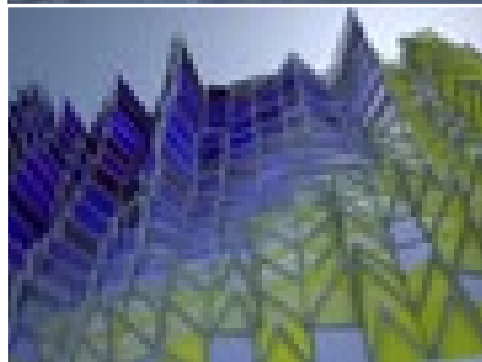
BUT THERE IS EVEN MORE TO IT. ON THE ONE HAND YOU CANNOT JUST SCRIBBLE A LINE. YOU NEED TO SET DISTINCT VALUES. ON THE OTHER YOU CAN GENUINELY HAVE IT GENERATED AT RANDOM. AND INSTEAD OF HARD-CODING YOU CAN COMPILE PARAMETERS AND CROSS-REFER THEM. BASICALLY YOU ENCODE ALL YOUR APPROACHES AND CONCEPTS - NOT READY-MADE, CONCLUDED BITS AND PIECES - INTO A FORMAL LANGUAGE AND WATCH WHAT DEVELOPS.

THE POINT IS THAT SCRIPTING COMPELS YOU TO PONDER THOROUGHLY. IT MAKES YOU DISTINGUISH BETWEEN THE HARD AND THE SOFT FACTS - AND THEIR RELATIONSHIPS. IT FORCES YOU TO PRECISELY FORMALIZE YOUR GENERAL SET-UP AND ALL YOUR FRAMEWORK CONDITIONS. IT OPENS UP A LARGE FIELD OF POSSIBILITIES AND DOES NOT JUST ACCELERATE CUSTOMARY APPROACHES. THEREBY IT'S IRRELEVANT TO WRITE UNIFORM, STANDARDIZED, HIGH-PROFILE SCRIPTS FROM THE FIRST. BEAUTIFUL CODE COMES OUT OF PRACTICE. AND IF CREATIVITY IS SOLELY SITUATED IN THE RIGHT CEREBRAL HEMISPHERE, IT WILL ALSO SET YOUR LEFT MATHEMATIC-LOGICAL PART ON FIRE. THE ENHANCED CORRELATION OF MIND AND BRAIN THEN IGNITES ALL YOUR NEURONS AND LIGHTENS YOUR DESIGN.

DIALOG



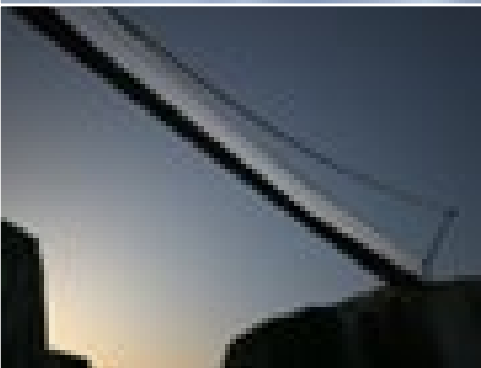
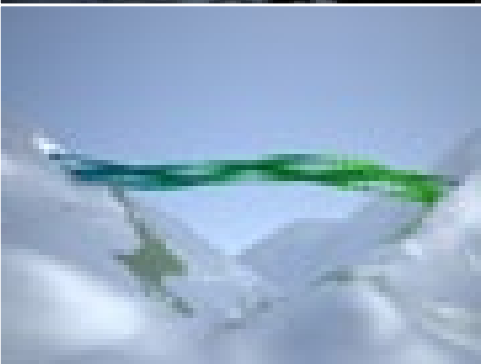
POTYOMKINSKIYE DEREVNI



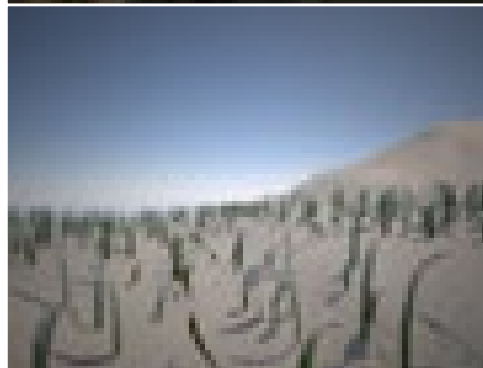
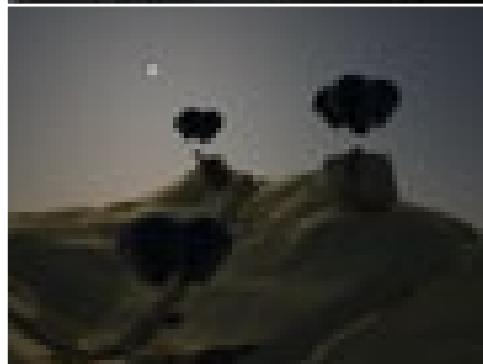
LAB.YRINTH



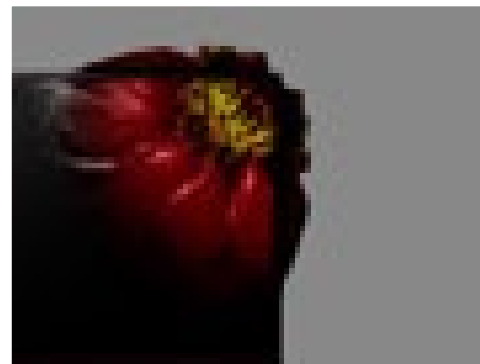
PARCOURS AVENTURE



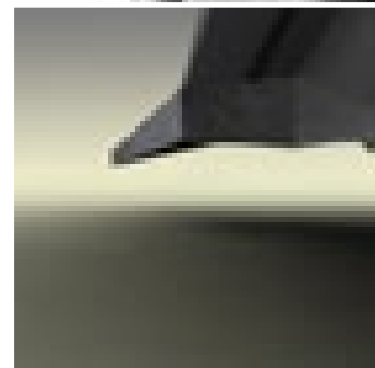
TRANSALP



CUBIC CUBES



HIMMEL + HOELLE

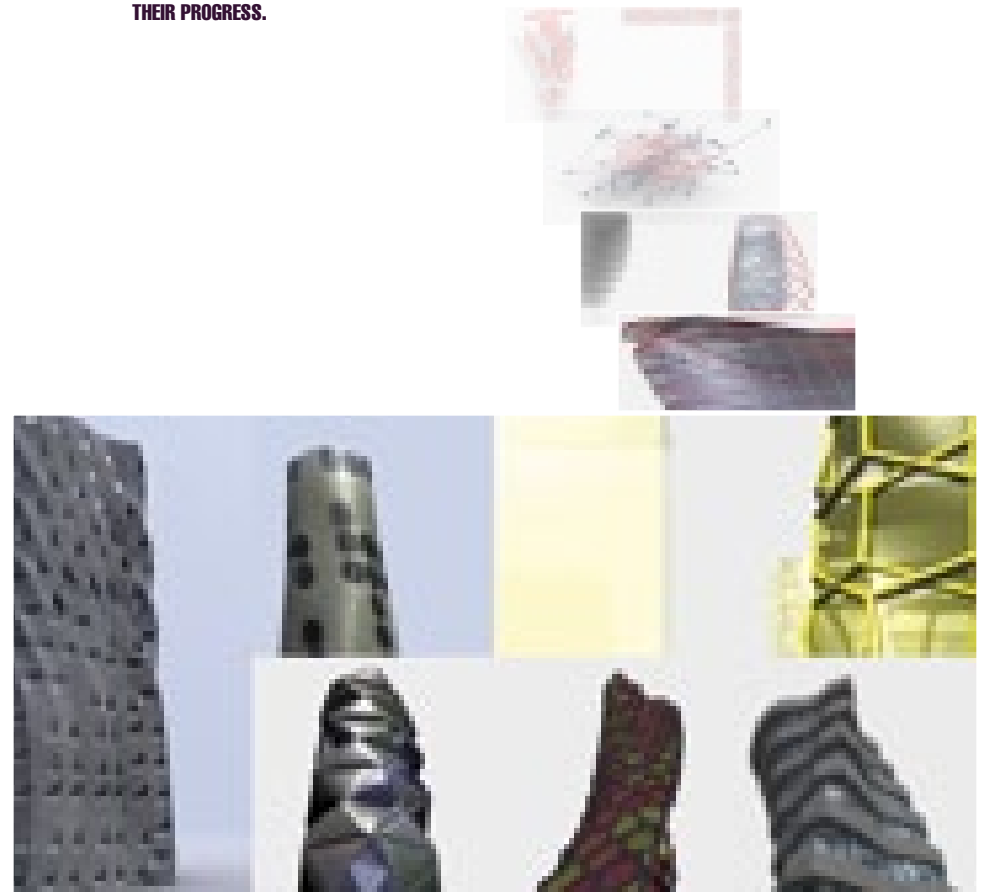


TUERME.N

EXEMPLARILY, I PICKED OUT ONE OF THOSE COMPULSORY COURSES (WORTH 3 ECTS) WE GAVE IN 2008/09 TO SHOW HOW THESE THEMES COULD BE APPROACHED IN PRACTICE. THE TU GRAZ IS ONE OF VERY FEW ARCHITECTURE SCHOOLS WORLDWIDE THAT OBLIGE EVERY SINGLE STUDENT TO LEARN AT LEAST THE BASICS OF PROGRAMMING. AND THESE "DIGITAL DESIGN METHODS" (== NAME OF THE COURSE) I AM REFERRING TO TOOK PLACE WITH MORE THAN 370 (!) STUDENTS CLUSTERING TO EXPERIMENT WITH GENERATED HIGH-RISE CONSTRUCTIONS. "TUERME.N" IS THEREFORE A PUN IN GERMAN FOR TOWERING UP AND FURTHERMORE INDICATING N (A WHOLE LOT OF) TOWERS.

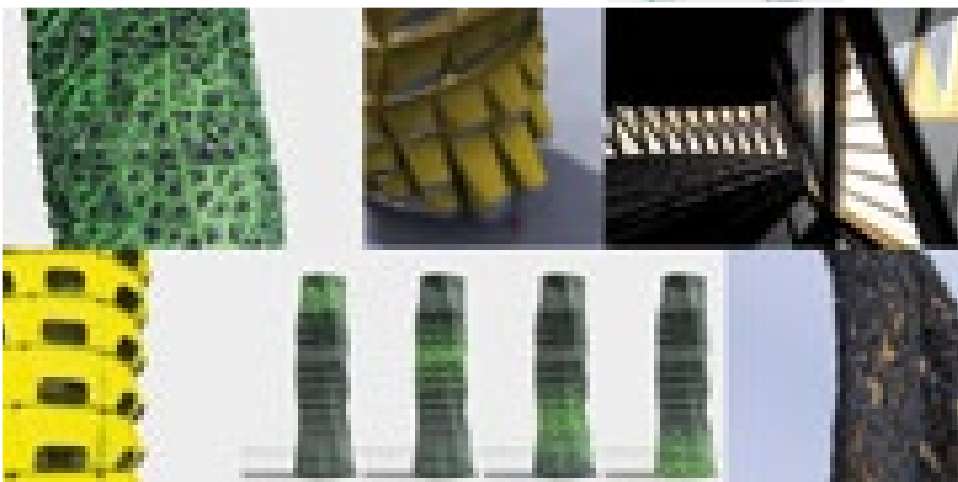


THAT PARTICULAR SEMESTER THE UNDERGRADUATES WERE TO ERECT VIRTUAL EDIFICES AND CLAD THEM WITH PANELS. THE ADDITIONAL AIM WAS, THAT THE SUBJACENT SKELETON CONSISTING OF VERTICES AND CURVES AND THE INDIVIDUAL FACADES SHOULD BE INTERCHANGEABLE. HENCE ONLINE CREATIVE COLLABORATION WAS ANOTHER DEMAND. WE SPLIT THE COURSE INTO FIVE BLOCKS OR RATHER FOUR PARTS WITH THREE SEMINARS EACH. AFTER EACH BLOCK THE STUDENTS HAD TO UPLOAD AN ASSIGNMENT TO ILLUSTRATE THEIR PROGRESS.



AS EVERY YEAR WE STARTED OUT WITH AN APPETIZER - SOME ROUTINES WITH A FRONT END WE PREPARED TO GIVE A NOTION OF THE POSSIBILITIES AND THE THINGS TO COME. THEN WE INTRODUCED MAYA'S BACKBONE - THE ATTRIBUTE-NODE-COHERENCE - USING THE EXAMPLE OF THE SHADING NETWORK AND RENDERING CAPABILITIES.

AFTERWARDS WE TOOK THEM DOWN TO EARTH AGAIN, ONLY TO TEACH THEM HOW TO FLY WITH MEL ON THEIR OWN - IF YOU'LL PARDON THIS FLOWERY EXPRESSION. WE BELIEVE BEGINNERS ABSOLUTELY NEED TO SET ABOUT SCRIPTING AT THE BASICS - WITH VARIABLES



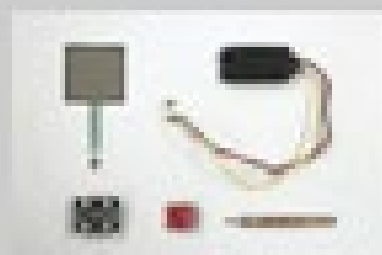
AND ARRAYS, WITH LOOPS AND CONDITIONS, WITH PROCEDURES AND EXPRESSIONS. COMMENCING WITH TINY SNIPPETS, WHICH ARE EASY TO UNDERSTAND, REPRODUCE AND ADAPT, WE GRADUALLY MOVE ON TO COMPLEX CONSTELLATIONS. IN THE END - RIGHT BEFORE CHRISTMAS - THEY OUGHT TO BE ABLE TO MANIPULATE AND CONSTRUCT THEIR OWN DATA AND CODE - IN THAT CASE BUILD ALGORITHMIC TOWERS.

FINALLY THE TOOL OF OUR CHOICE FOR A PROPER PRESENTATION IS USUALLY ADOBE ILLUSTRATOR, OFFERING SEVERAL VERY INTERESTING OPTIONS TO INTERACT.



adriart

ARTES E MANEJOS



ADRIART



ADVANCING DIGITAL AND REGIONAL INTERACTIONS IN ART TEACHING.
THE ADRIART PROJECT DEVELOPED AN INTERNATIONAL MASTER STUDY PROGRAMME IN CONTEMPORARY ARTS AND APPLIED PRACTICES: MAP - MEDIA ARTS AND PRACTICES, AIMING AT THE AREAS OF AUDIO-VISUAL ARTS (FILM, ANIMATION, PHOTOGRAPHY), INTER-MEDIA ARTS (SPATIAL, NEW-MEDIA, TRANS-MEDIA) AS WELL AS (HISTORICAL, THEORETICAL, CRITICAL) ARTS DISCOURSES.

THOUGH BEING INTIMATELY INVOLVED IN DESIGNING THE WHOLE CURRICULUM , THIS CHAPTER WILL ONLY FEATURE PROJECTS THAT HAVE BEEN REALIZED DURING THE IMPLEMENTATION PHASE.

FOR FURTHER DETAILS ON THIS CHAPTER PLEASE VISIT

<http://richdank.com/?adriart>

<http://www.adriart.net/>

http://issuu.com/zaumetnost/docs/adriart_design_publication_a5_book_

FORECAST : TURBULENCE

RAPR 2014

**RESPONSIVE ART IN THE PUBLIC REALM
(WORKSHOP)
2014**

**WITH DANIELA BRASIL, NAYARÍ CASTILLO, VISDA GOUDARZI, HANNS HOLGER RUTZ AND
KATHARINA VOGT
FOR ADRIART**

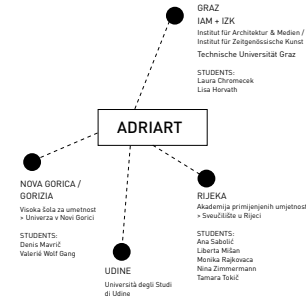
THIS CHAPTER CHRONICLES A WORKSHOP LEADING TO AN EXHIBIT, TO A FLOATING TOPOGRAPHY IN SENSOR-MODULATED 42-CHANNEL-SOUND TO EXPERIENCE CLIMATE DATA IMMERSIVELY AND INTERACTIVELY, THE PROJECT HAD THE PURPOSE TO SPARK AN INTERDISCIPLINARY DEBATE WITHIN THE ACADEMIC MILIEU. IT ATTEMPTS TO FIND LANGUAGES AND FORMATS OF PUSHING RESEARCH AND PRODUCTION INTO THE PUBLIC DISCOURSE. TWO DIFFERENT FRAMEWORKS CAME TOGETHER FOR THE "FORECAST" WORKSHOP AND ITS UNFOLDING INTO THE EXHIBITION "TURBULENCE: A CLIMATE SOUND PORTRAIT". ONE FRAMEWORK WAS THE EU FUNDED PROJECT ADRIART - ADVANCING DIGITAL AND REGIONAL INTERACTIONS IN ART TEACHING, WHICH OFFERED A COURSE NAMED "RESPONSIVE ART IN THE PUBLIC REALM" IN AN INTERNATIONAL CONSORTIUM AMONG FOUR UNIVERSITIES. THE SECOND PROJECT "SYSSON" IS AN AUSTRIAN FWF FUNDED RESEARCH PROJECT THAT AIMED TO SONIFY CLIMATE DATA. GIVEN THAT, OUR OBJECTIVE WAS TO EXPLORE WAYS OF SETTING THE REALMS OF INTERACTIVE ART AND SOUND IN DIALOGUE WITH SCIENTIFIC DATA AND DIGITAL TECHNIQUES. WHILE CONTRIBUTING TO THE CONTEMPORARY DEBATE ON CLIMATE CHANGE WITH RESEARCHERS, TEACHERS AND STUDENTS ...

FOR FURTHER DETAILS ON THIS SECTION PLEASE VISIT

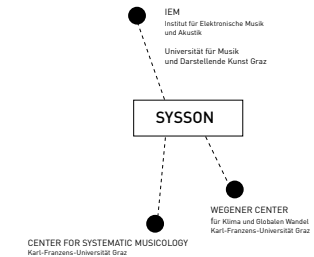
<http://www.adriart.net/mobility-2014-graz>

<http://forumstadtpark.at/index.php?idcatside=938#07.11>.

FORECAST - WORKSHOP
Responsive Art in the Public Realm



EXHIBITION - TURBULENCE
FORUM STADTPARK



CONTENT

THE DATA SPACE OBSERVED EMERGES OUT OF A NET THAT IS STRETCHED OVER THE GLOBE AND IS MONITORED DURING A LONG PERIOD OF TIME. HOW CAN THAT COMPLEX DATA SPACE – AS IT IS PRODUCED IN CLIMATE RESEARCH – BE SHOWN THROUGH SOUNDS IN A MICROCLIMATIC EXHIBITION SPACE?

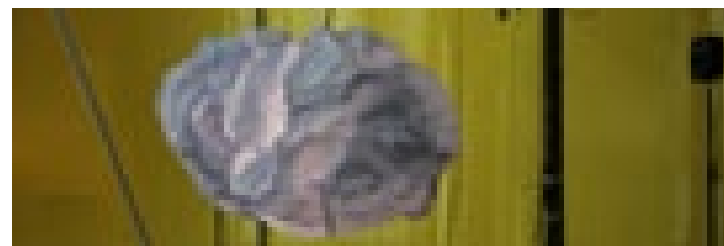
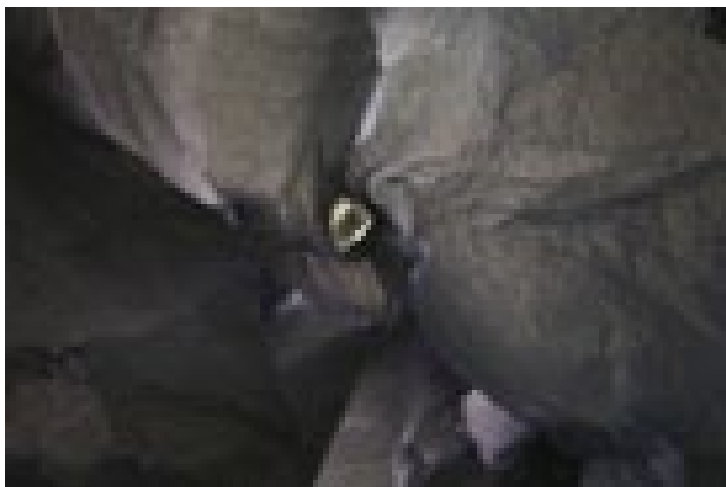
SO FAR, RESEARCHERS HAVE FOCUSED ON ARTIFICIALLY SIMULATING THE DEVELOPMENT AND CREATING VISUAL REPRESENTATIONS OF THIS DATA. YET, THIS PROJECT WANTS TO REPRESENT THAT HEAP OF INFORMATION USING ANOTHER DIMENSION OF OUR SENSES: HEARING. THE DATA COLLECTED IS TRANSLATED INTO SOUNDS, THIS MEANS THE DATA BECOMES AUDIBLE. THE TASK OF THE WORKSHOP WAS TO CREATE A SPATIAL AMBIENCE AND A SENSORIAL INTERFACE TO DISPLAY THE SOUNDS – WHICH RESULTED FROM THE PROCESS DESCRIBED ABOVE – AND TO INTERACT WITH THEM. THE FINAL INSTALLATION IS PRESENTED IN AN INTERDISCIPLINARY EXHIBITION IN THE FORUM STADTPARK GRAZ, AIMING TO MAKE THIS PARTICULAR RESEARCH TANGIBLE FOR A BROADER AUDIENCE. AN IMMERSIVE SPATIAL SETTING DISPLAYS SENSORS THAT TRANSFORM THE IMPULSES GIVEN BY VISITORS INTO A MODULATION OF THE SOUND PATTERNS.





**FORECAST: RESPONSIVE ART IN THE PUBLIC REALM
WORKSHOP
MAY 7-16**

WITHIN AN INTENSE FORMAT THAT MIXED FIELD RESEARCH, CORPOREAL AND SENSORIAL EXPERIENCES OF CLIMATE PHENOMENA WITH A TECHNICAL INTRODUCTION TO PROGRAMMING, PROCESSING AND SONIFICATION, STUDENTS DEVELOPED COLLABORATIVE ARTISTIC PROPOSALS FOR THE TURBULENCE EXHIBITION IN THE FORMAT OF THREE WORKING PROTOTYPES. ONE WAS CHOSEN FOR THE SHOW.



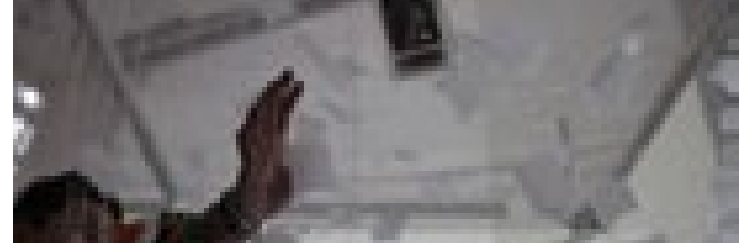
CLOUD

IT ALL STARTED WITH A CHILDHOOD DREAM. WATCHING CLOUDS AND WISHING TO PLAY WITH THEM AS YOU BLOW THEM AROUND THE SKY. THEIR PLAYFUL TEXTURES AND SHAPES, TILL NOW, INVITE US TO LOOK AT THE SKY AND IMAGINE DIFFERENT STORIES. THIS INSTALLATION MERGES THESE CHILDHOOD DREAMS WITH DIFFERENT TECHNOLOGIES: SOUND, DATA AND INTERACTIVE SENSORS. A HUGE CLOUD OF CRUMBLED PAPER SEEMS TO BE FLOATING IN SPACE, SECRETLY SUSPENDED FROM THE CEILING. IT GLOWS FROM THE INSIDE, REVEALING DIFFERENT STRUCTURES AND TEXTURES OF THE MASHED PAPER. WITH A CLOSER LOOK, SMALL NUMBERS PRINTED ON THE PAPER ARE IN FACT THE CLIMATE DATA USED TO GENERATE THE SOUND. ON SOME PLACES INSIDE THE CLOUD, SENSORS THAT MEASURE TEMPERATURE AND HUMIDITY ARE MOUNTED. WHEN PEOPLE BLOW THERE, IT CHANGES THE DIRECTION AND THE SPEED OF THE SOUND MOVING IN SPACE. AS THE SOUND TRAVELS THROUGH THE GALLERY YOU FEEL THE CLOUD BEING BLOWN AWAY, REPRESENTED BY THE SOUNDSCAPE SURROUNDING YOU. SEARCHING AND FINDING THE PLACES WHERE THE SENSORS ARE HIDDEN, DISCOVERING THESE SENSITIVE POINTS CREATES A JOYFUL MOOD.

HOMESPHERE

RATHER THAN PERCEIVING CLIMATE THROUGH SIGHT, THIS WORK TRIES TO APPROACH IT THROUGH SENSES SUCH AS SMELL, TASTE, MATERIAL, FEELING, AND COLOR. AFTER CONDUCTING A SMALL SURVEY, LINKS BETWEEN CERTAIN SMELLS, MATERIALS AND EVERYDAY OBJECTS WERE DEFINED. THEREFORE, THE INTERACTIVE SOUND INSTALLATION IS DIVIDED INTO THREE PARTS - LIVING ROOM, KITCHEN AND BATHROOM - OR METAPHORICAL ROOMS REPRESENTING A PHENOMENON AND CONSISTING OF HOUSEHOLD OBJECTS THAT ARE TYPICAL FOR THAT PARTICULAR UNIT, AND OF PIEZO SENSORS TO CAPTURE THE PUBLIC INTERACTION.

THE LIVING ROOM CONSISTS OF AN ARMCHAIR AND A LAMP WITH A PERFUME BOTTLE IN THE PLACE OF A LIGHT BULB. SENSORS ARE ACTIVATED BY SITTING IN THE ARMCHAIR. THE PERFUME BOTTLE HAS A TUBE HANGING FROM ITS TOP, AND A PUMP AT THE END OF THE TUBE THAT DISPERSES SWEET AND FRUITY SMELL WHEN PRESSED. THE KITCHEN CONSISTS OF A STEEL SINK AND A REFRIGERATOR. INSIDE THE REFRIGERATOR THERE ARE JARS FILLED WITH PICKLES, AND OTHER JARS FILLED WITH CUT GRASS AND MUD. A PIEZO SENSOR THAT IS ACTIVATED BY LOOSENING THE PRESSURE IS PLACED ON THE DOOR OF THE REFRIGERATOR. BY OPENING THE DOOR THE SENSOR IS ACTIVATED. THE BATHROOM CONSISTS OF A COTTON SHOWER CURTAIN AND A HAIRDRYER. THE HAIRDRYER EMANATES THE SMELL OF PINE TREES WHEN TURNED ON, AND PIEZO SENSORS ARE ACTIVATED BY PULLING THE CURTAIN.



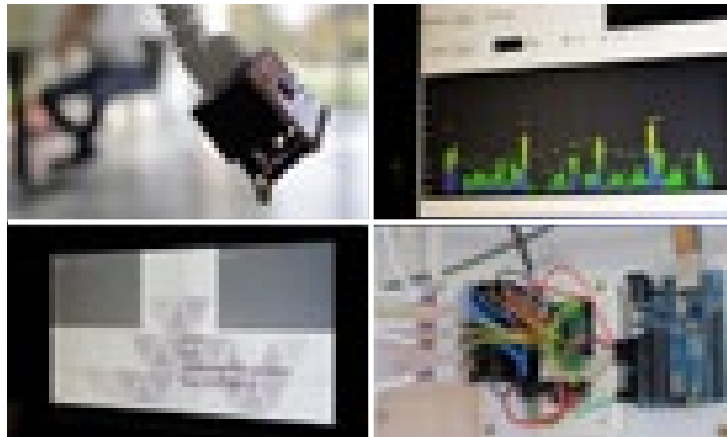
FLOAT

THIS AMORPHOUS AND ABSTRACT TOPOGRAPHY IS MADE OUT OF SMALL PARTICLES, SPREAD THROUGHOUT THE ENTIRE GALLERY SPACE. INSPIRED BY THE EXTERNAL SHEET OF A FOREST, THESE SMALL PARTICLES MADE OF HANGING PAPER CREATES A STRUCTURE THAT IS BOTH MASSIVE AND LIGHT, ARTIFICIAL AND NATURAL, OBJECT AND METAPHOR, MATHEMATICAL AND POETIC, SHAPED AND AMBIENT, ALL AT THE SAME TIME. SET AS A METAPHOR OF THE SURROUNDING ENVIRONMENT, THE TOPOGRAPHY IS FLOATING, AND CONSTANTLY CHANGED BY THE VISITORS' MOVES. EACH MOVEMENT PRODUCES SOUND. IMMERSSED IN THE FEELING OF A WAVE STRUCTURE, VISITORS HAVE THE CHANCE TO CONTRIBUTE TO THE SHAPE OF THE TOPOGRAPHY, MERELY BY BEING INSIDE OF IT. EACH ACTION HAS CONSEQUENCES. MOVEMENT CAPTURED BY GYRO SENSORS TRIGGERS SOUNDS. MOVEMENT CHANGES THE SPACE. THE INSTALLATION IS RECREATED OVER AND OVER AGAIN.

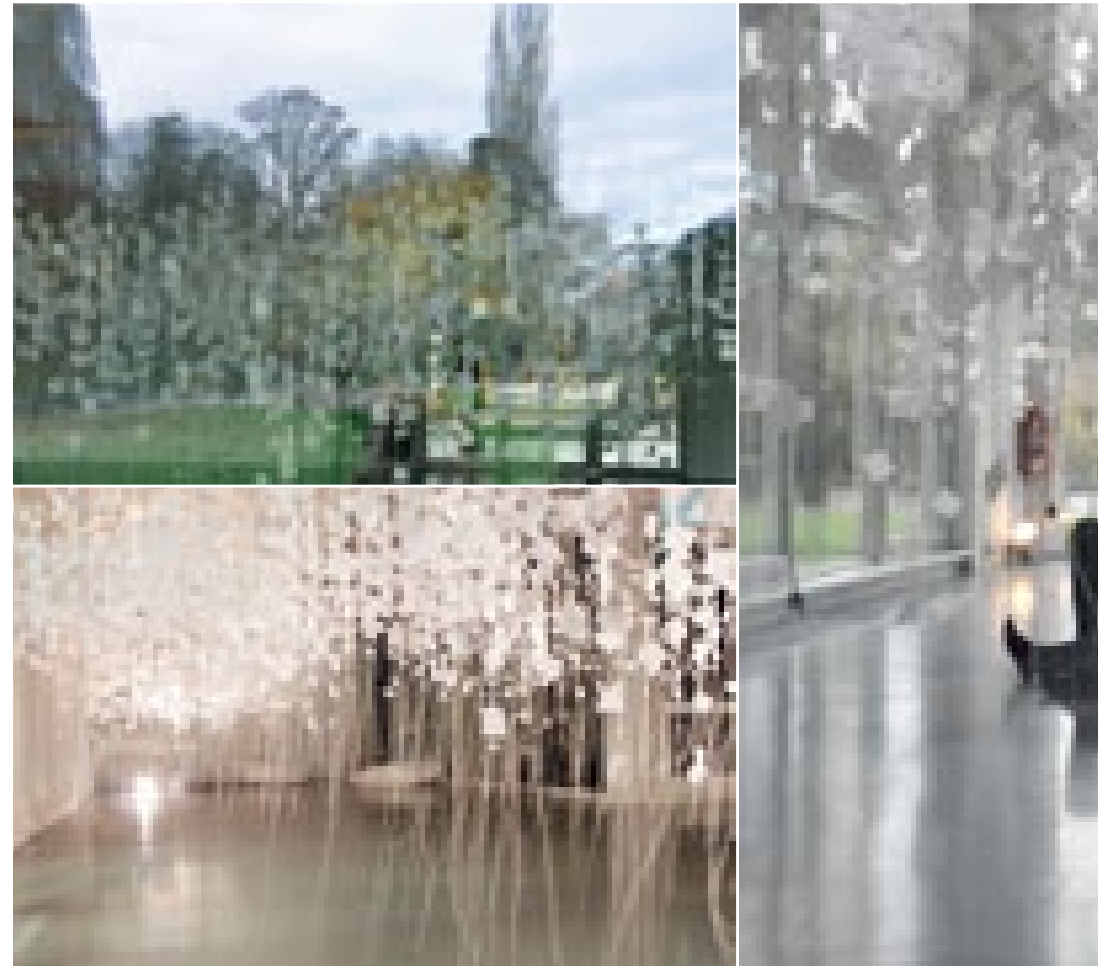


TURBULENCE: A CLIMATE SOUND PORTRAIT
EXHIBITION IN FORUM STADTPARK
NOVEMBER 8-29

A FLOATING TOPOGRAPHY INVITES THE PUBLIC TO AN IMMERSIVE AND INTERACTIVE EXPERIENCE. THE SPACE IS PERVADED BY A COMPOSITION OF AUDIBLE CLIMATE DATA, WHERE SENSORS GENERATE IMPULSES TO MODULATE THE SOUND, CAPTURING PHYSICAL DISPLACEMENTS AND CORPOREAL CONTACT.



"A BORDER BETWEEN PAPER AREAS AND EMPTY AREAS BECOMES VISIBLE AND CLEAR, BUT THERE IS NO SEPARATION IN THE SPACE. THE SPACE IS PERCEIVED AS A UNITY. THE FORMER AREAS ARE NO LONGER A SPATIAL COMPONENT. MORE THAN ONE PERSON IN THE SPACE AT THE SAME TIME MEANS A CONSTANT CHANGE OF THE TOPOGRAPHY OF THE PARTICLES (PAPERS). EACH PERSON PASSING THROUGH ALSO SHAPES THE SPACE ON AN ACOUSTIC LEVEL, BY TRIGGERING THE SENSORS. MORE THAN ONE SENSOR IS ACTIVATED AT THE SAME TIME. THE VISITORS ALSO BECOME PART OF THE SPACE WITH THEIR SHADOWS. DIFFERENT CONTOURS APPEAR ON THE WALL AND ON THE PAPER, ACCORDING TO THE NUMBER AND POSITION OF THE PEOPLE. BECAUSE OF THE DYNAMIC OF THE SHAPE AND THE LIGHTNESS OF PAPER EVERY AREA SEEMS ACCESSIBLE, WHICH IS WHY MOST OF THE VISITORS CREATED THEIR OWN PATHS RATHER THAN FOLLOW THE ALREADY GIVEN ONES. THE NUMBER OF VISITORS INCREASE THE NOISE, ABASING THE SOUND OF THE INSTALLATION TO A SECONDARY ELEMENT."
(LAURA CHROMECEK)





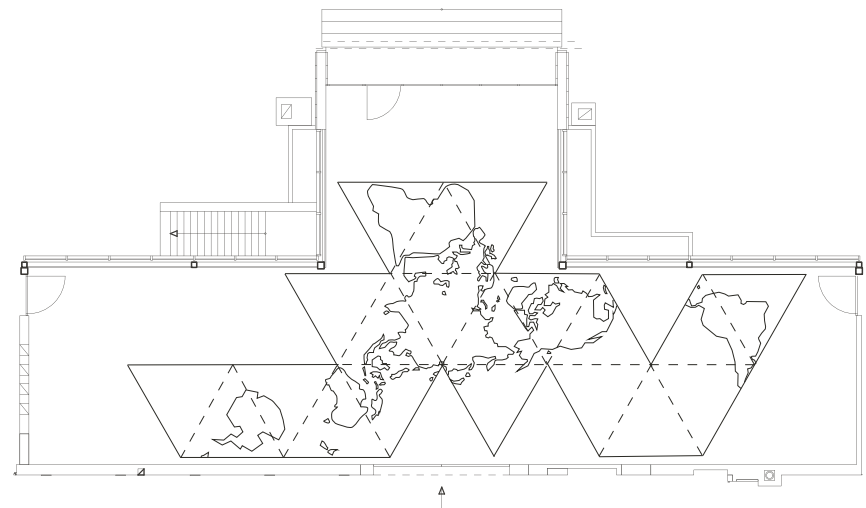
DATA IN SPACE

SONIFICATION IS STILL A YOUNG FIELD WITH FEW SCIENTIFIC CONVENTIONS. VARIOUS STRATEGIES FOR SONIC TRANSLATIONS HAVE BEEN IMPLEMENTED IN THE INSTALLATION, BASED BOTH ON EVALUATIONS WITHIN THE RESEARCH PROJECT SYSSON AND ON ARTISTIC DECISIONS. THE DATA USED STEMS FROM (1) A CLIMATE MODEL AND (2) FROM SATELLITE MEASUREMENTS:

(1) SIMULATIONS OF PAST AND FUTURE CLIMATES PERFORMED WITH THE EARTH SYSTEM MODEL MPIESM-LR (MAX-PLANCK-INSTITUTE FOR METEOROLOGY HAMBURG, DEUTSCHES KLIMARECHENZENTRUM) FOR THE RECENT WORLD CLIMATE REPORT. A HISTORICAL RUN 1850–2005 IS COMBINED WITH FUTURE PROJECTIONS 2006–2300 FOR A MIDRANGE CONCENTRATION PATHWAY (RCP4.5, R11P1). THESE DATA WERE POST-PROCESSED BY THE WEGENER CENTER FOR CLIMATE AND GLOBAL CHANGE, UNIVERSITY OF GRAZ. PARAMETERS INCLUDE TEMPERATURE (TAS), PRECIPITATION (PR), WIND (EASTWARD OR UA), AND RADIATION BALANCE. (2) SATELLITE MEASUREMENTS FROM GPS RADIO OCCULTATION PROCESSED AT THE WEGENER CENTER. THE DERIVED PARAMETER IS TEMPERATURE ANOMALY (TA-ANOM) FOR THE PAST DECADE 2001–2012. THE LOCATIONS WITHIN THE EXHIBITION SPACE REFLECT TWO TYPES OF TRANSLATIONS. IN MOST CASES, DATA IS PROJECTED THROUGH A DERIVED VERSION OF THE DYMAXION MAP, IN OTHER CASES LATITUDE INFORMATION IS COMBINED WITH ALTITUDE LEVELS OF THE ATMOSPHERE.

AN ICOSAHEDRAL UNFOLDING OF THE EARTH'S SPHERICAL SURFACE IS AN APPROACH THAT GOES BACK TO THE ARCHITECT BUCKMINSTER FULLER. THIS "DYMAXION"

PROJECTION IS THE ONLY FLAT MAP OF THE ENTIRE SURFACE OF THE EARTH WHICH REVEALS OUR PLANET AS ONE ISLAND IN ONE OCEAN, WITHOUT ANY VISUALLY OBVIOUS DISTORTION OF THE RELATIVE SIZES OF THE LAND AREAS. THIS MAP IS UTILIZED BOTH IN THE SOUND LAYER OF THE SYSTEM'S IDLE STATE AND IN MOST SONIFICATION LAYERS. WHEN DATA SETS ONLY SPECIFY LONGITUDINAL MEANS, HIGHER LEVELS OF THE ATMOSPHERE ARE PAIRED WITH THE GIVEN LATITUDES. FINALLY, RADIATION BASED DATA IS GIVEN GLOBALLY AND DISTRIBUTED ACROSS ALL CHANNELS USING A GRANULAR PATTERN. AN IMPORTANT ASPECT OF THE COMPOSITION IS THE INTERPLAY OF THESE INDIVIDUAL LAYERS. THEY EMANATE FROM THE LOCATIONS IN THE EXHIBITION SPACE WHERE THE SENSORS ARE SUSPENDED, GRADUALLY FILLING THE SPACE. THE APPEARANCE AND DISAPPEARANCE OF THE LAYERS IS A SLOW PROCESS FOR WHICH THE ALGORITHM MAY CHOOSE DIFFERENT TEMPORAL AND SPECTRAL STRATEGIES. MANY OF THE INTERESTING SOUND CONSTELLATIONS OCCUR DURING THESE TRANSITIONS AND SHORT CO-OCCURRENCES, EMPHASIZING THE EPHEMERAL AND FRAGILE NATURE OF CLIMATE.





BIX.PERFORM();

RAPR 2013

RESPONSIVE ART IN THE PUBLIC REALM
(WORKSHOP)

2013

WITH DANIELA BRASIL AND NAYARÍ CASTILLO
FOR ADRIART

COMMENTING ON DIFFERENT COMMUNICATION STRATEGIES BETWEEN THE PUBLIC, THE CITY AND THE KUNSTHAUS, A GROUP OF STUDENTS OF THE INTERNATIONAL MASTER IN "ADVANCING DIGITALLY RENEWED INTERACTIONS IN ART TEACHING" (ADRIART) PRESENT THEIR FINDINGS/ EXPERIMENTS ON PARTICIPATION FOR THE BIX FACADE. FOUR INTERACTIVE PERFORMANCE PIECES TRANSFORM THE CITY SURFACE BY ADDING SENSIBLE DISCOURSES AND REFRESHING THE SPATIAL RELATIONS WITH THE URBAN CONTEXT AROUND THE FRIENDLY ALIEN. RESEARCH WAS DONE ON CREATIVE STRATEGIES AND DEVELOPMENT OF TRANSMEDIA ARTISTIC PROJECTS THAT WORK ACTIVELY WITH THE PUBLIC REALM IN ITS BROADEST SENSE. THIS INCLUDES PHYSICAL AS WELL AS VIRTUAL SPACES AND RELATIONS, FOCUSING ON SOCIAL, ECONOMICAL AND/OR POLITICAL RELEVANT THEMES WITHIN THE ALPE-ADRIATIC REGION. STUDENTS LEARNED TO USE BOTH ANALOGUE AND DIGITAL TOOLS THAT ENABLE INTERACTIVE ARTISTIC INSTALLATIONS AND/OR PERFORMANCES FOSTERING PUBLIC PARTICIPATION. A NEW JAVA-BASED APPLICATION, BEING ABLE TO ESTABLISH A LIVE CONNECTION FROM ANY DEVICE WORLDWIDE TO THE BIX FACADE MAX/MSP-BASED CONTROLLER, WAS SPECIFICALLY CREATED FOR THAT PORPOSE.

FOR FURTHER DETAILS ON THIS SECTION PLEASE VISIT

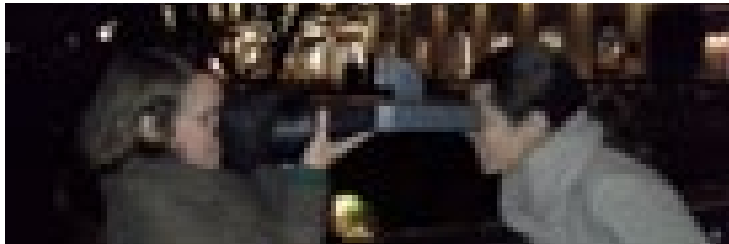
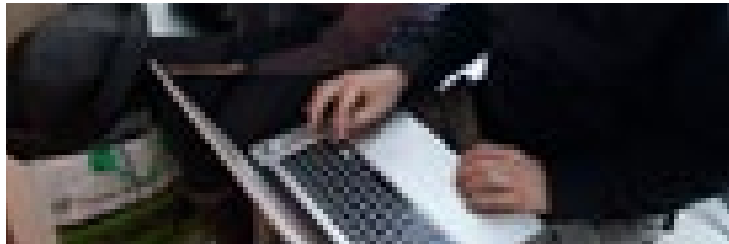
<http://www.adriart.net/responsive-art-public-realm-bix-perform>

<http://www.museum-joanneum.at/kunsthhaus-graz/bix-medienfassade/projekte/events/event/12.04.-05.05.2013/bix-perform>



CITY VOYEUR

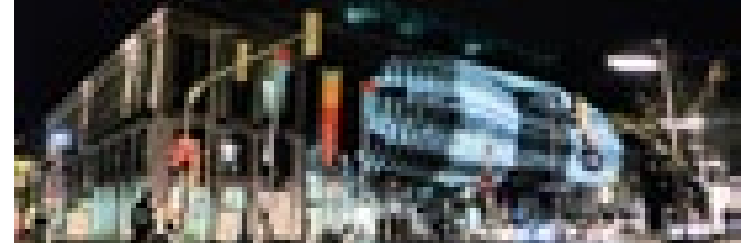
IT SEEMS THAT SURVEILLANCE OF ALL KINDS AND LEVELS IS CONTINUOUSLY TAKING PLACE AROUND US. VOYEURISM IS ONE OF THE MOST IMPORTANT DYNAMICS INSIDE CITIES. THIS INTERVENTION REFLECTS ON URBAN MOVEMENTS BY USING A PLAYFUL DEVICE THAT INVITES THE PASSER-BY TO INTERACT WITH THE IDEA OF AERIAL OBSERVATION. IN THE PROCESS OF PARTICIPATING THE USER DISCOVERS THAT HE/SHE IS PART OF THE IMMENSE MECHANISM OF VISUAL CONTROL.



LIFE-STREAM

THE RIVER MUR FLOWS FROM AUSTRIA, PASSING THROUGH SLOVENIA, HUNGARY AND CROATIA. THE WATER THAT GOES INEXORABLY FROM CITY TO CITY KEEPS A VIBRATING UNION ALIVE. THIS INTERVENTION, ON THE BENCHES OF THE MUR PROMENADE IN GRAZ, LETS THE USER METAPHORICALLY INTERRUPT THE CONNECTION BETWEEN COUNTRIES, BY COLLAPSING WITH A MINIMAL ACT, THE SUBTLE BRIDGE THAT UNFIES THE ROUTE.

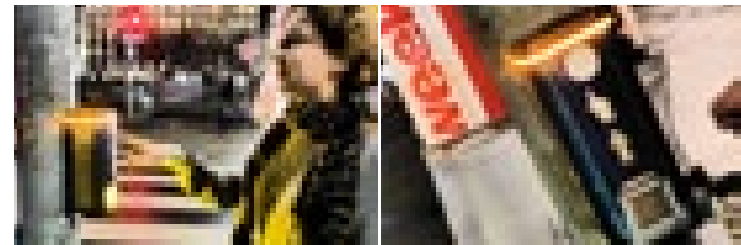
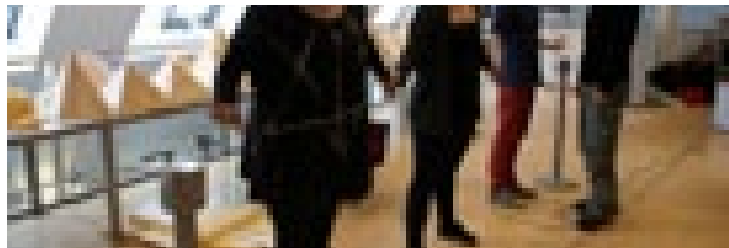




MISTAKE+

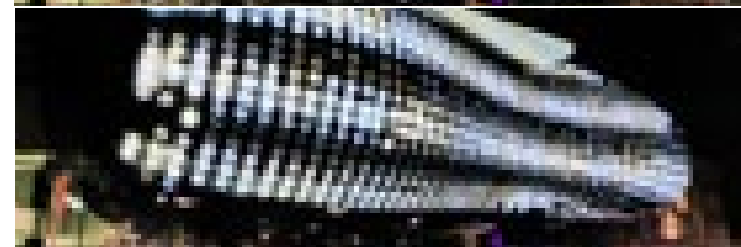
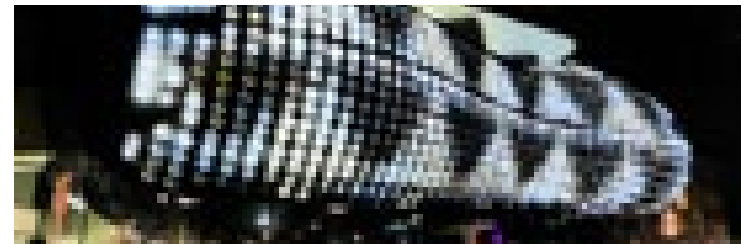
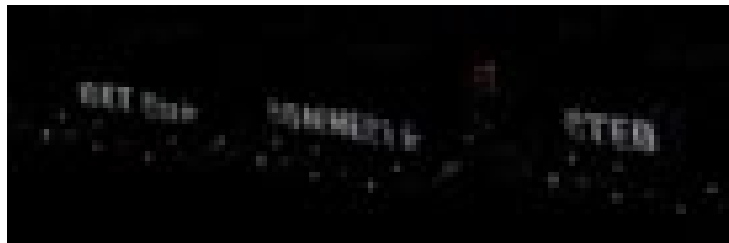
MEANDERING AROUND THE CITY CONSTANTLY INVOLVES UNCONSCIOUS ACTIONS. THIS WORK COMMENTS ON THE SMALL MISTAKES THAT APPEAR IN THIS TRAVELLING THROUGH SPACE, WHERE SOME CITY ARTIFACTS APPEAR TO BE USED IN WAYS DIFFERENT FROM HOW THEY WERE CONCEIVED. THIS PUBLIC MISUSE RUNS PARALLEL TO THE INTRINSIC MISTAKES IN THE CITY STRUCTURE.

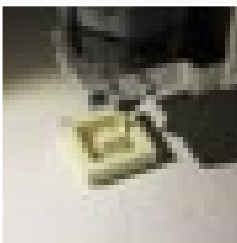
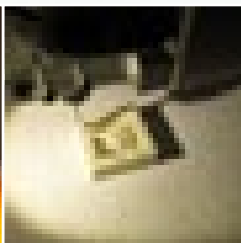
THE INTERVENTION FOCUSES ON A COMMONLY MISTAKEN ACTIVATION OF THE ACOUSTIC SIGNAL GUIDING PEDESTRIANS OVER A CROSSING; EACH USELESS INTERACTION WITH THE DEVICE IS TRANSLATED INTO VISUALIZATIONS OF ANOTHER MISTAKE: THE "JUMPING PIXEL" ON THE BIX-FACADE.



MAKING OFF: PUBLIC SPACE

THE PUBLIC IS INVITED TO ACTIVATE THE BIX FACADE BY CREATING A HUMAN CHAIN THAT CONNECTS TWO ELECTRICAL CONTACT POINTS MOUNTED IN FRONT OF THE KUNSTHAUS. THE IMAGE INCORPORATES ON THE ONE HAND A SELF-ORGANIZING METHOD FOR CREATING EMOTIONAL AND PHYSICAL CONTACT; AND ON THE OTHER HAND, THE COMPLETE COMMUNION BETWEEN PARTICIPANTS AND MUSEUM. THIS SIMULTANEITY COMMENTS THE AUTHOR'S ROLE, TRANSFORMING THE COLLECTIVE EXPERIENCE INTO A VISUAL RESPONSE ON PUBLIC SPACE.





LÓGOS

MULTITUDE MANIFESTATIONS OF ROG

3D-MATERIALIZATION WITH SITE-SPECIFIC INTERACTIONS
(WORKSHOP)

2013

WITH LUKA FRELIH AND PETER PURG

FOR FOR THE SCHOOL OF ARTS / UNG AND THE MUSEUMS AND GALLERIES OF LJUBLJANA

A WORD, A STATEMENT

A CONDITION, A COMMAND

A DISCOURSE, A CONVERSATION

A NARRATIVE, A TALE

AN ASSERTION, A PROMISE

FOR FURTHER DETAILS ON THIS SECTION PLEASE VISIT

<http://www.adriart.net/l-gos-multipitude-manifestations-rog-workshop-rog-ljubljana>

http://rog-lab.si/sl/sveze/2012/manifestacije_rog_nadaljevanje

<http://www.adriart.net/grabrogland-monomaterialisation-rog>

<http://rog-lab.si/sl/sveze/2013/grab-rog-land>

<http://rog-lab.si/sl/projekti/2013/vsu-second-chance>

A THROW OF THE DICE
WILL NEVER
ABOLISH CHANCE

HERACLITUS, THE PRE-SOCRATIC ACADEMIC, INTRODUCED THE GREEK WORD λόγος (LÓGOS FROM λέγω LEGO "I SAY") TO PHILOSOPHY AS A PRINCIPLE OF ORDER, AS A REASONED ARGUMENT. ACCORDING TO LIDDELL AND SCOTT (1889) THE TERM ORIGINALLY COMPRISES ALL OF THE MEANINGS MENTIONED BEFORE - AND MUCH MORE. HOWEVER, GRAPHIC MARKS OR EMBLEMS ARE TODAY'S PREDOMINANT CONNOTATIONS OF "LOGOS".

THE WORKSHOP SOUGHT TO PRACTICALLY DECONSTRUCT THIS COMMON CONCEPTION AND OFFER A MULTI-DIRECTIONAL APPROACH, ENHANCED BY THE ALGORITHM-BASED METHODOLOGY. THIS APPEARED TO BE NECESSARY, ESPECIALLY IN THE CASE OF ROG - THE PROJECT AREA WE EXAMINED AND WORKED WITH/AT.

ROG IS A CURRENT SQUAT AND FUTURE CENTER OF CONTEMPORARY ARTS IN LJUBLJANA. NUMEROUS INTERESTS - COMING FROM A MYRIAD OF DIFFERENT STAKEHOLDERS IN THE (RE) DEVELOPMENT PROCESS - FOUND NEW INTERPRETATIONS AND SYNERGIES THERE.

MULTITUDE MANIFESTATIONS

IN ONE MONTH OF JOINT ONLINE PREPARATION INTERNATIONAL PARTICIPANTS OF THE WORKSHOP ACQUIRED THE BASICS OF PARAMETRIC 3D-MODELLING AND -PRINTING. IN PARALLEL THEY DID RESEARCH ON THE EXISTING PRACTICES AND DISCOURSES IN AND AROUND ROG - TO SCRAPE OUT POSSIBLE IDENTIFICATION PATHWAYS FOR DEVELOPING ALGORITHMIC ARTIFACTS.

THOSE LOGO-LIKE OBJECTS HAD BEEN INTERACTIVELY FINALIZED IN SITU AND MATERIALIZED IN AN INTENSIVE 3-DAY WORKSHOP (JANUARY 10-12) AT ROGLAB. IN THE END THEY ILLUSTRATED THE FORMALIZING PROCESS OF IDENTITY HYPOTHESES, RATHER THAN CODIFY THE CHARACTERISTICS OF ROG. ALL OF WHICH WERE INTENDED TO BE CONCRETE STATEMENTS AND UNFINISHED CONTRIBUTIONS AT THE SAME TIME.

THE RAPID PROTOTYPING TECHNOLOGY INVOLVED DOES NOT NECESSARILY NEED TO SERVE AS A (CREATIVE) INDUSTRY DEVICE. IN OUR CASE IT RATHER ACTED AS MEDIUM FOR (RE)INVENTING AND TRANSPORTING CROSS-CULTURAL IDEAS. THE ALGORITHM-BASED 3D-MODELLING PARADIGM AND THE CNC MACHINERY WERE EMBRACED AS AMPLIFIERS FOR CRAFTING INFINITE POSSIBILITIES OF (COMMON OR EVEN COLLECTIVE) SELF-CLASSIFICATION.

MONOMATERIALISATION

AFTER RESEARCH ONLINE THE GROUP OF STUDENTS AND MENTORS FROM TECHNICAL UNIVERSITY GRAZ (AUSTRIA), ACADEMY OF APPLIED ARTS IN RIJEKA (CROATIA) AND UNIVERSITY OF NOVA GORICA, SCHOOL OF ARTS (SLOVENIA) MET AGAIN AT ROGLAB (13-15 NOVEMBER) TO ELABORATE A DICE GAME FOR CULTURE-MANAGEMENT OF REAL-ESTATE. THE GOAL WAS TO DEVELOP AND PRODUCE A FULL PROTOTYPE - A NICELY FINISHED PAIR OF NON-RECTANGULAR DICE IN A DEDICATED BOXING, ALONG WITH THE ENTIRE GAMIFICATION, WHERE THE GENERIC RULES WILL REFER (NOT ONLY) TO THE SPECIFIC CULTURAL CONTEXT AROUND ROG(LAB) ...

THE PRE-PREMIERE OF THE PROTOTYPE WAS AT THE 2013 PXXELPOINT FESTIVAL. BUT THE PREMIERE TO ROLL THE DICE WAS RESERVED FOR "ROGLAB PROTOTYPES" GALA SHOW ON 19.12.2013 AT THE BREG 22 GALLERY IN LJUBLJANA.

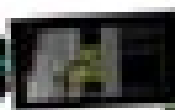
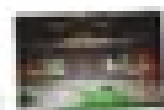


SECOND CHANCE

THE BOARD GAME SECOND CHANCE HELPS USERS ORGANIZE THEIR SPACE, TIME, MONEY AND OTHER MEANS ONCE THE SET METHODS OF COOPERATION AND DISCUSSION FAIL. IT IS APPLICABLE TO ANY CULTURAL MANAGEMENT SECTOR, OR EVEN OTHER AREAS OF LIFE AND WORK. THE GAME UNFOLDS (AND THE SCHEDULING GETS DECIDED) WITH A SINGLE THROW OF TWO (EITHER METAL OR WOODEN, BOTH CNC-MILLED, PREVIOUSLY 3D-PRINTED) DICE, ONE WITH FOUR AND ONE WITH EIGHT SIDES. THE PACKAGING PART OF THE PROTOTYPE ALSO INCLUDES INSTRUCTION CARDS, BOTH PRODUCED WITH LASER CUTTERS.

45





RYUGYONG.ORG

IN JUNE 2005 THE PRESTIGIOUS INTERNATIONAL MONTHLY ARCHITECTURE MAGAZINE DOMUS LAUNCHED THE CALL FOR IDEAS ON ARCHITECTURE AND GEOPOLITICS FOR THE RYUGYONG HOTEL IN PYONGYANG (BOERI ET AL. 2005). THIS WAS THE AFTERMATH OF STEFANO BOERI, ARMIN LINKE AND ANDREA PETRECCA'S LOCAL INVESTIGATION IN NORTH KOREA'S CAPITAL - PHOTOGRAPHS OF 'EMPHATIC SEQUENCES, PORTIONS OF A STANDARD CITY ENRICHED WITH DESIGNED EXCEPTIONS, SUBTITLED WITH PROPAGANDA' (PETRECCA 2005, P. 19) UNDERLINING SEVERAL ARTICLES, ONE OF WHICH IS SIGNIFICANTLY CALLED "THE PHANTOM PYRAMID". AT THE END OF THIS ESSAY THE INVITED DELEGATION PUT IT LIKE THAT: "IN REQUESTING IDEAS CONJURING UP THE FUTURE OF THIS 'RUIN OF THE FUTURE', WE WANTED TO RAISE THE GAME OF REPLICAS, ANALOGIES AND VISIONS OF ARCHITECTURE [...]" (BOERI 2005A).
DIAG AND RICHDANK HAVE BEEN CHALLENGED...

FOR FURTHER DETAILS ON THIS CHAPTER PLEASE VISIT

<http://ryugyong.org/>

<http://richdank.com/?ryugyong.org>

<http://richdank.com/theory/ryugyong/>

PROJECT

RYUGYONG.ORG

OTHER LEVELS TO THE RYUGYONG HOTEL
(COMPETITION CONTRIBUTION)

2005-08

WITH ANDREAS GRUBER

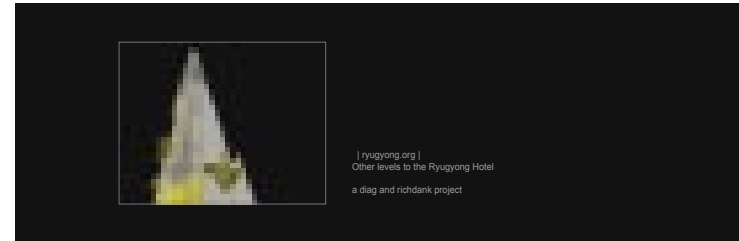
THE SELFTRANSCENDENCE OF THE RYUGYONG HOTEL IN PYONGYANG IS LESS SUBTLE, BUT MORE STRIKING: ALTHOUGH THE RYUGYONG HOTEL IS BY FAR THE HIGHEST STRUCTURE IN THE COUNTRY, THE 7TH LARGEST BUILDING IN THE WORLD AND ITS SHADOW CAN BE CLEARLY IDENTIFIED FROM ORBIT (SEE: <[HTTP://MAPS.GOOGLE.COM/MAPS?Q=PYONGYANG&T=K](http://maps.google.com/maps?q=pyongyang&t=k)>), IT CANNOT BE FOUND ON THE OFFICIAL PYONGYANG CITY MAP. IT SIMPLY REFUSES COMPLETION TO NEGATE ITS VERY EXISTENCE AND TO PREVENT QUESTIONING AT ALL. PERFORMING AS AN ABANDONED CONSTRUCTION SITE, IT SPREADS THE CHARME OF THE UNFINISHED AS WELL AS CONCRETE BRUTENESS. IT DENIES ACCESS AND INSIGHT, BUT COMPELS OUR IMAGINATION TO GET STUCK IN OBSCURE GANGWAYS AND IMMEASURABLE RAVINES. TO STALK EXACTLY THIS AURATIC RETRACTION IS OUR INTENTION.

FOR FURTHER DETAILS ON THIS SECTION PLEASE VISIT

<http://0704.at/imprint/>

<http://ryugyong.org/?abstract&about>

<http://richdank.com/theory/ryugyong/>



INTRODUCTION

THE NAME OF THE 105 STORIES 330 METER BUILDING COMES FROM ONE OF THE HISTORIC NAMES FOR PYONGYANG: RYUGYONG, OR 'CAPITAL OF WILLOWS'. ITS CONSTRUCTION BEGAN IN 1987 FOR THE 1989 WORLD FESTIVAL OF YOUTH AND STUDENTS (OFFICIAL SLOGAN: FOR ANTI-IMPERIALIST SOLIDARITY, PEACE AND FRIENDSHIP), BUT PROBLEMS FIRST DELAYED THE COMPLETION UNTIL THE EFFORTS FINALLY CAME TO A HALT IN 1992 WITH ONLY THE BASIC CONCRETE STRUCTURE ERECTED. (WIKIPEDIA, >> <[HTTP://EN.WIKIPEDIA.ORG/WIKI/RYUGYONG_HOTEL](http://en.wikipedia.org/wiki/Ryugyong_Hotel)> [ACCESSED 09TH DECEMBER 2005]) THESE FEW FACTS ARE ABOUT THE ONLY SAFE DATA ABOUT THE PYRAMID - THE REST IS LITERALLY AN 'URBAN LEGEND'. SOME EVEN CLAIM THAT IT HAS BEEN DESIGNED PERSONALLY BY KIM JONG IL TO RESEMBLE A ROCKET. (CUMINGS 2005, P. 64)



APART FROM THE LACK OF INFORMATION AND THE IMPROBABILITY OF ANY REALIZATION SOON THE QUESTION AROUSE WHETHER ONE SHOULD OR MAY NOT PARTICIPATE IN THE DOMUS COMPETITION - PARTICULARLY DUE TO THE COUNTRY'S UPHOLD OF JUCHE IDEOLOGY - MEANING 'SELF-RELIANCE'. IT ORIGINALLY GREW OUT OF STALINISM, AND THOUGH MINOR POLITICAL PARTIES EXIST, IT IS COMMONLY ACCEPTED THAT THE NATION'S REGIME IS A TOTALITARIAN DICTATORSHIP.



IN HIS LETTER TO THE EDITOR ON DOMUS 882 THE CZECH ARCHITECT JAN KAPLICKY (2005) CRITICISES THE INITIATIVE FOR BEING "AN INTELLECTUAL EXERCISE WHICH SUPPORTS CRUEL REGIMES". HE ARGUES THAT "THE RYUGYONG HOTEL IS CERTAINLY NOT ARCHITECTURE. IT IS EMPTY. WITHOUT PEOPLE. IT CANNOT BE DESIGNED AND USED BY BRAINWASHED ROBOTS. MODERN ARCHITECTURE CANNOT EXIST WITHOUT FREE HUMAN BEINGS." BUT STEFANO BOERI (2005B) ANSWERS: "WE THINK THAT THE ACT OF OBSERVING, DESCRIBING, INTERPRETING SPACE AND THE BUILT ENVIRONMENT IS ONE OF ARCHITECTURE'S RESOURCES AND HELPS US UNDERSTAND THE COMMUNITY WE INHABIT. [...] WE USED THIS RUIN AS A SYMBOLIC BRIDGE, A TOOL TO DENOUNCE THIS DICTATORSHIP WHILE AT THE SAME TIME OPENING A CRACK IN THE REGIME'S ISOLATION, WITHOUT RESORTING TO THE USE OF 'SMART BOMBS'.

0(THE)R LEVELS

A CENTRAL FEATURE COMMON FOR MANY OF THE BIG BUILDINGS IS A SURPRISINGLY HIGH LEVEL OF ABSENTEEISM. IN A QUEER WAY THEY TEND TO WITHDRAW FROM REALITY.



OVER A LONG PERIOD OF TIME WE APPRECIATE ONLY THOSE ARTEFACTS WHICH SUCCESSFULLY ESCAPE THE RESTRAINTS OF PRESENCE AND FUNCTIONING. LEAVING BEHIND OUTDATED CONCEPTIONS AND SUBSTATIONS THEY MAY GAIN CONTINUANCE FAR BEYOND PREDICTABILITY. (BAUDRILLARD 1999) THIS STRATEGY OF THE UNTOUCHABLE HAS MANY FACES: THE LETHAL FORCES OF NUCLEAR REACTIONS SURVIVE WITHIN AN ARCHAIC SARCOPHAGUS. (THE CHERNOBYL ACCIDENT WHICH OCCURRED ON THE 26TH OF APRIL 1986 LEFT MORE BEHIND THAN A SHUT DOWN NUCLEAR PLANT SEALED WITH TONS OF CONCRETE.) AIRY TOWERS, THE PROSPEROUS SYMBOLS OF CULTURAL STAGNATION, GIVE OVER TO TERRORISM AND VANISH IN DEBRIS. (THE TWO TOWERS OF THE WORLD TRADE CENTRE IN NEW YORK CITY WERE THE

MOST FAMOUS VICTIMS OF THE SERIES OF COORDINATED TERROR ATTACKS UPON THE US ON SEPTEMBER 11TH, 2001. AS THEY LOST STRUCTURAL INTEGRITY AND COLLAPSED DUE TO AMERICAN AIRLINES FLIGHT 11 AND FLIGHT 175 TURNED INTO TERRORIST INCENDIARY BOMBS, THEY FINALLY GAINED PERPETUAL AND INVIOABLE DIGNITY.) THUS THEY ALL OUTLIVE THEIR VERY OWN DESTINY OF DECAY. "THE BASE HYPOTHESIS IS THAT ARCHITECTURE IS NOT FILLING SPACE, IT IS CREATING SPACE." (BAUDRILLARD 1999, P. 11)



MIRRORING

TO USURP THE STRUCTURE, THE BUILDING SITE IS DIGITALLY MIRRORED INTO A VIRTUAL SITE ON WEBSERVERS, NAMELY THE WWW DOMAIN | RYUGYONG.ORG | . THE MIRROR - ONE PROTOTYPE OF REAL VIRTUALITY (ECO 1988) - IS THE TOOL TO GET COMPLETE CONTROL OVER THE VIRTUAL ASPECTS OF RYUGYONG HOTEL. ALTHOUGH THIS VIRTUALITY APPEARS TO BE DETACHED FROM WHAT IT'S MODELLED ON, BOTH MANIFESTATIONS REMAIN CLOSELY LINKED TO EACH OTHER.

WE USE THE CONCEPT OF THE MIRROR - AN ABSOLUTELY UNCOMMITTED IMPLANT - TO IMAGINE AND TO DEAL WITH A NEXUS OF A HYPERREAL REFERENT. AS THE REFERRING REALITY CAN BE REFLECTED, WE CAN REFLECT ON SOME OF ITS CONSTITUTING PROPERTIES THOUGH THESE ARE OUT OF REACH TO OUR PERCEPTION AND TOUCH. WE AUGMENT THE VIRTUAL REFLECTIONS OF THE PYRAMID WITH DIGITAL VIRTUALITIES TO STIMULATE - OR AT LEAST SIMULATE - FEEDBACK AND COMMUNICATION WITH ITS SOURCE.



THE TERM 'VIRTUAL' IS APPLIED IN MANY FIELDS WITH SOMEWHAT DIFFERING CONNOTATIONS, AND ALSO DEVOTATIONS. AWARE OF THAT WE WITTINGLY USE IT COMPRISING ALL MEANINGS - FROM COMPUTING'S 'VIRTUAL REALITY' TO GILLES DELEUZE'S 'POTENTIAL'. THIS VIRTUALITY

OFFERS ULTIMATE DISPOSABILITY AS WELL AS PERMANENT REFLECTION ONTO THE OUTER REALITY ON-SITE. SO THE ONGOING VIRTUAL MANIPULATIONS ON | RYUGYONG.ORG | WILL PERMANENTLY CHALLENGE THE SNOOZING SADNESS OF RYUGYONG HOTEL. AS LONG AS THE INCOMPLETE GIANT IS TRAPPED BY DELIRIOUS CIRCUMSTANCES, | RYUGYONG.ORG | OPERATES QUASI AS A TRUSTEE OF POSSIBLE FUTURITIES. WE ARE CONVINCED THAT THIS CAN SPEED UP THINGS AND DEFY ONES VISION.

VIRTUAL ESTATE

"A REAL ESTATE DEVELOPER [...] MAKES IMPROVEMENTS OF SOME KIND TO REAL PROPERTY, IN ORDER TO INCREASING ITS VALUE." (WIKIPEDIA, <[HTTP://EN.WIKIPEDIA.ORG/WIKI/REAL_ESTATE_DEVELOPER](http://en.wikipedia.org/wiki/Real_estate_developer)> [ACCESSED 09TH DECEMBER 2005]) 'VIRTUAL ESTATE DEVELOPERS' OPERATE ON IMMATERIAL POTENTIALITIES. TO MAKE THINGS MOVE, WE - THE REAL DOMAIN OWNERS OF | RYUGYONG.ORG | - PRESUME TO ACT IN THE MANNER OF ESTATE AGENTS. WE DEVELOP VIRTUAL CONSTRUCTION PLOTS AT | RYUGYONG.ORG | AND OFFER THEM TO INDIVIDUALS AND ORGANISATIONS ON A LEASING BASIS FOR CERTAIN PERIODS. IN OUR ROLE AS VIRTUAL ESTATE DEVELOPERS WE GUARANTEE FOR LEGAL AND TECHNICAL RELIABILITY ON THE RYUGYONG.ORG | SITE.

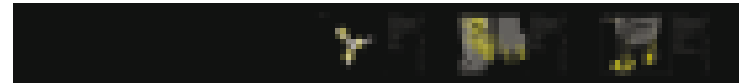


COLLABORATION

THESE PLOTS WE ARE TRADING ARE CLEARLY DEFINED VOLUMES WITHIN A VIRTUAL 3D MODEL OF RYUGYONG HOTEL. THE PURPOSE OF THESE PLOTS IS TO GIVE OUR CLIENTS AN OPPORTUNITY TO PRESENT ANY KIND OF PROJECT THEY FIND ADEQUATE FOR THIS EXOTIC PLAYGROUND. THE OPERATORS OF | RYUGYONG.ORG | WILL MAKE ANY EFFORTS IN PROVIDING SUPPORT FOR REALISING AND VISUALISING EVEN THE MOST EXCEPTIONAL CONCEPTS AND IN PROMOTING THE SITE AS A SERIOUS AND RECKONED SCENE OF DIGITAL ART AND ARCHITECTURE.

CLAIMING

THE FIRST STEP TO TAKE PART IN THIS ONLINE EXPERIMENT IS TO PICK ONE OF THE PREPARED REGIONS WITHIN THE VIRTUAL PYRAMID THAT SEEMS APPROPRIATE FOR AN ENVISIONED PROJECT. PROJECTANTS THEN NEED TO CONTACT THE OPERATORS OF | RYUGYONG.ORG | AND CLAIM THIS SELECTED VOLUME AS THEIR INDIVIDUAL ONLINE SITE. THEY ALSO WILL HAVE TO GIVE NOTICE OF THE SCHEME AND COMMUNICATE THE GENERAL IDEA OF INTENTION. | RYUGYONG.ORG | WILL CLARIFY ALL NECESSARY DETAILS, LIKE SITE COSTS, THE DURATION OF THE ONLINE PRESENCE, DOWN TO REFINED VISUALISATION TOPICS, THE PROJECT DATA FORMATS AND TRANSFER POLICIES.



IN THE BROADEST SENSE 'CLAIMING' STANDS FOR DEMANDING YOUR OWN PIECE OF THE PYRAMID IN ORDER TO TRANSMUTE ITS MOULD. OF COURSE THIS CATCHPHRASE IS ALSO TO BE REMINISCENT OF THE GOLD RUSH.



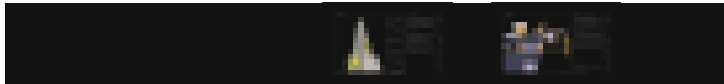
OBJECTIVES

| RYUGYONG.ORG | IS TO PROMOTE ANOTHER LEVEL OF ARCHITECTURAL DISCOURSE AND CONCEPTION: BEING CONCURRENTLY PLATFORM AND ISSUE OF DISCUSSION - THE DIVERSE ASPECTS AND APPROACHES OF THE ONGOING WORK MAY CLASH INTO EACH OTHER, PROVOKING A HYBRID ENVIRONMENT AND VISIONS OF PERMANENT MUTATION AND UNPREDICTABILITY. ACCORDING TO THESE AMBIGUOUS PARAMETERS | RYUGYONG.ORG | TOGGLES ITS ROLE FROM ACTING AS CUSTODIAN OF THE PYRAMID'S DIVERSE MANIFESTATIONS AS WELL AS PROVIDING SUBSTANTIAL SUPPORT IN TECHNICAL AND ARCHITECTURAL TERMS TO A MANIFOLD OF CLIENTS.



CONCLUSION

"TO TRANSFORM THE RYUGYONG HOTEL INTO A WORLDWIDE ANTENNA FOR IDEAS" (BOERI ET AL. 2005, COVER) WE BELIEVE THAT IT IS VITAL TO SUSTAIN THE BONDING BETWEEN THE REAL AND THE VIRTUAL PYRAMID, AT LEAST IN THE EARLY STAGE OF THE ENDEAVOUR. BUT DEPENDING ON THE SUBMITTED IDEAS AND DESIRES, THE COMMUNITY DETERMINES THE COURSE. THE FEEDBACK LOOP WILL POINT THE SCHEME'S BEARING. OUR ADVENTUROUS APPROACH TO EXPLORE THE BUILDING'S PRESENCE OR EXISTENCE IN CONTRADICTION TO THE SITE'S RATHER TRADITIONAL REPRESENTATION OF MATERIAL ARCHITECTURE (KAGA 2005) SEEMS TO BE A CONCEPTUAL IMPERFECTION... AS WELL AS THE CHANCE FOR | RYUGYONG.ORG | TO BE SUCCESSFUL.

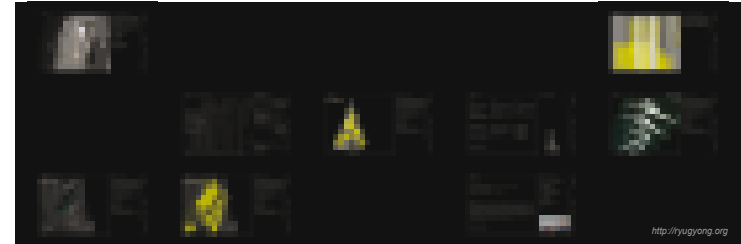


ALTHOUGH THERE HAS ALREADY BEEN INTERNATIONAL RESPONSE TO THE PROJECT WE WAIT TO FINALLY HAVE IT KICK-STARTED AFTER THE PUBLICATION IN DOMUS MAGAZINE AND THIS PAPER'S APPEARANCE AT THE GAMESETANDMATCH II CONFERENCE. BY NOW WE SET THE SCENE FOR THE FIRST CHAPTERS. WE BUILT THE SCOPE. HENCEFORTH WE NEED OTHERS TO CONTRIBUTE TO THE PICTURE. WE HOPE THEY EVEN SCATTER THE FRAME. OR TO CLOSE WITH BAUDRILLARD (1999, PP. 10/11): "WE HAVE INDUCED AN EXPERIMENTAL ENVIRONMENT OF NOT-KNOWING, OF RISK, AND THIS SCENE CAN EVENTUALLY TURN INTO A MYSTIC SCENE OF UNRESTRAINED THINGS, THAT ARE FATALLY OR DELIBERATELY UNCONTROLLED."



REFERENCES

- BAUDRILLARD, J (1999) ARCHITEKTUR: WAHRHEIT ODER RADIKALITÄT? GRAZ: DROSCHL.
- BOERI, S (2005A) "THE PHANTOM PYRAMID". DOMUSWEB, > <[HTTP://WWW.DOMUSWEB.IT/DOMUS/SPECIALS/RYUGYONG_HOTEL/SINGOLA_NEWS.CFM?CODNEWS=37711&TIPO=1](http://www.domusweb.it/domus/specials/ryugyong_hotel/singola_news.cfm?codnews=37711&tip0=1)> [ACCESSED 17TH NOVEMBER 2005].
- BOERI, S (2005B) "MEDIA, ARCHITECTURE AND GEOPOLITICS INSIGHTS" IN: DOMUS, VOL. 884, P. 19.
- BOERI, S & PETRECCA, A (2005) "A CONCRETE PYRAMID" IN: DOMUS, VOL. 882, MAGAZINE SLEEVE.
- CUMINGS, B (2005) "NOTHING TO ENVY IN THE WORLD?" IN: HARVARD DESIGN MAGAZINE, VOL. 21, FALL 2004 / WINTER 2005, PP. 63-70.
- ECO, U (1988) ÜBER SPIEGEL UND ANDERE PHÄNOMENE. MÜNCHEN: CARL HANSER.
- KAPLICKY, J (2005) "ON THE PYONGYANG ISSUE" IN: DOMUS, VOL. 884, P. 18.
- KAGA, A (30TH NOVEMBER 2005) ANNOUNCEMENT FROM CAADRIA2006. [EMAIL TO DANK, R].
- PETRECCA, A (2005) "PHOTOSHOP URBANISM" IN: DOMUS, VOL. 882, PP. 16-23.



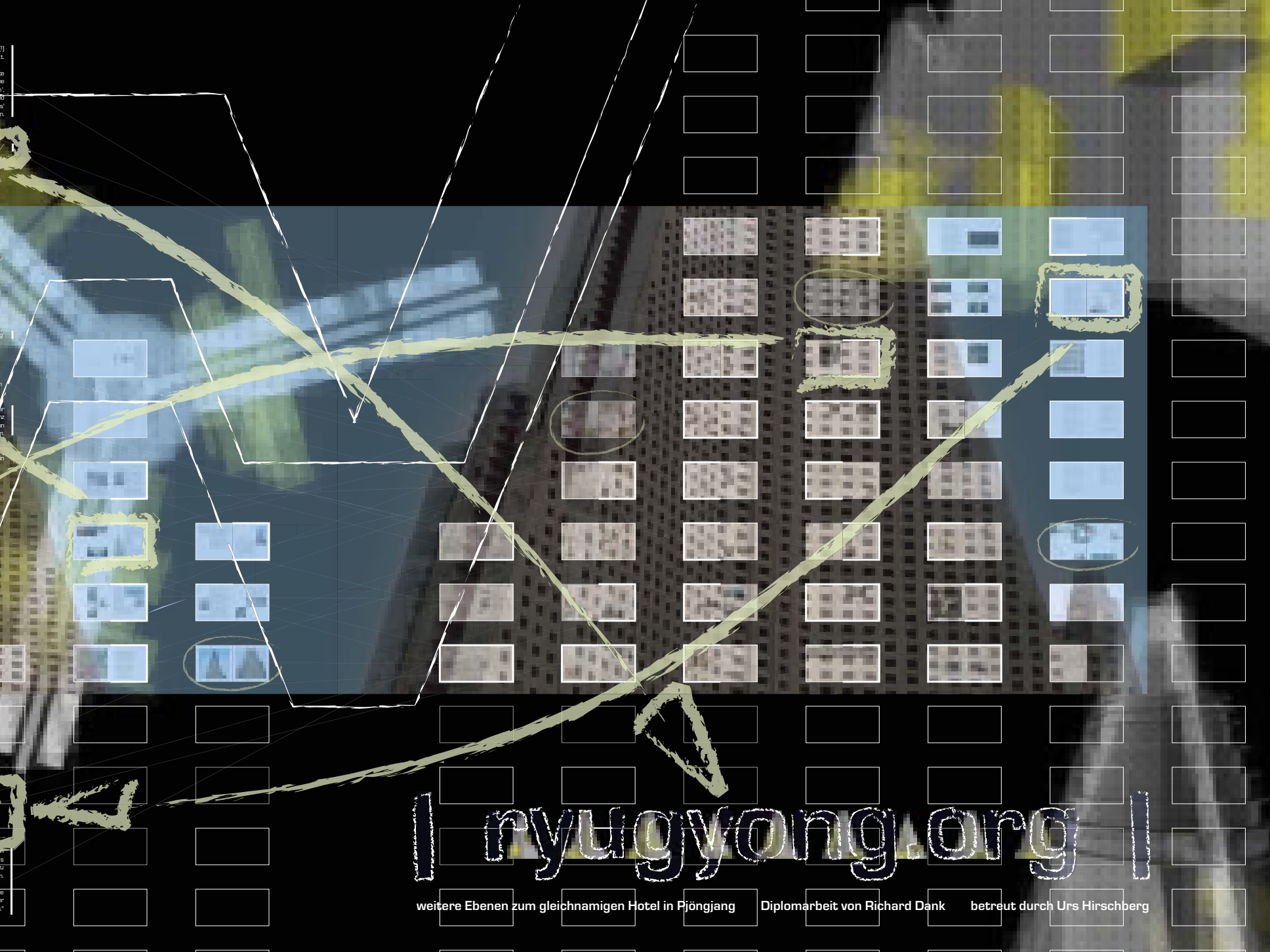
**OTHER LEVELS TO THE RYUGYONG HOTEL
(MASTER DIPLOMA WITH HONORS)
2006**

100 PAGES ON RYUGYONG.ORG, ALGORITHMIC ARCHITECTURE, CREATIVE COLLABORATION AND OPEN SOURCE ARCHITECTURE.

https://online.tugraz.at/tug_online/wbAbs.showThesis?pThesisNr=22080&pOrgNr=37

1

[illegible]



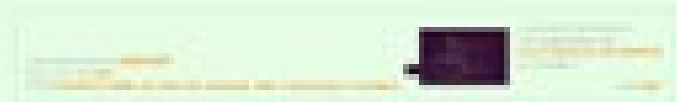
| nyugyong.org |

weitere Ebenen zum gleichnamigen Hotel in Pjöngjang Diplomarbeit von Richard Dank betreut durch Urs Hirschberg

0704

0704

0704



0704 ARCHITECTURE CODING COLLABORATION

55

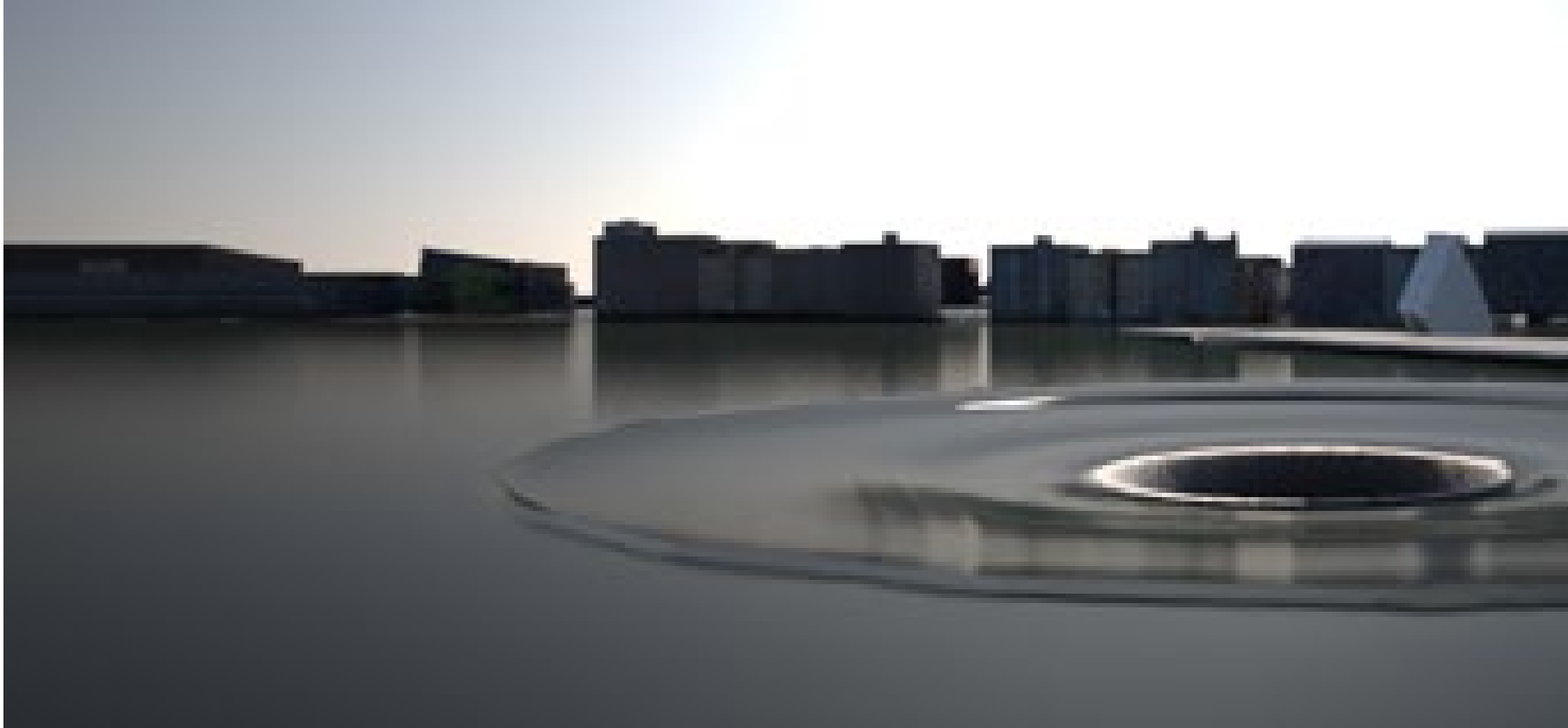
THE FRUITFUL COLLABORATION BETWEEN ANDREAS GRUBER AND RICHARD DANK ALREADY STARTED IN THE LATE NINETIES, TEACHING TOGETHER AND DOING PROJECTS OUTSIDE THE UNIVERSITY. IN APRIL 2007 THEY DECIDED TO OFFICIALLY LAUNCH AN ARCHITECTURAL PRACTICE, FOCUSING ON NEW ALGORITHMIC DESIGN APPROACHES AND DIGITAL FABRICATION. THIS CHAPTER PRESENTS TWO QUINTESSENTIAL COMPETITION CONTRIBUTIONS.

FOR FURTHER DETAILS ON THIS CHAPTER PLEASE VISIT

<http://0704.at/>

<http://richdank.com/?0704>

[]



VOID

**MH17 MEMORIAL IN AMSTERDAM
(COMPETITION CONTRIBUTION)
2015**

AS 0704 ARCHITECTURE

FOR FURTHER DETAILS ON THIS SECTION PLEASE VISIT

<http://0704.at/imprint/>

<http://richdank.com/architecture/void/>



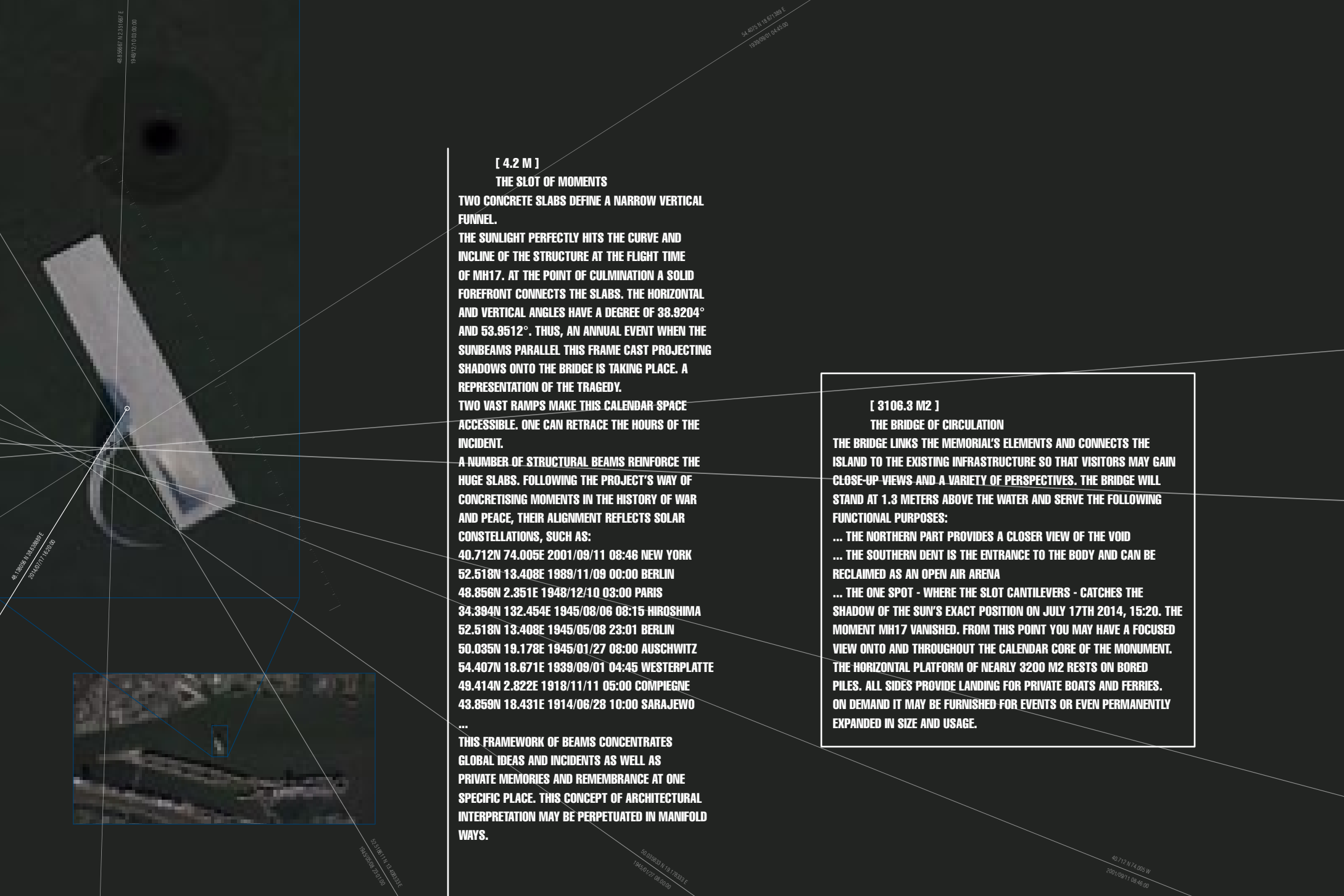
[]

THE VOID OF OBLIVION

THE VOID IS A CAVITY OF RECLUSIVENESS, COMPRISING NEITHER LIGHT NOR INSIGHT, NEITHER SOUND NOR SILENCE. IT IS NEITHER OCCUPIED NOR VACANT. IT IS AN EMPTY SHAPE, HOLDING NO FORM, NO FIGURES, NO ORIENTATION. THERE IS NO PRESENCE AND NO MEMORY IN THE DARK. A PLACE OF OBLIVION.

THE CAVITY STARTS WITH A DIAMETER OF 10 METERS ON SEA LEVEL AND EXTENDS 51.7 METERS IN DEPTH - ABOUT 36 METERS INTO THE SEA GROUND. THIS HOLLOW SPACE AMOUNTS TO A TOTAL VOID OF 2370 M³, THE VOLUME OF THE BOEING 777-200ER AIRLINER.

IN TECHNICAL TERMS THE HOLE RESEMBLES AN UNDERWATER CONSTRUCTION PIT. WATER IS REMOVED BY A ROBUST CONSTRUCTION OF SHEET PILING. ON SEA LEVEL A CONCENTRIC TRANSPARENT MEMBRANE OF ABOUT 50 METERS IN DIAMETER SURROUNDS THE PIT, CONFINING THE AREA OF THE HOLE. ITS MAIN PURPOSE IS TO CALM THE WAVES AND TO PREVENT WATER ENTRY. IN ADDITION THIS CORONA PUTS FOCUS ON THE BLACK PUPIL. HOWEVER, THIS VOLUME IS NOT INTENDED TO HOST ANY FURTHER CONSTRUCTION OR MATERIAL ARTEFACTS. THERE IS NO ARCHITECTURAL PLAN OR SECTION. IT IS DRAINED AND DEPLETED TO HOLLOW VERTICALITY.



[4.2 M]

THE SLOT OF MOMENTS

TWO CONCRETE SLABS DEFINE A NARROW VERTICAL FUNNEL.

THE SUNLIGHT PERFECTLY HITS THE CURVE AND INCLINE OF THE STRUCTURE AT THE FLIGHT TIME OF MH17. AT THE POINT OF CULMINATION A SOLID FOREFRONT CONNECTS THE SLABS. THE HORIZONTAL AND VERTICAL ANGLES HAVE A DEGREE OF 38.9204° AND 53.9512°. THUS, AN ANNUAL EVENT WHEN THE SUNBEAMS PARALLEL THIS FRAME CAST PROJECTING SHADOWS ONTO THE BRIDGE IS TAKING PLACE. A REPRESENTATION OF THE TRAGEDY.

TWO VAST RAMPS MAKE THIS CALENDAR SPACE ACCESSIBLE. ONE CAN RETRACE THE HOURS OF THE INCIDENT.

A NUMBER OF STRUCTURAL BEAMS REINFORCE THE HUGE SLABS. FOLLOWING THE PROJECT'S WAY OF CONCRETISING MOMENTS IN THE HISTORY OF WAR AND PEACE, THEIR ALIGNMENT REFLECTS SOLAR CONSTELLATIONS, SUCH AS:

40.712N 74.005E 2001/09/11 08:46 NEW YORK
52.518N 13.408E 1989/11/09 00:00 BERLIN
48.856N 2.351E 1948/12/10 03:00 PARIS
34.394N 132.454E 1945/08/06 08:15 HIROSHIMA
52.518N 13.408E 1945/05/08 23:01 BERLIN
50.035N 19.178E 1945/01/27 08:00 AUSCHWITZ
54.407N 18.671E 1939/09/01 04:45 WESTERPLATTE
49.414N 2.822E 1918/11/11 05:00 COMPIEGNE
43.859N 18.431E 1914/06/28 10:00 SARAJEWO

...

THIS FRAMEWORK OF BEAMS CONCENTRATES GLOBAL IDEAS AND INCIDENTS AS WELL AS PRIVATE MEMORIES AND REMEMBRANCE AT ONE SPECIFIC PLACE. THIS CONCEPT OF ARCHITECTURAL INTERPRETATION MAY BE PERPETUATED IN MANIFOLD WAYS.

[3106.3 M2]

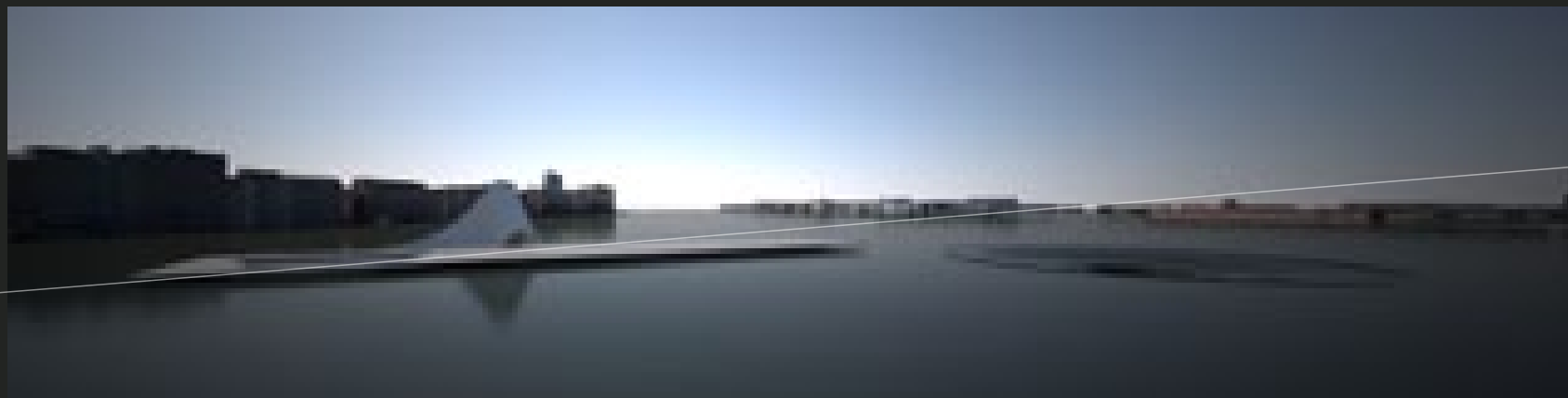
THE BRIDGE OF CIRCULATION

THE BRIDGE LINKS THE MEMORIAL'S ELEMENTS AND CONNECTS THE ISLAND TO THE EXISTING INFRASTRUCTURE SO THAT VISITORS MAY GAIN CLOSE-UP VIEWS AND A VARIETY OF PERSPECTIVES. THE BRIDGE WILL STAND AT 1.3 METERS ABOVE THE WATER AND SERVE THE FOLLOWING FUNCTIONAL PURPOSES:

... THE NORTHERN PART PROVIDES A CLOSER VIEW OF THE VOID

... THE SOUTHERN DENT IS THE ENTRANCE TO THE BODY AND CAN BE RECLAIMED AS AN OPEN AIR ARENA

... THE ONE SPOT - WHERE THE SLOT CANTILEVERS - CATCHES THE SHADOW OF THE SUN'S EXACT POSITION ON JULY 17TH 2014, 15:20. THE MOMENT MH17 VANISHED. FROM THIS POINT YOU MAY HAVE A FOCUSED VIEW ONTO AND THROUGHOUT THE CALENDAR CORE OF THE MONUMENT. THE HORIZONTAL PLATFORM OF NEARLY 3200 M2 RESTS ON BORED PILES. ALL SIDES PROVIDE LANDING FOR PRIVATE BOATS AND FERRIES. ON DEMAND IT MAY BE FURNISHED FOR EVENTS OR EVEN PERMANENTLY EXPANDED IN SIZE AND USAGE.



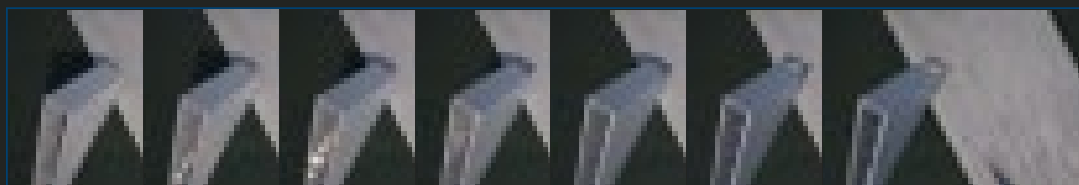
49.414161 N 2.822222 E
1918/11/11 05:00:00

[4593.1 M3]
THE BODY OF ACTION

THE VOLUME OF THE BODY PROVIDES
FUNCTIONAL SUBMARINE ENVIRONMENT FOR
ACTIVITY AND PRESENCE. IT STRETCHES OVER
827 SQUARE METERS AND CONTAINS ALL
NECESSARY ROOMS AND FACILITIES FOR THE
MAINTENANCE OF THE MEMORIAL AND ITS
PUBLIC ACTIVITIES.

IN CONTRAST TO THE CONTEMPLATIVE
VERTICALITY OF THE THE SLOT PROMOTES UP-
TO-DATENESS AND CHANGE.

43.858722 N 18.431111 E
1914/06/28 10:00:00



12:31
UTC +2:00
MH17 take-off

13:001

3:30

14:00

14:30

15:00

15:20
UTC +2:00
MH17 last contact

36.394872 N 132.454808 E
1945/08/08 08:15:17

SWIMMING WATERS

TYPHOON CLASS SUBMARINE

OPEN IDEAS TRILOGY

(COMPETITION CONTRIBUTION)

2014

AS 0704 ARCHITECTURE

CONSIDERED AN ARCHITECTURAL OBJECT THE NUCLEAR SUBMARINE'S PERFORMANCE IS POOR: IT WAS CONCEIVED FOR A QUITE ONE-DIMENSIONAL PURPOSE, THE TRANSPORTATION OF THREAT. WHILE LOOSING ALL "UTILITAS" WITHIN A FEW DECADES ONLY, THE SHAPE CONTINUES TO PROUDLY RADIATE UNIQUE CAPACITIES: TO MOVE SILENTLY IN THE DEPTH, TO CUT THROUGH LIQUID MATTER, TO DISPLACE WATER, TO CREATE CONCEALED SPACE. INTENDING TO KEEP THE OBJECT, ONE MUST PERPETUATE THIS SYMBIOSIS BETWEEN THE STEEL TYPHOON AND THE SMOOTH ELEMENT. EVERYTHING ELSE WOULD RESULT IN DISINTEGRATION.

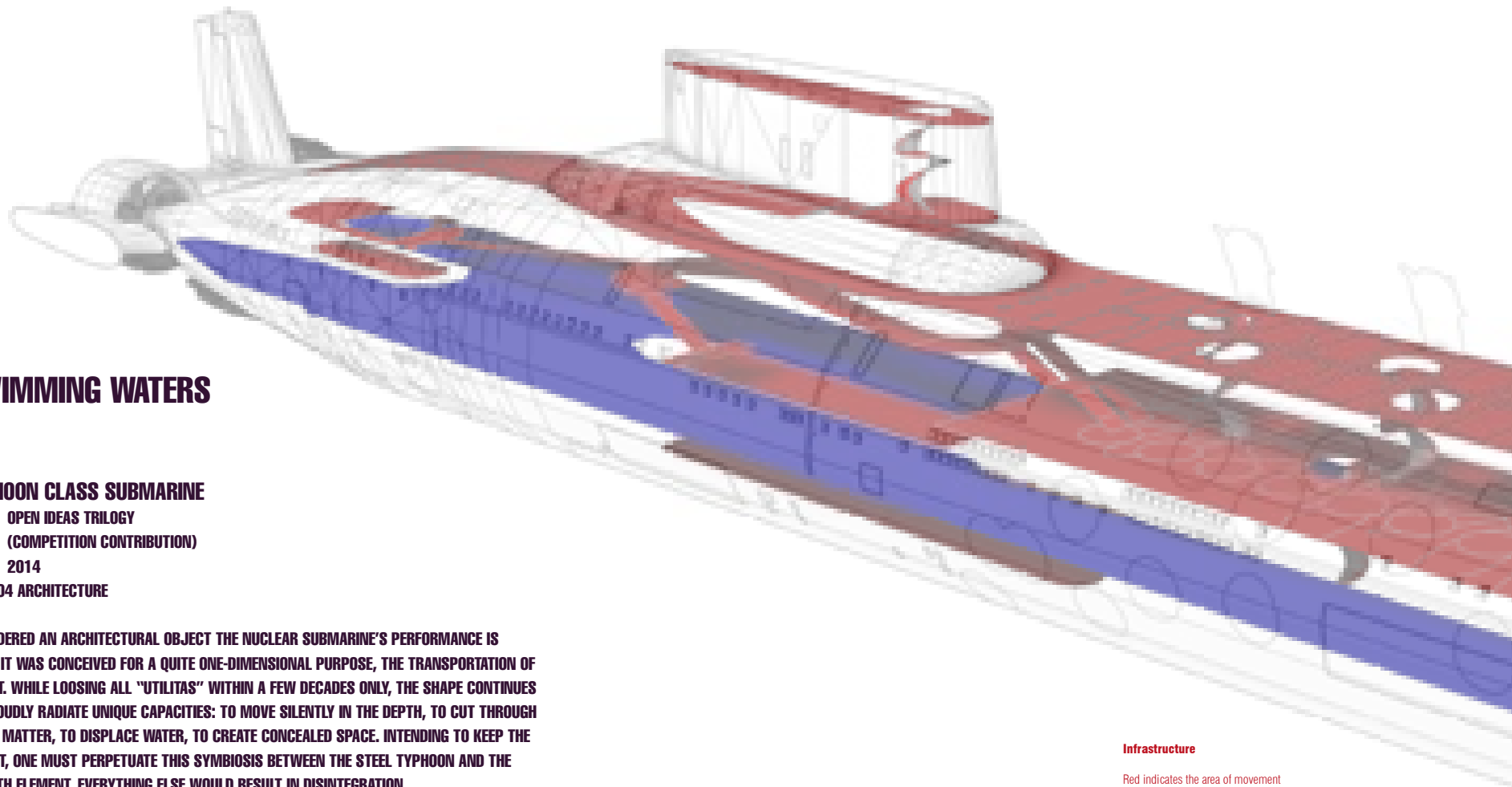
FOR FURTHER DETAILS ON THIS SECTION PLEASE VISIT

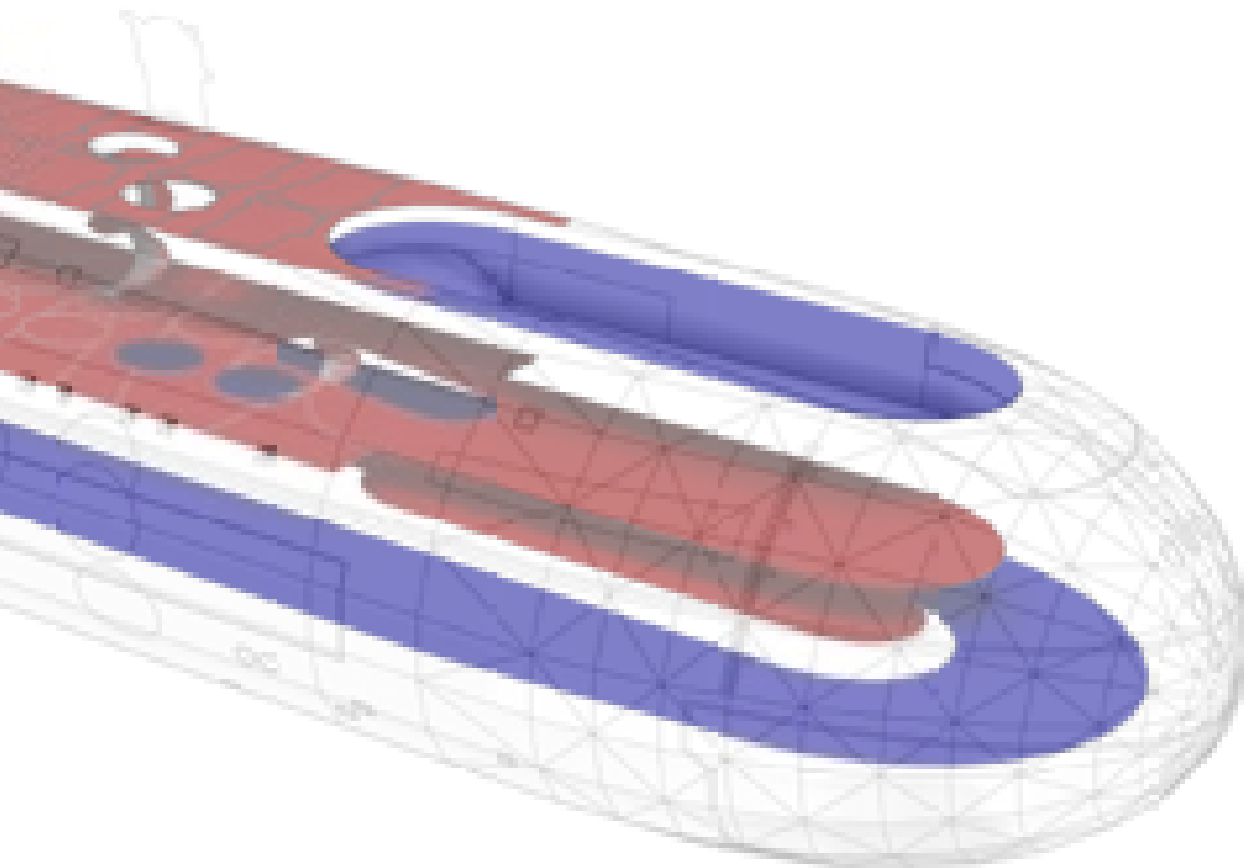
<http://0704.at/imprint/>

<http://richdank.com/architecture/swimmingwaters/>

Infrastructure

Red indicates the area of movement including all common, semi-public and private spaces, and the connection elements such as ramps and staircases. Blue marks the water system down in the hulk of the ship and the pool outside, which can be opened to the sea with the lowerable nose.





Systematic

Perspective drawing looking onto the large new deck and into the Central and Oblique Pool Hall.
 Cross-section along the medial plane.
 Showing all the remains of the existing pressure hull.
 The re-used launch canisters of the ballistic missiles.
 Newly implemented main structures.



THE WATER SWIMS THE BOAT

AS THE VESSEL HAS LOST ALL PURPOSE AND POWER, WE SUGGEST TO INVERSE THE POLARITY. THE FORMER PASSIVE MEDIUM NOW FLUSHES THE VOID WITH PURGATORIAL ENERGY. ALL PRESSURE IS EQUALIZED. SOON THE VOLUME WILL BE REFINED FOR NOVEL APPROPRIATION.

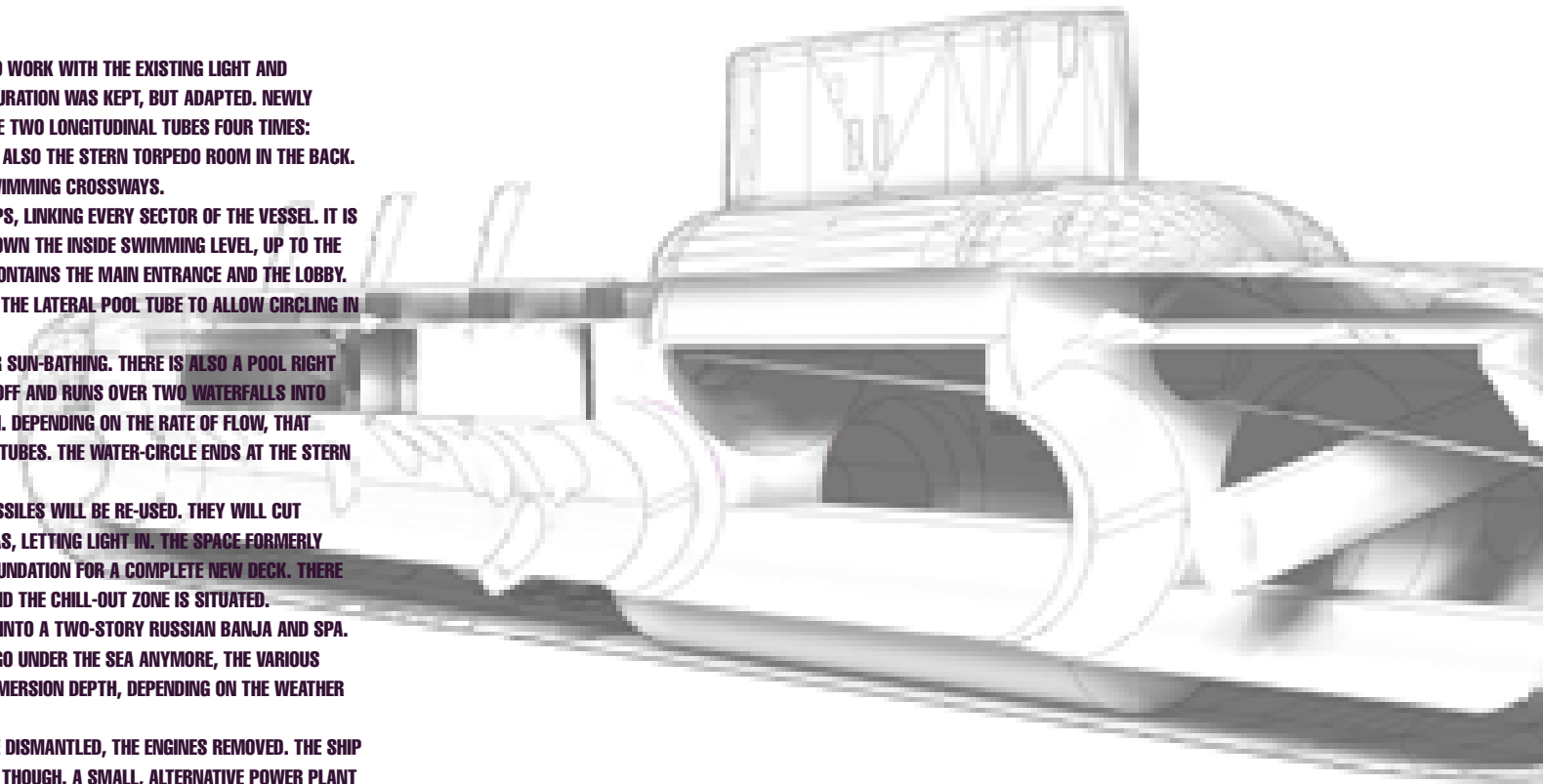
CONSTRUCTION

AS MUCH AS POSSIBLE THE PROJECT TRIES TO WORK WITH THE EXISTING LIGHT AND PRESSURE HULLS. THUS MOST OF THE CONFIGURATION WAS KEPT, BUT ADAPTED. NEWLY BUILT-IN STRUCTURAL ELEMENTS CONNECT THE TWO LONGITUDINAL TUBES FOUR TIMES: CREATING A BAR/CAFE WITH A GALLERY USING ALSO THE STERN TORPEDO ROOM IN THE BACK. INTRODUCING THE OBLIQUE POOL HALL FOR SWIMMING CROSSWAYS. THE CENTRAL HALL HOLDS A SYSTEM OF RAMPS, LINKING EVERY SECTOR OF THE VESSEL. IT IS A GENEROUS, OPEN, FREE SPACE FROM WAY DOWN THE INSIDE SWIMMING LEVEL, UP TO THE OBSERVATION DECK ON THE TOWER. IT ALSO CONTAINS THE MAIN ENTRANCE AND THE LOBBY. THE SONAR UNIT IN THE BOW IS REPLACED BY THE LATERAL POOL TUBE TO ALLOW CIRCLING IN THE WATER.

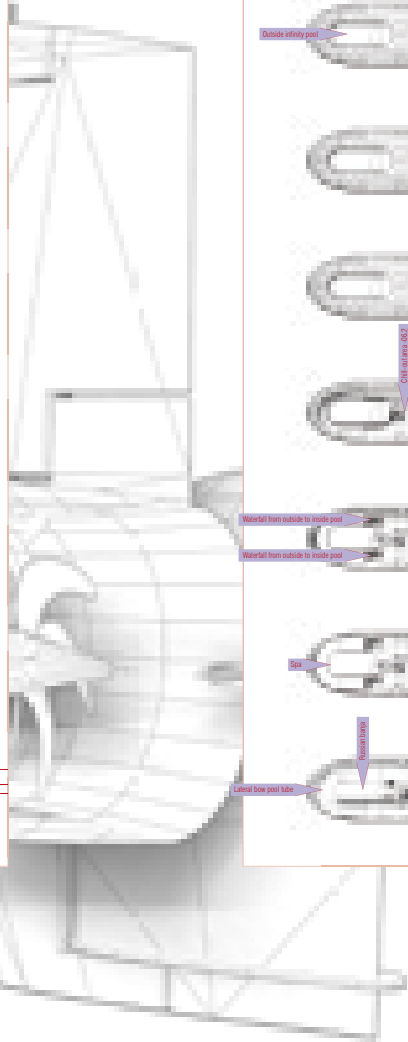
THE LEVEL OUTSIDE ON DECK CAN BE USED FOR SUN-BATHING. THERE IS ALSO A POOL RIGHT ON THE TIP OF THE SHIP. THIS WATER DRAINS OFF AND RUNS OVER TWO WATERFALLS INTO THE PARALLEL SWIMMING TUBES UNDERNEATH. DEPENDING ON THE RATE OF FLOW, THAT WILL GENERATE A CONSTANT CURRENT IN THE TUBES. THE WATER-CIRCLE ENDS AT THE STERN NOZZLES.

THE LAUNCH CANISTERS OF THE BALLISTIC MISSILES WILL BE RE-USED. THEY WILL CUT OPENINGS INTO THE HULLS, CONNECTING AREAS, LETTING LIGHT IN. THE SPACE FORMERLY TAKEN BY THE ROCKETS WILL PROVIDE THE FOUNDATION FOR A COMPLETE NEW DECK. THERE THE ADMINISTRATION, THE CHANGING AREA AND THE CHILL-OUT ZONE IS SITUATED. THE FRONT TORPEDO ROOM IS TRANSFORMED INTO A TWO-STORY RUSSIAN BANJA AND SPA. THOUGH THE TYPHOON WILL NOT BE ABLE TO GO UNDER THE SEA ANYMORE, THE VARIOUS DIVING CELLS REMAIN IN USE TO VARY THE IMMERSION DEPTH, DEPENDING ON THE WEATHER AND WAVE CONDITIONS OUTSIDE.

BOTH PRESSURIZED WATER REACTORS WILL BE DISMANTLED, THE ENGINES REMOVED. THE SHIP WILL STILL BE RELOCATABLE WITH A TUGBOAT, THOUGH. A SMALL, ALTERNATIVE POWER PLANT MOVES INTO THE MAINTENANCE TUBE TO SUPPLY ENERGY.



Elevation.
Section -07m from the axis.
Section -06m.
Section -05m.
Section -04m.
Section -03m.
Section -02m.
Section -01m.



Elevation.
Section +04m from the entrance level.
Section +02m.
Section entrance level.
Section -02m.
Section -04m.
Section -06m.
Section -08m.



THE TASK

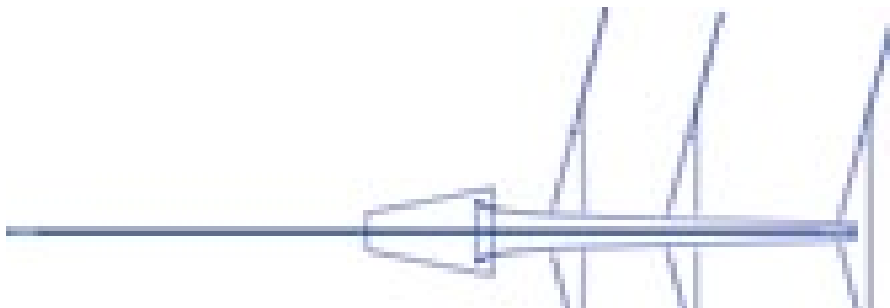
SOME ARCHITECTURAL AND PUBLIC NOTIONS

ON FIRST SIGHT THERE SEEM TO BE RATHER FEW DEMANDS IN ARCHITECTURAL TERMS CONNECTED TO THE TASK OF HAVING SOME CABLES RUN FROM A TO B. IT'S A PURELY MONOFUNCTIONAL JOB AND DOES NOT PROMISE ANY COMPLEXITY NOR VARIETY OR INSPIRING ADVANCEMENTS OVER TIME. WHEREVER YOU GO YOU WILL FIND THE VERY SAME AND HUMBLE LAYOUT OF CHRISTMASTREE SHAPED PYLONS WITH SOME CABLES ATTACHED, LIMPILY MUTILATING THE COUNTRYSIDE. THEY BEAR HARDLY ANY MEMENTO, NEITHER HISTORICAL NOR EMOTIONAL. ALTHOUGH THIS ELABORATE NETWORK OF TRANSMISSION LINES SPAN ALL CONTINENTS, IN CHARGE OF MOST PRECIOUS AND VITAL ESSENTIALS, IT DID NOT ATTRACT ANY CULTURAL OR INTELLECTUAL ATTENTION - IN OPPOSITE TO OTHER INFRASTRUCTURAL NECESSITIES FROM ANCIENT AQUEDUCTS AND BRIDGES UP TO FUTURISTIC AERODROME ARCHITECTURE. EVEN MORE THE STEELY TIES ARE SYNONYMS FOR MOST DANGEROUS THREATS LIKE ELECTRIC SHOCK AND ELECTROMAGNETIC POLLUTION. SUMMED UP, THE MISSION TO DESIGN HIGH-VOLTAGE TRANSMISSION LINE TOWERS IS AN EXTREMELY RARE CHANCE TO DEVELOP DESIGN VISIONS OF ENORMOUS EXTENDS AND CROSS-LINKING AS WELL AS MASSIVE ENVIRONMENTAL RELEVANCE.

THE APPROACH

LARGE-SCALE GEOMETRY AND MASS-CUSTOMISED COMPONENTS

OUR APPROACH TO GAIN PROGRESSIVE VISIONS FOR DESIGN AN CONSTRUCTION IS THE INTERPRETATION OF THE ELECTRIC MEDIA AS SYSTEMS OF SILENT FLOW AND RESTRAINED TENSION. WE FIGURED THAT THE LINEAR ELEMENTS OF FLOW AND THE ITERATIVE SPOTS OF CHANNELING AND FOUNDATION MUST INTEGRATE INTO EACH OTHER AS WELL AS WITH THE VARIETIES OF DIFFERENT AREAS. THUS WE DEVELOPED A NONUNIFORM STRUCTURE THAT IS CHARACTERIZED BY USE OF CONTINUOUS TENSION AND LOCAL COMPRESSION. TO INTERPRETE THIS CONCEPTION INTO LANDSCAPE ARCHITECTURE TWO ADVANCED GEOMETRIES ARE INTERTWINED:

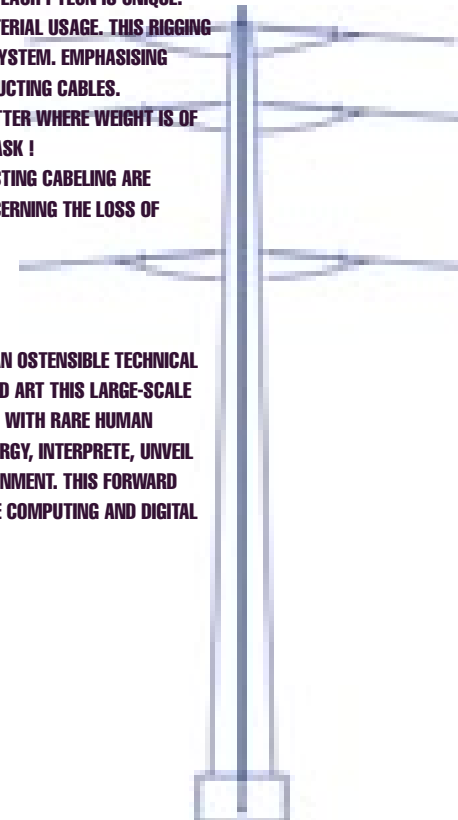


1) THE ROUTE OF THE CABLES IS A 3D-SPLINED CURVE THAT SMOOTHLY FOLLOWS THE TOPOGRAPHY OR MANMADE INFRASTRUCTURAL INTERVENTIONS. IT MEANDERS EVEN IF THERE IS NO EXTERNAL NEED. THIS IS TO BRACE THE THREEDIMENSIONAL STRUCTURAL SYSTEM. 2) ACCORDING TO THE MAXIMUM SPAN LENGTHS AND ADAPTED TO SINGULAR TOPOGRAPHIC SITUATIONS CORTENE-STEEL PYLONS SUPPORT THE STRIP. IN GEOMETRIC TERMS, THEY SERVE AS CONTROL VERTICES (CVS) TO THE SPLINE-CURVES. THE UPRIGHT CURVED PROJECTION AND THE ORIENTATION IN PLAN IS COMPUTED TO EXACTLY MATCH THE FORCE PATH. IN CONTRAST TO THE COMPLEX MANYFOLD GEOMETRY OF THE LARGE-SCALE LAYOUT, THE BASIC SECTION OF THE CORTENE-STEEL PYLONS IS AN OVERSIZED T-PROFILE. THIS ELEMENTARY PROFILE ENSURES ECONOMIC MANUFACTURING AND TRANSPORTATION EVEN THOUGH EACH PYLON IS UNIQUE. ADDITIONAL STEEL CABLE BRACINGS ALLOW OPTIMIZATION OF MATERIAL USAGE. THIS RIGGING AMPLIFIES THE BASIC CONCEPTION OF AN ELASTIC STRUCTURAL SYSTEM. EMPHASISING TENSILE FORCES AS GIVEN BY THE CENTRAL ELEMENTS, THE CONDUCTING CABLES. INTERESTINGLY, THE TRANSPORTATION OF ELECTRIC ENERGY, A MATTER WHERE WEIGHT IS OF NO RELEVANCE, TURNS OUT TO BE A CHALLENGING STRUCTURAL TASK ! VALUABLE SIDE EFFECTS OF THE NONUNIFORM PERMANENTLY TWISTING CABELING ARE REDUCTION OF ELECTROMAGNETIC POLLUTION AND BENEFITS CONCERNING THE LOSS OF ENERGY ON THE ROUTE.

THE SOLUTION

STATE-OF-THE-ART TECHNOLOGY AND CONCEPTION

WE REGARD OUR PROPOSAL AS AN ARTISTIC INTERPRETATION OF AN OSTENSIBLE TECHNICAL AND ORGANISTIONAL TASK. IN AN ADVANCED PERSPECTIVE OF LAND ART THIS LARGE-SCALE SCULPTURE INTERACTS WITH THE ENVIRONMENT EVEN IN REGIONS WITH RARE HUMAN PRESENCE. THE CURVILINEAR ROUTES RESEMBLE THE FLOW OF ENERGY, INTERPRETE, UNVEIL AND INTENSIFY CLANDESTINE NUANCES OF TOPOLOGY AND ENVIRONMENT. THIS FORWARD LOOKING CONCEPTION CAN BE REALISED BY MEANS OF UP-TO-DATE COMPUTING AND DIGITAL MANUFACTURING TECHNOLOGIES.





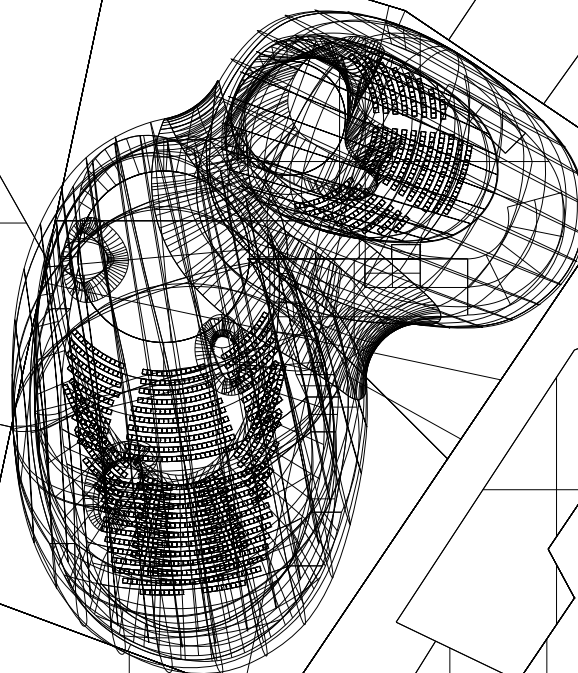
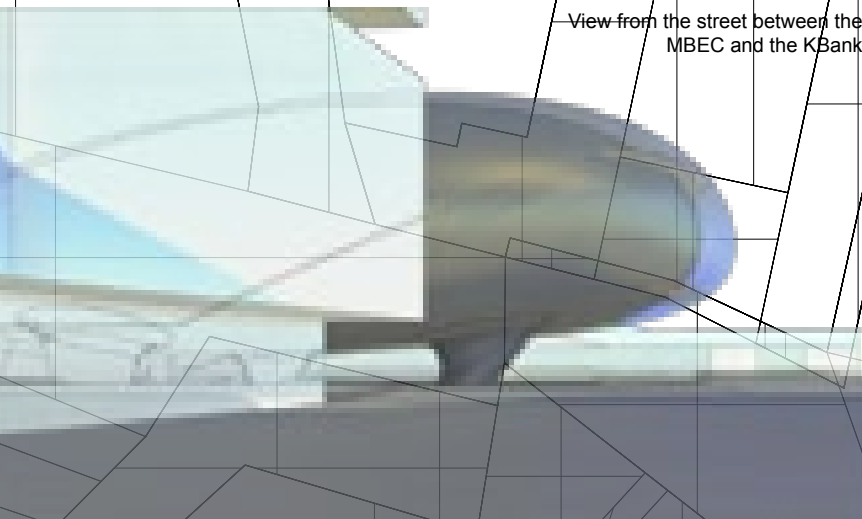
Cross Section Large Concert Hall



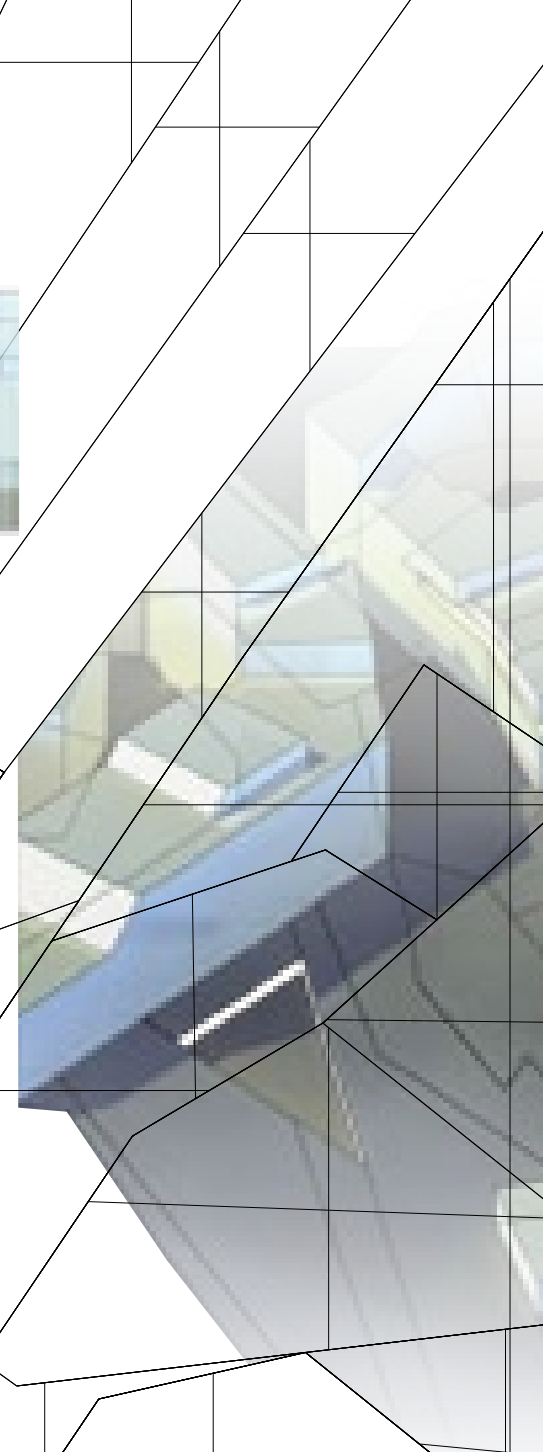
Longitudinal Section Small Concert Hall

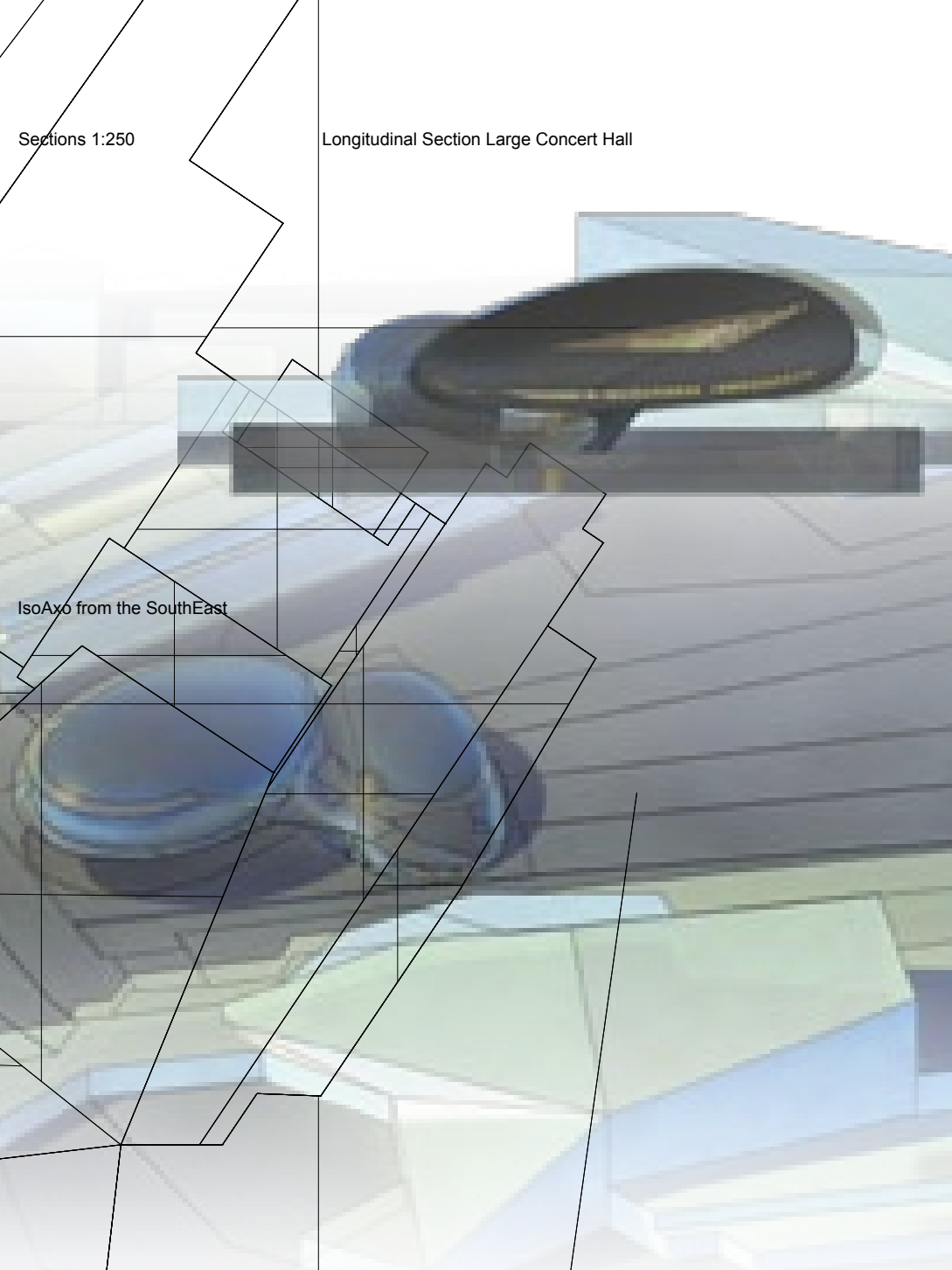


View from the street between the MBEC and the KBank



Plateau of MOB - Cultural Center





Sections 1:250

Longitudinal Section Large Concert Hall

IsoAxo from the SouthEast

MAPHORB

FILHARMONIJA

**MACEDONIAN PHILHARMONIC ORCHESTRA BUILDING
(COMPETITION CONTRIBUTION)**

2007

AS 0704 ARCHITECTURE

"AT THE BEGINNING OF SOUND YOU ARE ALONE IN LISTENING, AT THE END OF SEEING YOU ARE ALONE IN THE VANISHING POINT. AT THE BEGINNING OF SEEING YOU CAN AT LEAST IMAGINE OTHERS GAZING DOWN THE SIGHT-LINES OF THE PERIPHERY, AT THE END OF HEARING, NO LONGER AT THE CENTRE BUT IN THE SKIN, YOU CAN AT LEAST IMAGINE AN EXPANDING SPHERE THAT HOLDS THOSE SAME OTHERS." (ANTHONY MOORE)

FOR FURTHER DETAILS ON THIS SECTION PLEASE VISIT

<http://0704.at/imprint/>

<http://richdank.com/architecture/maphorb/>

THE URBAN CONTEXT

THE VIVID URBAN STRUCTURES AROUND THE PLATEAU OF MOB BEAR CERTAIN QUALITIES THAT ONE CAN HARDLY FIND IN OTHER EUROPEAN METROPOLIS. THE CONSISTENT AND EXPLICIT URBAN PLANING REQUIREMENTS AND THEIR CONSEQUENT IMPLEMENTATION PROVIDE PROMISING PRECINCTS FOR THE DEVELOPMENT OF DESIGNS FOR NEW CULTURAL FACILITIES. THE AREA IS ALREADY ESTABLISHED AS A CULTURAL AND ECONOMIC CENTER AND THE TRAFFIC SITUATION IS WELL-DEFINED. THE PEDESTRIAN BOULEVARDS ALOUNG THE RIVER VADAR AND THE NEARBY HISTORIC MONUMENTS CONTRIBUTE CONSIDERABLY TO THE FORMIDABLE ATMOSPHERE.

AS THERE IS NO EVIDENT NECESSITY FOR BASIC IMPROVEMENTS TO THE URBAN INFRASTRUCTURE IN GENERAL, THE CHALLENGE AND CHANCE AS WELL IS TO PROVIDE A DEFINITELY FORWARD LOOKING PROPOSAL THAT PROMOTES THE INVALUABLE TRADITION OF THE MARCEDONIAN PHILHARMONIC ORCHESTRA.

THE EXPRESSIVE MASSES OF THE MOB AND THE HUGE BUILDING OF THE COMMERCIAL BANK ESTABLISH A PROTECTIVE FRAME FOR AN EXPLICITE URBANISTIC STATEMENT.

THE CONTINUITY OF SPACE

AS WITH SOUND AND SIGHT - THE FUNDAMENTALS OF BOTH MUSIC AND ARCHITECTURE - CONTINUITY AND LIQUIDITY ARE THE BASIC DESIGN CONCEPTS OF OUR PROPOSAL: ON THE ONE HAND AND IN A VERY LITTERAL SENSE WE PROVIDE A HIGHLY WALKABLE SPACE TO THE EXISTING PEDESTRIAN AREA BY LIFTING MAJOR PARTS OF THE STRUCTURE 4 TO 5 METERS ABOVE GROUND LEVEL.

IN A MORE PHENOMENAL WAY THE ENDLESSNESS AND CONTINUITY OF THE STREAMLINED SHAPE EXPRESSES DYNAMIC AND FLEXIBILITY OVER TIME.

THE BUILDING IS FOOTED ON THE SITE WITH THE LEAST POSSIBLE CONTACT - ACCORDING TO THE VERY NATURE OF MUSIC - WHICH ALSO DOES NOT STATICALLY STRIKE ROOT IN PLACE BUT EXPANDS DYNAMICALLY IN ALL MANIFOLD DIRECTIONS. IN THE CITYSCAPE THE STRUCTURE IS INTENDED TO APPEAR MORE LIKE A GENEROUS ARCHITECTONIC AND ACOUSTIC SCULPTURE THAN AS A PURELY FUNCTIONAL BUILDING.

IT WILL NOT OCCUPY THE SITE BUT REST IN SOME DISTANCE AND SERENITY ABOVE IT. SO URBAN LIFE AND AND PEDESTRIAN TRAFFIC CAN STEADILY CIRCULATE.



AS A FURTHER RESULT OF THESE CONSIDERATIONS AND EFFORTS THE CORE VOLUMES, THE CONCERT HALLS, ARE DETACHED FROM THE TURBULENT URBANITY TO ENABLE THE HIGHEST POSSIBLE DEVOTION TO ARTISTIC PERFORMANCE AND PERCEPTION.

THE PHILHARMONIC PLAZA

" TO LOOK AT A ROOM OR A LANDSCAPE I MUST MOVE MY EYES FROM ONE POINT TO ANOTHER. WHEN I HEAR, HOWEVER, I GATHER SOUND SIMULTANEOUSLY FROM EVERY DIRECTION: I AM AT THE CENTRE OF MY AUDITORY WORLD, WHICH ENVELOPS ME. YOU CAN IMMERSE YOURSELF IN HEARING, IN SOUND. THERE IS NO WAY TO IMMERSE YOURSELF SIMILARLY IN SIGHT." (WALTER ONG)

UNDERNEATH THE PROJECTING VOLUME OF THE LARGE CONCERT HALL A PARTICULAR PUBLIC SPACE OF ABOUT 1500 SQUARE METERS EMERGES.

IT IS A LOGICAL SUPPLEMENT TO THE VAST OPEN SPACES ALONG VADAR RIVER AND THE STEAMING TRAFFIC ON THE SURROUNDING BOULEVARDS.

THE SOMEWHAT LOWERED LOCATION SHALL STIMULATE TO TAKE A BREAK FROM URBAN BUSYNESS, TO MEET FOR INTIMATE SOZIAL CONTACT OR SIMPLY ENJOY BEING ALONE ON AN EXEPTIONALLY TRANQUILIZING AND PROTECTIVE PLACE. ONE CAN PREPARE FOR THE FORTHCOMING MUSICAL EVENT OR SIMPLY EXPERIENCE THE STILL. ITS INTENTION IS POLARISING AND FOCUSATION, NOT AMUSEMENT. THIS TENSE AMBIENCE IS PART OF AN URBAN INSTRUMENT - AN ATTRACTION EVEN TO THE NON HIGH CULTURED AUDIENCE AND PASSERS-BY.

THE URBAN INSTRUMENT

" FROM THE PERSPECTIVE OF SOUND, THE LISTENER IS AT THE VANISHING POINT. WHAT, FOR THE EYE, IS IN THE DISTANCE, THE POINT OF CONVERGENCE, IS, FOR THE EAR, THE CLOSEST. THE VANISHING POINT IS THE POINT OF STARTING OUT AND IS LOCATED AT THE CENTRE, THE CENTRE OF AN EXPANDING SPHERE, A RADIAL DIVERGENCE THAT BECOMES A SPACE WHICH MAY CONTAIN OTHER SPACES. BUT AT THE CENTRE, THE VERY MIDDLE OF ANYTHING, THERE IS ONLY ROOM ENOUGH FOR ONE OF US." (ANTHONY MOORE)

TO THE ARTIST A CONCERT HALL IS NOTHING BUT A LARGE MUSIC INSTRUMENT. AN INSTRUMENT WHICH IS POPULATED BY AUDIENCE. SO AUDIENCE AND ARCHITECTURE ARE INSTRUMENTALISED BY THE ARTIST. THUS IT IS APPROPRIATE TO APPLY ACOUSTIC DESIGN FUNDAMENTALS AND RULES IN THE CONCEIVING OF THE CONCERT HALLS. THE VOLUMES OF THE TWO SEPARATE AUDITORIUMS ARE SHAPED TO OPERATE LIKE INVERTED RESONATING CAVITIES. THE OPTIMAL INVERSION OF RESONATION - REFLECTING AND HOMOGENOUSLY RETURNING THE FREQUENCIES TO THE AUDIENCE AREA - IS ACHIEVED BY COMPUTER AIDED APPLICATION OF COMPLEX GEOMETRICAL CALCULATIONS. THE DIALECTIC OF ARTIST AND AUDIENCE AS WELL AS THE DUALISM BETWEEN THE RADIATING MUSICAL INSTRUMENTS AND THE REFLECTING SHELL IS TRADED IN SUBTLE DEFORMATIONS OF SPHERICAL AND ELLIPTOID PRIMITIVES. FURTHERMORE THESE TWO RIGID BODIES ARE COVERED BY ONE DETACHED SKIN. THE RESULTING INTERSPACE - DIVERSE OF DIMENSION AND GEOMETRY - NOT ONLY SERVES AS CIRCULATION AND COMMUNICATION AREA BUT ALSO AS A POTENTIAL EXTENSION OF THE SINGULAR RESONATION VOLUMES. BY CONTROLLING A SERIES OF VENTS APPLIED TO THE SOLID SHELLS OF THE PRIMARY CONCERT HALLS ONE CAN MERGE THE WHOLE BUILDING INTO ONE ACOUSTIC BODY. THUS THE STRUCTURE MAY SERVE AS AN PHILHARMONIC LABORATORY FOR THE ADVANCEMENT OF ART ACOUSTIC RESEARCH.

IN THAT CONSEQUENCE THE PLATEAU OF MOB PROVIDES THE URBAN INSTRUMENT CASE WITH | THE PHILHARMONIC PLAZA | AS ITS IMPRINTED BOTTOM.

THE DIGITALLY DERIVED ACOUSTIC BODIES ALIENATE FROM THE DISTINCT SURROUNDING PROPERTIES. WE ASSUME THIS UNDISGUISED EXTRAVAGANCE OF DESIGN TO BE AN ADEQUATE APPROACH TO ADRESS THE EXQUISITE SITE AND TO ADD TO THE CULTURAL AMBITIONS OF THE YOUNG MACEDONIAN REPUBLIC.

AS THE CITY OF SCOPJE AIMS TO SET NEW STANDARDS OF CULTURAL SIGNIFICANCE IT IS CERTAINLY READY FOR THIS KIND OF FORWARD-LOOKING URBANISTIC COURAGE AND ACCELERATED SPACIAL SHAPING.

timelapse

00:00:00
00:00:01
00:00:02
00:00:03



TIMELAPSE

73

VIDEOCLIPS ON ARCHITECTURE.
ABOUT DIFFERENT PROJECTS OF VARIOUS OFFICES.
WITH DIFFERENT PARTNERS FOR VARIOUS OCCASIONS.

FOR FURTHER DETAILS ON THIS CHAPTER PLEASE VISIT
<http://richdank.com/?timelapse>
<http://richdank.com/video/timelapse/>

VOLKSSCHULE MARIAGRÜN
2014
BY ARCHITEKTURWERK BERKTOLD KALB

STYRIA MEDIA CENTER
2013-15
BY ARCHITEKTUR CONSULT

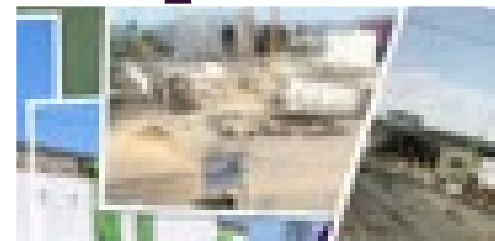
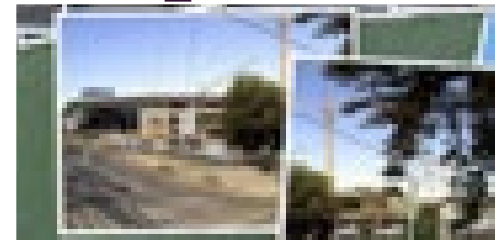
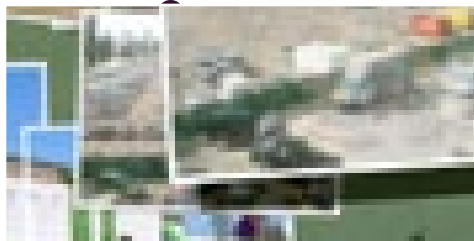
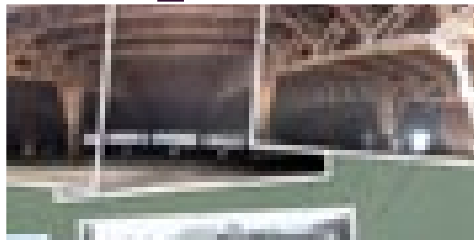
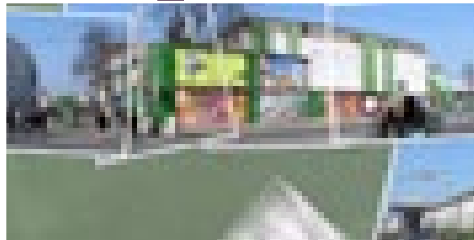
GRAZ HAUPTBAHNHOF 2020
2011-15
BY ZECHNER & ZECHNER

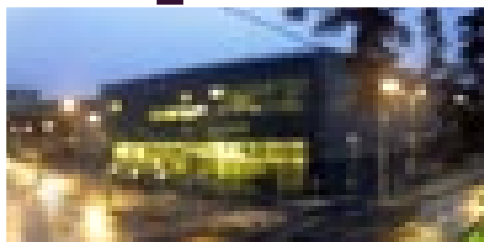
EINSEGNUNGSHALLE STEINFELDFRIEDHOF
2011
BY HOFRICHTER-RITTER ARCHITEKTEN

HAUS DER INGENIEURE
2010
BY ERNST GISELBRECHT

ARCHAEOLOGIEMUSEUM EGGENBERG
2009
BY BWM ARCHITEKTEN

ZANKLHOF II
2009
BY A&N





HALLE 1 MESSE CENTER GRAZ

2008

BY RIEGLER RIEWE

AS A PRODUCTION SAMPLE: SCREENSHOTS FROM THE PRESENTATION VIDEO OF THE MESSE CENTER GRAZ. SEVERAL WEBCAMS (MAINTAINED BY WOLFGANG REINISCH) DOCUMENTING THE BUILDING PROCESS OVER MONTHS.

ELISABETHSTRASSE 36

2007

BY L&P

FESTO HEADQUARTER AUSTRIA

2005

BY RAIFFEISEN EVOLUTION

THE THING AND THE WING

2003

BY ORTLOS

ROCHE DIAGNOSTICS GRAZ

2003

BY ERNST GISELBRECHT

MURINSEL

2002

BY VITO ACCONCI

KUNSTHAUS GRAZ

2002

BY PETER COOK AND COLIN FOURNIER

STADTHALLE GRAZ

2001/02

BY KLAUS KADA

BORDERLINEBADMINTON

2001

BY TRANSBANANA ARCHITECTS

THERME NOVA KÖFLACH

2000

BY TEAM A



KulturServerGraz

KulturServerGraz

KulturServerGraz

KulturServerGraz

KulturServerGraz

KulturServerGraz
www.kultur.graz.at

KulturServerGraz
www.kultur.graz.at

KulturServerGraz
www.kultur.graz.at

KulturServerGraz

KulturServerGraz

KulturServerGraz

KulturServerGraz
www.kultur.graz.at

KulturServerGraz

KulturServerGraz
www.kultur.graz.at

KulturServerGraz

KulturServerGraz
www.kultur.graz.at

KulturServerGraz
www.kultur.graz.at

KulturServerGraz



KULTUR.GRAZ

77

FROM 1999/2000 ONWARD RICHARD DANK WAS WORKING FOR SEVERAL CULTURAL INSTITUTIONS IN GRAZ, IN AUSTRIA AND THE WHOLE OF EUROPE. SOME PROJECTS WERE IN THE AREA OF GRAPHICS AND DESKTOP PUBLISHING, SOME WERE INTERACTION AND DATABASE DESIGNS, SOME INCLUDED VIDEOS AND SOME BLENDED DIFFERENT MEDIA. THOSE COOPERATIONS INCLUDED THE KULTURAMT GRAZ, KUNSTHAUS GRAZ, WERKSTADT GRAZ, INSTITUT FÜR KUNST IM ÖFFENTLICHEN RAUM STEIERMARK, HERBERT VON KARAJAN CENTRUM WIEN, AUSTRIAN CULTURAL FORUM LONDON, ...

FOR FURTHER DETAILS ON THIS CHAPTER PLEASE VISIT

<http://kultur.graz.at/>

<http://richdank.com/?kultur.graz>

<http://richdank.com/graphics/kulturserver/>

AVL POWERTRAIN

79



DOCUMENTING THE OUTPUT AND PRESENTING THE PERFORMANCE OF THE WORLD'S LARGEST INDEPENDENT COMPANY IN THE FIELD OF POWERTRAIN SYSTEMS, ENGINE INSTRUMENTATION AND TEST APPLICATIONS: AVL. THAT LIAISON IS NOW OLDER THAN A DECADE AND COVERS MORE THAN A DOZEN PROJECTS IN THE FIELD OF VEHICLE SIMULATION AND HIGH END RACING.

FOR FURTHER DETAILS ON THIS CHAPTER PLEASE VISIT

<http://avl.com/>

<http://richdank.com/?avl>

<http://richdank.com/video/avl/>

PEAA

DATA APPENDIX

81

IN THIS CHAPTER ALL PRIORLY DEPICTED WORKCLUSTERS AND PROJECTS AS WELL AS MUCH MORE DETAILS TO THE LIFE AND WORK OF RICHARD DANK ARE SHOWN IN LIST FORM. THAT INCLUDES A COMPLETE CURRICULUM VITAE, ALL DESIGN STUDIOS, WORKSHOPS, LECTURES AND OTHER COURSES CONDUCTED, THE SUPERVISED MASTER THESES, PUBLICATIONS, EXHIBITIONS AND AWARDS PLUS LANGUAGE AND HARD/SOFTWARE SKILLS.

FOR FURTHER DETAILS ON THIS CHAPTER PLEASE VISIT

<http://richdank.com/?peaa>

<http://richdank.com/theory/peaa/>

<http://richdank.com/vitae/>

FOR FURTHER DETAILS ON THIS SECTION PLEASE VISIT

<http://richdank.com/vitae/>

CV

AT A GLANCE

- 2013- | HACKING ARCHITECTURE - DISSERTATION ON COMPUTATIONAL DESIGN PROCESSES AND SEMIOTICS OF DIGITAL SIGN SYSTEMS
- 1997- | CO-PROGRAMMER AND USER OF XARCH - EXPERIMENTAL ARCHITECTURE SERVERS (SPECIAL AWARD MULTIMEDIA ART98)
- 2014 | TURBULENZ: EIN KLIMA-KLANG-PORTRAET - A FLOATING TOPOGRAPHY IN SENSOR-MODULATED 42-CHANNEL-SOUND TO EXPERIENCE CLIMATE DATA IMMERSIVELY AND INTERACTIVELY
- 2014 | SHORTLIST AT THE ALGODEQ - ALGORITHMIC DESIGN QUEST
- 2014 | REDESIGNING AND BUILDING THE AUGMENTED ARCHITECTURE LABORATORY, INCLUDING THE INTERACTIVE SYSTEM AUARLA.CONTROL2014 | WORKSHOP FORECAST - SONIFICATION OF CLIMATE DATA
- 2010-14 | DEVELOPPING THE CURRICULUM AND TEACHING AT ADRIART - ADVANCING DIGITAL AND REGIONAL INTERACTIONS IN ART TEACHING - AS PART OF FOUR COUNTRY COLLABORATION BETWEEN SCHOOL OF ARTS AT UNIVERSITY OF NOVA GORICA,

APPLIED ARTS ACADEMY AT UNIVERSITY OF RIJEKA, DEPARTMENT OF HISTORY AND PRESERVATION OF THE CULTURAL HERITAGE AT UNIVERSITY OF UDINE AND INSTITUTE OF CONTEMPORARY ART AT GRAZ UNIVERSITY OF TECHNOLOGY

- 2009-14 | UNIVERSITAETSASSISTENT (ASSISTANT PROFESSOR) AT THE INSTITUTE OF ARCHITECTURE AND MEDIA TEACHING MASTER DESIGN STUDIOS AND ALGORITHMIC DESIGN METHODS
- 2013 | 3D-MATERIALIZING WORKSHOPS WITH SITE-SPECIFIC INTERACTIONS LOGOS AND GRAB.ROG.LAND - EXHIBITED AT DE.FRAGMENTATION AND THE FACTORY THAT IS MAKING ITSELF
- 2013 | GENERIC CNC - ON ROBOTS AND 3D PRINTERS AT THE ROSTFEST
- 2013 | THE ALGORITHMIC CHANDELIER EXHIBITED AS ONE OF THE SELECTED PROJECTS FROM THE ARCHITECTURE FACULTY OF TU GRAZ IN THE DESIGNMONAT GRAZ AND LIGHTENING UP THE 25 YEAR ANNIVERSARY OF THE HOUSE OF ARCHITECTURE
- 2013 | WORKSHOP BIX.PERFORM(); - RESPONSIVE ART IN THE PUBLIC REALM UTILIZING THE BIX FACADE
- 2013 | DER ANDERE RAUM - LECTURE AND ROUND TABLE AT THE KUNSTHAUS GRAZ
- 2013 | PALLANTIS ILLUMINATING THE BALL DER TECHNIK 2013
- 2012 | LECTURING AT THE ICCRI 2012 - INTERNATIONAL CONFERENCE ON CONTROL, ROBOTICS AND INFORMATICS
- 2012 | LECTURING AT THE ROBARCH 2012 CONFERENCE - ROBOTIC FABRICATION IN ARCHITECTURE, ART AND DESIGN

- 2012 | STMK.V.2010 (INTERACTIVE 3D VISUALIZATION) FOR FAKTUM IST AS PART OF THE REGIONALE2012
- 2012 | LIVE WEBSITE CONVERSION XARCH2CHORD FOR THE ANDERS ALS GEWOHNT PECHA KUCHA NIGHT
- 2012 | CONCEPTING AND CO-CURATING (TOGETHER WITH MARJAN COLLETTI AND WOLFGANG TSCHAEPELLER) THE HDA-EXHIBITION AND CORRESPONDING EVENTS MIT ALLEN MITTELN - ANALOGUE/DIGITAL EXPERIMENTAL SETTINGS (INCLUDING THE FRAMED PAVILION AND THE CHINESE INK PAINTING ROBOT) - HEADLINING KONSTRUKTIV 286: DIGITALISIERUNG AND MAJOR PART IN THE HDA READER 2012
- 1997-2012 | IN CHARGE OF THE AGENDA (WEBSITE FOR ARCHITECTURE-EVENTS AROUND GRAZ)
- 2011 | WHY MEL? - SPEECHES AT THE ALGODE 2011 CONFERENCE
- 2011 | GRAZER SCHULE - DIFFERENT STUDIO PROJECTS AT THE HDA EXHIBITION
- 2011 | THE AUGMENTED STYRIA DESK UND BOOT THE BOT REPRESENT THE FIELD OF EXPERTISE SUSTAINABILITY IN DESIGN, CONSTRUCTION SCIENCE AND ENERGY SYSTEMS AT THE 200 YEARS OF GRAZ UNIVERSITY OF TECHNOLOGY ANNIVERSARY AND WHERE FEATURED IN SEVERAL NEWSPAPERS (KLEINE ZEITUNG, KURIER, STANDARD), MAGAZINES (GAM, SIEBEN TAGE, WEAVE) AND ON TV (ORF)
- 2009 | BIRTH OF SON LINO ALEKSI
- 2005-09 | TEACHING DIGITAL METHODS AND METHODS OF PRESENTATION AS VISITING LECTURER AT THE GRAZ UNIVERSITY OF TECHNOLOGY
- 2008 | MESSE CENTER GRAZ INAUGURATION CLIP

2001-08 | VEHICLE SIMULATION AND HIGH END RACING VIDEOS FOR THE WORLD'S LARGEST INDEPENDENT COMPANY IN THE FIELD OF POWERTRAIN SYSTEMS, ENGINE INSTRUMENTATION AND TEST APPLICATIONS: AVL

2007 | FORMATION OF 0704 ARCHITECTURE BY DIAG AND RICH DANK

2006/07 | ONLINE DATABASE FOR CULTURAL SITES KULTUR.RAUM.GRAZ

2006 | ARCHITECTURE DIPLOMA (WITH HONORS) - GRADUATED DIPLOMINGENIEUR (MASTER OF SCIENCE) AT THE GRAZ UNIVERSITY OF TECHNOLOGY

2006 | PRESENTATIONS AT THE CONFERENCES GAME SET AND MATCH 2 IN DELFT AND CAADRIA 2006 IN KUMAMOTO (INCLUDING THE GAIN OF THE YOUNG CAADRIA AWARD)

2006 | AWARDED CONCEPT FOR THE NIKOLA TESLA LABORATORY

2006 | RYUGYONG.ORG PUBLISHED IN THE MONTHLY ARCHITECTURE PERIODICAL DOMUS, EXHIBITED AT LA TRIENNALE DI MILANO AND AT LA BIENNALE ARCHITETTURA DI VENEZIA

2004-06 | REDESIGNING AND GIVING NEW STRUCTURE TO THE KUTURSERVER GRAZ

2005 | BIRTH OF DAUGHTER MIA MIYUKI

2005 | LIVING IN A MATERIAL WORLD AT GOLDSMITHS UNIVERSITY OF LONDON

2004 | BASIC MILITARY SERVICE IN THE BUNDESHEER (AUSTRIAN ARMED FORCES) AT THE VR1/KDOEU

2004 | HALF EMPLOYED AT THE NEWLY FORMED INSTITUTE OF ARCHITECTURE AND MEDIA

2003/04 | PUBLIC ART DATA BASE OFFSITE_GRAZ

2003 | PRESENTATION AT THE NCC2003 - THE NETARTCOMMUNITYCONGRESS

2003 | DEFINING A NEW INTRODUCTORY COURSE IN VISUAL DESIGN: CALCULATED BANANAS - A CONTRIBUTION TO THE 21ST ECAADE

2002/03 | DIGITAL METHODS - STUDIENASSISTENT WITHIN THE NEW FIELD REPRESENTATION OF ARCHITECTURE AND NEW MEDIA AT THE GRAZ UNIVERSITY OF TECHNOLOGY LED BY URS HIRSCHBERG

2002/03 | FRISCHE FISCH AUS DEM ARCHITEKTENPOOL - A STEIRISC[:HER:]BST EXHIBITION TOURS THROUGH EUROPE

2002/03 | REPRESENTED AT THE EXHIBITION AND IN THE BOOK OPEN:24H - EIN PROFIL DER GRAZER ARCHITEKTURZEICHENSÄULE 1/2/3/4

1999-2003 | DEVELOPMENT OF THE NEW COURSE OF STUDY IN THE STUDIENKOMMISSION (ARCHITECTURE STUDY COMMISSION)

2002 | OPENING VIDEO FOR THE STADTHALLE GRAZ

2002 | FLEX, FLUX, FLADENBROT - THE COLLABOR.AT EVENT_2002

2001/02 | STUDIENASSISTENT (TUITIONAL ASSISTANT) FOR ARCHITECTURE AND EDP AT THE INSTITUT FUER KUNSTLERISCHE GESTALTUNG (INSTITUTE FOR ARTISTIC FORMS) - HANS KUPELWIESER RESPECTIVELY ANDREAS GRUBER

2001 | CONTRIBUTION TO THE 5TH GRAZ BIENNIAL ON MEDIA AND ARCHITECTURE

2001 | EXHIBITION AT THE IG BILDENDE KUNST / VIENNA

2000/01 | TUTOR AT THE INSTITUT FUER TRAGWERKS ENTWURF (INSTITUTE FOR STRUCTURAL DESIGN) - HARALD EGGER RESPECTIVELY MANFRED WOLFF-PLOTTEGG

2000 | TRAILER FOR THE STAR_PROJECT01 OF THE KARAJAN CENTRUM

2000 | VIDEO SCREENINGS AT FORUM STADTPARK'S VISUALS-SERIES

2000 | AWARDEE AT THE VIDEOFILMFESTIVAL BFILM/BANALE7

1996-99 | EDITOR-IN-CHIEF OF THE ARCH_ALMANACH - ARCHITECTURE FACULTY MAGAZINE

1990-96 | BASKETBALL CAREER AT ABC GRAZ (AUSTRIAN PREMIER LEAGUE)

1994 | AHS-MATURA (A LEVEL GRADUATION WITH HONORS) AT KEPLER GYMNASIUM GRAZ (HIGH SCHOOL)

1986-90 | CHOIR SINGING FORMATION WITH INTERNATIONAL APPEARANCES: KEPLERSPATZEN AND MUSICA SACRA

1986 | COMPLETION OF VS SEIERSBERG (ELEMENTARY SCHOOL)

1975 | BORN IN GRAZ/AUSTRIA AS RICHARD DANK

FURTHER EXHIBITIONS IN, LECTURES AT, PROJECTS FOR AND/OR COLLABORATIONS WITH:

ABB, VITO ACCONCI, AKTUELLE KUNST IN GRAZ, ARCHITECTURAL ASSOCIATION OF OSLO, ARCHITECTURAL INSTITUTE OF JAPAN, ARCHITEKTURTAGE, ARCHITEKTUR ZENTRUM WIEN, ARGE LOFT, ARTIMAGE, AUSTRIAN CULTURAL FORUM LONDON, AZ3, AZ4, BLOIS, CLASSICS IN THE CITY, PETER COOK, DESIGN MONAT GRAZ, DIAG, DOM IM BERG, DZIENNIK, ESC, ESQUIRE, FACHHOCHSCHULE JOANNEUM, FORUM::FUER::UMLAUTE, FORUM STADTPARK, FORUM STADTPARK THEATER, FOTOTRIENNALE, FROZENLAYER, ERNST GISELBRECHT, GRAFIE.AT, GRAZ 2003, GRAZ BIENNIAL ON MEDIA AND ARCHITECTURE, HAUS DER ARCHITEKTUR GRAZ, HAUSHOFER+SOEHNE, HOLZCLUSTER STEIERMARK, HOLZINNOVATIONSZENTRUM, HS ART SERVICE, IG BILDENDE KUNST, INFORMATIONSD-DESIGN, INSTITUT FUER ELEKTRONISCHE MUSIK UND AKUSTIK, JOANNEUM, JOURNALISMUS UND UNTERNEHMENSKOMMUNIKATION, KLAUS KADA, HERBERT VON KARAJAN CENTRUM, KLEINE ZEITUNG, KULTURABTEILUNG STEIERMARK, KUNSTGARTEN, HANS KUPELWIESER, LANGE NACHT DER FORSCHUNG, LANGE NACHT DER MUSEEN, GALERIE EUGEN LENDL, LENDWIRBEL, INGENIEURBUERO MARTISCHNIG, MCNEEL, MEDIAHAUS AUSTRIA, MUR.AT, MURINSEL, NCC, NEUE GALERIE GRAZ, ORTLOS, PALAIS THIENFELD, PONTE, POOLBAR, PRACHNER, REINISCH.AT, MARUSA SAGADIN, SCAN, SCHMUCKMUSEUM.AT, SPLITTERWERK, SHOTSHOTSHOT, STEIRISC[HER]BST, SIR HEMDEN, THEATRO/PPC GRAZ, TEAM A GRAZ, TRANSBANANA ARCHITECTS, TU GRAZ, UPLINK FACTORY, VIPERS, VON PRUECKLER, WERKSTADT GRAZ AND WIR.

FOR FURTHER DETAILS ON THIS SECTION PLEASE VISIT

<http://richdank.com/theory/peaa/>

DESIGN STUDIOS, WORKSHOPS AND LECTURES

AUARLA

AUGMENTED ARCHITECTURE LABORATORY
(DESIGN STUDIO)
2013/14

<http://iam.tugraz.at/studio/v13/>

<http://iam.tugraz.at/studio13w/category/auarla/>

FOR THE INSTITUTE OF ARCHITECTURE AND MEDIA / TUG

<http://iam.tugraz.at/>

RAPR 2014

RESPONSIVE ART IN THE PUBLIC REALM
(WORKSHOP)
2014

<http://www.adriart.net/mobility-2014-graz>

<http://izk.tugraz.at/lehre/ss-2014/kunst-oefentlichkeit/>

FOR ADRIART

<http://www.adriart.net/>

GRAB.ROG.LAND

A MONOMATERIALISATION OF ROG
(WORKSHOP)
2013

<http://www.adriart.net/grabrogland-monomaterialisation-rog>

<http://roglab.si/sl/sveze/2013/grab-rog-land>

<http://roglab.si/sl/projekti/2013/vsu-second-chance>

FOR THE MUSEUMS AND GALLERIES OF LJUBLJANA

<http://www.mgml.si/en/>

PALLANTIS - ALGORITHMIC CHANDELIER

KRONLEUCHTER
(LECTURE / ROUND TABLE / SYMPOSIUM)
2013

<http://blog.rhino3d.com/2013/10/4th-rhino-day-at-tu-graz.html>

FOR RHINOCEROS 3D

<http://www.rhino3d.com/>

GENERIC CNC

HANDWERK UND DESIGN
(LECTURE / ROUND TABLE / SYMPOSIUM)
2013

<http://www.rostfest.at/symposium2013/>

FOR ROSTFEST

<http://www.rostfest.at/>

RAPR 2013

**RESPONSIVE ART IN THE PUBLIC REALM
(WORKSHOP)
2013**

<http://www.adriart.net/responsive-art-public-realm-bix-perform>

FOR ADRIART

<http://www.adriart.net/>

ALGORITHMEN IN DER ARCHITEKTUR - FOKUS AUF DAS PROZESSHAFTE

**DER ANDERE RAUM - LICHTFASSADEN UND IHRE
GESTALTUNGSMACHT
(LECTURE / ROUND TABLE)
2013**

<http://www.museum-joanneum.at/kunsthhaus-graz/bix-medienfassade/projekte/events/event/04.03.2013/der-andere-raum>

FOR THE KUNSTHAUS GRAZ

<http://www.museum-joanneum.at/de/kunsthhaus/>

LOGOS

**MULTITUDE MANIFESTATIONS OF ROG
(WORKSHOP)
2013**

<http://www.adriart.net/l-gos-multipitude-manifestations-rog-workshop-rog-lab-ljubljana>

http://www.roglab.si/sl/sveze/2012/logos_vabilo

http://roglab.si/sl/sveze/2012/manifestacije_rog_nadaljevanje

FOR THE SCHOOL OF ARTS / UNG

<http://vsu.ung.si/en>

KRONLEUCHTER

**ALGORITHMIC | CHANDELIERS
(MASTER DESIGN STUDIO)
2012/13**

<http://iam.tugraz.at/studio/w12/>

http://iam.tugraz.at/studio/w12_blog/?cat=12

FOR THE INSTITUTE OF ARCHITECTURE AND MEDIA / TUG

<http://iam.tugraz.at/>

THE FRAMED PAVILION

**BOT/LOG
(LECTURE / ROUND TABLE)
2012**

<http://blog.rhino3d.com/2012/03/3rd-rhino-day-at-tu-graz.html>

FOR RHINOCEROS 3D

<http://www.rhino3d.com/>

BOT/LOG

**PARAMETRICS/JOINTS CONSTRUCTED/DESIGNED BY/IN
ROBOTS/WOOD
(MASTER DESIGN STUDIO)
2011/12**

<http://iam.tugraz.at/studio/w11/>

http://iam.tugraz.at/studio/w11_blog/?cat=14

<http://vimeo.com/36276315>

FOR THE INSTITUTE OF ARCHITECTURE AND MEDIA / TUG

<http://iam.tugraz.at/>

PAPIER PEINT

**PROGRAMMING IRB 140
(MASTER DESIGN STUDIO)
2010/11**

<http://iam.tugraz.at/studio/w10/>

http://iam.tugraz.at/studio/w10_blog/

<http://vimeo.com/25445351>

FOR THE INSTITUTE OF ARCHITECTURE AND MEDIA / TUG

<http://iam.tugraz.at/>

ATLAS: ZERSIEDELUNG

**AUGMENTED STYRIA DESK
(MASTER DESIGN STUDIO)
2010**

<http://iam.tugraz.at/studio/s10/>

http://iam.tugraz.at/studio/s10_blog/?cat=69

<http://vimeo.com/13934683>

FOR THE INSTITUTE OF ARCHITECTURE AND MEDIA / TUG

<http://iam.tugraz.at/>

FOR FURTHER DETAILS ON THIS SECTION PLEASE VISIT
<http://richdank.com/?iam>

OTHER COURSES CONDUCTED

DM2

DIGITAL DESIGN METHODS
(MANDATORY BACHELOR COURSE)

<http://iam.tugraz.at/dm2/>

DIALOG

2013/14

<http://iam.tugraz.at/dm2/w14/>

POTYOMKINSKIYE DEREVNI

2013/14

<http://iam.tugraz.at/dm2/w13/>

LAB.YRINTH

2012/13

<http://iam.tugraz.at/dm2/w12/>

PARCOURS AVENTURE

2011/12

<http://iam.tugraz.at/dm2/w11/>

TRANSALP

2010/11

<http://iam.tugraz.at/dm2/w10/>

CUBIC CUBES

2009/10

<http://iam.tugraz.at/dm2/w09/>

HIMMEL + HOELLE

2009

<http://iam.tugraz.at/dm1/s09b/>

TUERME.N

2008/09

<http://iam.tugraz.at/dm1/w08/>

DM1

DIGITAL METHODS OF PRESENTATION
(MANDATORY BACHELOR COURSE)

<http://iam.tugraz.at/dm1/>

IT FROM BIT

2007/08

<http://iam.tugraz.at/dm1/w07/>

CALCULATED MUSHROOMS

2007

<http://iam.tugraz.at/dm0/s07/>

IT FROM BIT*

2006/07

<http://iam.tugraz.at/dm1/w06/>

GAMING*

2003/04

<http://iam.tugraz.at/dm1/s04/>

DM0

METHODS OF PRESENTATION
(MANDATORY BACHELOR COURSE)

<http://iam.tugraz.at/dm0/>

CALCULATED FLOWERS

2006

<http://iam.tugraz.at/dm0/s06/>

CALCULATED BANANAS

2003

<http://iam.tugraz.at/dm0/s03/>

TOWARDS ARCHIMEDEAN SOLIDS

2002/03

<http://iam.tugraz.at/dm0/w02/>

GLEDV

ARCHITECTURE AND EDP
(MANDATORY BACHELOR COURSE)

<http://iam.tugraz.at/gledv/>

FAKE

2001/02

<http://www.fake.tugraz.at/>

FOR FURTHER DETAILS ON THIS SECTION PLEASE VISIT

<http://richdank.com/theory/peaa/>

MASTER THESES SUPERVISED

ATLAS ZERSIEDELUNG STEIERMARK

URBAN SPRAWL ATLAS STYRIA

2013/14

BY JACOB WEGERER

https://online.tugraz.at/tug_online/vwbAbs.showThesis?pThesisNr=57938&pOrgNr=37

SPINNEREI

ACADEMY OF CONTEMPORARY MUSIC IN ZURICH

2011/12

BY KATHRIN HIEBLER

https://online.tugraz.at/tug_online/vwbAbs.showThesis?pThesisNr=49771&pOrgNr=37

NEON BLINDS

FROM WINTERBLUES TO SUNSHINEMUSE

2011/12

BY MORITZ LISKA AND PAUL PRITZ

https://online.tugraz.at/tug_online/vwbAbs.showThesis?pThesisNr=49793&pOrgNr=37

ALL FOR THE INSTITUTE OF ARCHITECTURE AND MEDIA / TUG

<http://iam.tugraz.at/>

FOR FURTHER DETAILS ON THIS SECTION PLEASE VISIT

<http://richdank.com/theory/peaa/>

PUBLISHED

DIGITALER HOLZBAU

COMPUTATIONAL RESEARCH IN WOOD

2014

<http://iam.tugraz.at/studio/w12/>

DANK, R, KRIEG, O, MENGES, A, KAUFMANN, M, ROBELLER, C & SAVOYAT, M 2014. 'DIGITALER HOLZBAU - WORAN FORSCHEN SIE GERADE?' IN: ZUSCHNITT: DIGITALER HOLZBAU, NO. 53, PROHOLZ AUSTRIA, VIENNA, PP. 22-23.

DANK, R 2014. 'GLOSSAR' IN: ZUSCHNITT: DIGITALER HOLZBAU, NO. 53, PROHOLZ AUSTRIA, VIENNA, P. 24.

<http://www.proholz.at/zuschnitt/53/digitaler-holzbau/>

<http://www.proholz.at/glossar/>

ADRIART

ADVANCING DIGITAL AND REGIONAL INTERACTIONS IN

ART TEACHING

2010-14

<http://www.adriart.net/>

DANK, R 2014. 'WHAT IT TAKES: CODE!' IN: BRAJNOVIC, T, MUSTAPIC, N, PURG, P & SMREKAR, T (EDS.), ADRIART: REGIONAL COLLABORATIONS IN THE MEDIA ARTS AND PRACTICES, UNIVERSITY OF RIJEKA, ACADEMY OF APPLIED ARTS, UNIVERSITY OF NOVA GORICA, SCHOOL OF ARTS, RIJEKA/ NOVA GORICA, PP. 52-54.

http://issuu.com/zaumetnost/docs/adriart_design_publication_a5_book_

BY ALL MEANS

ANALOGUE/DIGITAL EXPERIMENTAL SETTINGS

2012/13

<http://hda-graz.at/event.php?item=6961>

<http://vimeo.com/54382739>

COLLETTI, M, DANK, R, JOBST, S & TSCHAPPELLER, W 2013. 'MIT ALLEN MITTELN - FORSCHUNGS- UND LEHRPRAXIS DREIER ARCHITEKTURSCHULEN' IN: GUTTMANN, E (ED.), HDA READER 2012, HAUS DER ARCHITEKTUR, GRAZ, PP. 12-19.

<http://www.hda-graz.at/publication.php?item=182>

<http://www.hda-graz.at/>

DANK, R, FREISSLING, C & HIRSCHBERG, U 2013. 'MIT ALLEN MITTELN' IN: GAM: WALLS. SPATIAL SEQUENCES, NO. 9, SPRINGER, WIEN/NEW YORK CITY, PP. 260-261.

<http://gam.tugraz.at/>

COLLETTI, M, DANK, R, JOBST, S & TSCHAPPELLER, W 2012. 'MIT ALLEN MITTELN - ANALOGE/DIGITALE VERSUCHSANORDNUNGEN' IN: KONSTRUKTIV: DIGITALISIERUNG, NO. 286, BAK, VIENNA, PP. 12-16.

<http://daskonstruktiv.at/PDF-KONSTRUKTIV/7677/>

<http://daskonstruktiv.at/>

BOOT THE BOT

JAVA-BASED SIMULATION, CODE GENERATOR AND LIVE
CONTROLLER FOR ABB ROBOTS
2012/13

<http://iam.tugraz.at/studio/v10/>

DANK, R 2013. 'BOOT THE BOT: JAVA-BASED SIMULATION,
CODE GENERATOR AND LIVE CONTROLLER FOR ABB ROBOTS'
IN: TADJINE, H (ED.), JOACE: JOURNAL OF AUTOMATION AND
CONTROL ENGINEERING, VOL. 1, NO. 1, ENGINEERING AND
TECHNOLOGY PUBLISHING, SAN JOSE, PP. 25-30.

<http://richdank.com/theory/btb/>

<http://www.iccrl.org/>

<http://www.joace.org/>

BOT/LOG

PARAMETRICS/JOINTS CONSTRUCTED/DESIGNED BY/IN
ROBOTS/WOOD
2012

<http://iam.tugraz.at/studio/v11/>

DANK, R & FREISSLING, C 2012. 'THE FRAMED PAVILION
- MODELING AND PRODUCING COMPLEX SYSTEMS IN
ARCHITECTURAL EDUCATION' IN: BRELL-COKCAN, S &
BRAUMANN, J (EDS.), ROBJARCH: ROBOTIC FABRICATION IN
ARCHITECTURE, ART AND DESIGN, SPRINGER, WIEN/NEW YORK
CITY, PP. 238-247.

<http://richdank.com/theory/tfp/>

<http://robarch2012.org/>

PAPIER PEINT

CONCEPTS ON PLANE PHENOMENA IN THREE-
DIMENSIONAL SPACE, THEIR ALGORITHMIC
COMPOSITION AND THE REQUIREMENT-SPECIFIC
REALIZATION WITH ROBOTS
2012

<http://iam.tugraz.at/studio/v10/>

DANK, R & HIRSCHBERG, U 2012. 'PAPIER PEINT' IN: GAM:
DENSE CITIES, NO. 8, SPRINGER, WIEN/NEW YORK CITY, PP.
320-321.

http://iam.tugraz.at/studio/v10/papier_peint.pdf

<http://gam.tugraz.at/>

WHY MEL?

APPROACHING ALGORITHMIC DESIGN WITH
ARCHITECTURE STUDENTS
2011

<http://iam.tugraz.at/dm1/vv08/>

<http://iam.tugraz.at/dm2/vv11/>

<http://iam.tugraz.at/dm2/>

DANK, R 2011. 'WHY MEL?' IN: PROCEEDINGS OF THE 1ST
INTERNATIONAL SYMPOSIUM ON ALGORITHMIC DESIGN FOR
ARCHITECTURE AND URBAN DESIGN, ALGODE, TOKYO.

http://richdank.com/theory/why_mel/

<http://news-sv.aij.or.jp/algode/>

AUGMENTED STYRIA DESK

INTERACTIVE VISUALIZATIONS OF QUESTIONS OF
LARGE-SCALE LAND PLANNING AND ALGORITHMIC
EXPERIMENTS IN URBAN DEVELOPMENT FOR THE
PURPOSE OF DENSIFICATION
2011

<http://iam.tugraz.at/studio/s10/>

DANK, R 2011. 'ATLAS: ZERSIEDELUNG STEIERMARK' IN: GAM:
ZERO LANDSCAPE, NO. 7, SPRINGER, WIEN/NEW YORK CITY, PP.
347-348.

http://iam.tugraz.at/studio/s10/atlas_zersiedelung_steiermark.pdf

<http://gam.tugraz.at/>

| RYUGYONG.ORG |

OTHER LEVELS TO THE RYUGYONG HOTEL IN
PYONGYANG
2006

<http://ryugyong.org/>

<http://richdank.com/theory/ryugyong/>

DANK, R 2006. RYUGYONG.ORG: WEITERE EBENEN ZUM
GLEICHNAMIGEN HOTEL IN PJŎNGJANG, DIPLOMA THESIS,
GRAZ UNIVERSITY OF TECHNOLOGY, GRAZ.

http://tstgss41.tugraz.at:1801/webclient/StreamGate?folder_

[id=0&dvs=1351686274146~897](http://tstgss41.tugraz.at:1801/webclient/StreamGate?folder_id=0&dvs=1351686274146~897)

DANK, R. & GRUBER, A. 2006. 'RYUGYONG.ORG | OTHER
LEVELS TO THE RYUGYONG HOTEL' IN: GAME SET AND MATCH
II. ON COMPUTER GAMES, ADVANCED GEOMETRIES AND DIGITAL
TECHNOLOGIES, DELFT, PP. 487-493.

<http://bk.tudelft.nl/en/about-faculty/departments/hyperbody/game-set-and-match/>

gamesetandmatch-ii/

DANK, R. & GRUBER, A. 2006. 'RYUGYONG.ORG | AN IDEA ON ARCHITECTURE AND GEOPOLITICS' IN: RHYTHM AND HARMONY IN THE BIT-SPHERE, PROCEEDINGS OF THE INTERNATIONAL CONFERENCE OF THE ASSOCIATION FOR COMPUTER AIDED ARCHITECTURAL DESIGN RESEARCH IN ASIA 2006, CAADRIA, KUMAMOTO, PP. 605-608.

<http://morolab.arch.kumamoto-u.ac.jp/caadria2006/>

CALCULATED BANANAS

DEFINING A NEW INTRODUCTORY COURSE IN VISUAL DESIGN FOR FIRST YEAR ARCHITECTURE STUDENTS
2003

<http://iam.tugraz.at/dm0/s03/>

DANK, R, GRUBER, A & HIRSCHBERG, U 2003. 'CALCULATED BANANAS: DEFINING A NEW INTRODUCTORY COURSE IN VISUAL DESIGN FOR FIRST YEAR ARCHITECTURE STUDENTS' IN: DIGITAL DESIGN, PROCEEDINGS OF THE INTERNATIONAL CONFERENCE OF THE EDUCATION AND RESEARCH IN COMPUTER AIDED ARCHITECTURAL DESIGN IN EUROPE CONFERENCE 2003, ECAADE, GRAZ, PP. 519-523.

<http://richdank.com/theory/bananas/>

<http://ecaade2003.tugraz.at/>

FOR FURTHER DETAILS ON THIS SECTION PLEASE VISIT

<http://richdank.com/theory/peaa/>

EXHIBITED

TURBULENZ

EIN KLIMA-KLANG-PORTRÄT
2014

AT THE FORUM STADTPARK, GRAZ

<http://forumstadtpark.at/index.php?idcatside=938>

GRAZ OPEN ARCHITECTURE 14

PROJECT SHOW AND FAREWELL PARTY
2014

AT THE UNIVERSITY OF TECHNOLOGY, GRAZ

<http://www.tugraz.at/fakultaeten/architektur/veranstaltungen/graz-open-architecture/>

IO

CELEBRATING 10 YEARS IAM AND GRAND REOPENING
OF THE AUGMENTED ARCHITECTURE LABORATORY
2014

AT THE INSTITUTE OF ARCHITECTURE AND MEDIA, GRAZ

<http://iam.tugraz.at/studio13w/2014/06/11/auaria-opening-images/>

<http://iam.tugraz.at/studio13w/2014/06/11/auaria-control-images/>

MARKET CHANGES - MARKET CHANCES

ZUKUNFTSTAG DER STEIRISCHEN WIRTSCHAFT
2014

AT THE STADTHALLE, GRAZ

<http://www.mcg.at/messegraz.at/de/locations/stadthalle-graz/stadthalle-graz.php>

<http://www.sfg.at/cms/393/4306/>

http://www.holzcluster-steiermark.at/index.php?view=category&catid=28&option=com_joomgallery&Itemid=76

ARCHITEKTUR_LEBEN

LEBENSRAUM IMMOBILIENMESSE
2014

AT THE MESSE, GRAZ

<http://www.mcg.at/messegraz.at/de/locations/messe-graz/messe-graz.php>

<http://www.kleinezeitung.at/allgemein/bauenwohnen/immobilienmesse/3567874/neues-welt-architektur.story>

89

THE FACTORY THAT IS MAKING ITSELF

ROGLAB'S EXHIBITION OF PROTOTYPES
2013/14

AT THE BREG22 GALLERY, LJUBLJANA

<http://www.roglab.si/en/fresh/2013/exhibition-of-prototypes>

DE.FRAGMENTATION

PIXXELPOINT 2013
2013

AT THE KULTURNI DOM, NOVA GORICA

<http://www.pixxelpoint.org/>

<http://kulturnidom-ng.si/dogodki-vpis/galerijski-dogodki/2013/festival/>

MIX & MATCH

INNOVATION IN WOOD
2013

AT THE HOLZINNOVATIONSZENTRUM, ZELTWEG

http://hiz.at/index.php?option=com_content&view=article&id=72:mixamatch-nachbericht

25TH YEAR ANNIVERSARY HDA

CELEBRATING THE OPENING OF AUSTRIA'S OLDEST
ARCHITECTURE VENUE IN 1988
2013

AT THE HAUS DER ARCHITEKTUR, GRAZ

http://www.hda-graz.at/event.php?item=7918&lang_id=en

SELECTED PROJECTS FROM THE FACULTY OF ARCHITECTURE

DESIGNMONAT GRAZ
2013

AT THE HAUS DER ARCHITEKTUR, GRAZ

http://www.hda-graz.at/event.php?item=7868&lang_id=en

http://www.designmonat.at/index.php?ID_m=3& sight=list&ID_port=0&day=&det=1&id=8&lang=en

BIX.PERFORM();

RESPONSIVE ART IN THE PUBLIC REALM
2013

AT THE KUNSTHAUS, GRAZ

<http://www.museum-joanneum.at/kunsthhaus-graz/bix-medienfassade/projekte/events/event/12.04.-05.05.2013/bix-perform>

BALL DER TECHNIK

ARCHITEKTUR BEGEISTERT!
2013

AT THE CONGRESS, GRAZ

<http://www.balldertechnik.at/>

FAKTUM IST

MURAUER BESTANDSAUFNAHMEN
2012

AT THE HAUS DER ARCHITEKTUR, GRAZ

<http://hda-graz.at/event.php?item=7472>

<http://regionale12.at/cms/beitrag/11636776/72387956/>

ANDERS ALS GEWOHNT

ARCHITEKTURTAGE
2012

AT THE HAUS DER ARCHITEKTUR, GRAZ

<http://architekturtage.at/2012/event.php?item=7226>

MIT ALLEN MITTELN

ANALOG / DIGITALE VERSUCHSANORDNUNGEN
2012

AT THE HAUS DER ARCHITEKTUR, GRAZ

<http://hda-graz.at/event.php?item=6961>

GRAZER SCHULE

INVESTITIONEN IN DIE ZUKUNFT DER ARCHITEKTUR
2011

AT THE HAUS DER ARCHITEKTUR, GRAZ

<http://hda-graz.at/event.php?item=6402>

1811 2011

200 YEARS OF GRAZ UNIVERSITY OF TECHNOLOGY
2011

AT THE DOM IM BERG AND THE IZK HALLE, GRAZ

http://portal.tugraz.at/portal/page/portal/TU_Graz/2011

http://portal.tugraz.at/portal/page/portal/TU_Graz/2011/Highlights/openlabs/openlab1

FICTION PYONGYANG

THE RYUGYONG HOTEL
2006/07

AT THE KUNSTHALLE, VIENNA

<http://kunsthallewien.at/cgi-bin/event/event.pl?id=2198;lang=de;back=2031>

AT THE ARCHITECTURE FOUNDATION, LONDON

<http://architecturefoundation.org.uk/>

AT THE BIENNALE, VENICE

<http://biennale.org/it/architettura/>

AT THE TRIENNALE, MILANO

<http://trienale.it/>

NCC03

**THE NETARTCOMMUNITYCONGRESS
2003**

AT THE DOM IM BERG, GRAZ

<http://ncc03.mur.at/Members/lat.1.html>

ALMANACH 2003

**THE OVERLAPPING OF PRINT AND DIGITAL MEDIA
2003**

AT THE WERKSTADT, GRAZ

<http://almanach2003.mur.at/>

FRISCHE FISCH AUS DEM ARCHITEKTENPOOL

**JUNGE GRAZER ARCHITEKTURINITIATIVEN
2002/03**

<http://frischefische.net/>

AT THE STEIRISCHER HERBST ARCHITEKTUR STAGE, GRAZ

<http://steirischerbst.at/2003/de/Programm/Detail0502.html?ProgrammID=78&EreignissID=4>

AT THE MMCSPORT, BUDAPEST

<http://mmcsport.hu/>

AT THE POOLBAR, FELDKIRCH

<http://poolbar.at/>

AT THE ARCHITECTURAL ASSOCIATION, OSLO

<http://arkitektur.no/>

AT THE ARCHITEKTURZENTRUM, VIENNA

http://azw.at/event.php?event_id=62

AT THE PALAIS THIENFELD AND KUNSTHAUS, GRAZ

<http://steirischerbst.at/2002/Programm/Detail162b.html?ProgrammID=70&EreignissID=4>

OPEN:24H

**EIN PROFIL DER GRAZER ARCHITEKTURZEICHENSAELE
1/2/3/4
2003**

AT THE HAUS DER ARCHITEKTUR, GRAZ

<http://open24h.xarch.at/>

FLEX, FLUX, FLADENBROT

**THE COLLABORAT EVENT 02
2002**

AT THE ARENA, VIENNA

<http://collabor.at/issues/02/about>

5. MEDIEN + ARCHITEKTUR BIENNALE

**AKTUELLE TENDENZEN IN ARCHITEKTUR UND URBANER
KULTUR
2001**

AT THE PALAIS ATTEMS AND THE DOM IM BERG, GRAZ

<http://artimage.at/>

STAR DUST

**EMERGING ARTISTS
2001**

AT THE IG BILDENDE KUNST, VIENNA

<http://igbildendekunst.at/>

STAR PROJECT

**THE MEDIA ART AWARD
2001**

AT THE KARAJAN CENTRUM, VIENNA

<http://karajan.org/>

VISUALS

**CONTEMPORARY A/V-EXPERIMENTS
2000**

AT THE FORUM STADTPARK, GRAZ

<http://forum.mur.at/>

BFILM/BANALE

**VIDEO AND FILMFESTIVAL
2000**

AT THE ARCHITEKTURZEICHENSAELE, GRAZ

<http://banale.xarch.at/>

FOR FURTHER DETAILS ON THIS SECTION PLEASE VISIT

<http://richdank.com/theory/peaa/>

AND AWARDED

SELECTED FINALISTS

(AS PART OF 0704 ARCHITECTURE)
FOR "SWIMMING WATERS"
2014

<http://richdank.com/architecture/swimmingwaters/>

FROM MATTERBETTER

<http://matterbetter.com/blog/article/17>

SHORTLIST

FOR "BOOT THE BOT"
2014

<http://www.youtube.com/watch?v=atC6cG6szH8>

http://www.youtube.com/watch?v=mVTo_WEZ7VM

AT THE ALGODEQ - ALGORITHMIC DESIGN QUEST

http://algodeq.org/?page=award_list

http://algodeq.org/award_3D/

HONORABLE MENTION

(AS PART OF 0704 ARCHITECTURE)
FOR "STALK"
2008

<http://richdank.com/architecture/stalk/>

FROM THE ASSOCIATION OF ICELANDIC ARCHITECTS

<http://ai.is/>

ARCHITECTURE DIPLOMA WITH HONORS

FOR "RYUGYONG.ORG"
2006

<http://ryugyong.org/>

FROM THE GRAZ UNIVERSITY OF TECHNOLOGY

<http://tugraz.at/>

YOUNG CAADRIA AWARD

FOR "RYUGYONG.ORG"
2006

<http://ryugyong.org/about/ryugyong.org.pdf>

FROM THE ASSOCIATION FOR COMPUTER AIDED
ARCHITECTURAL DESIGN RESEARCH IN ASIA

<http://morolab.arch.kumamoto-u.ac.jp/caadria2006/>

1ST PRIZE

FOR "BE SURE"
2000

<http://richdank.com/video/vs/>

FROM THE VIDEO AND FILMFESTIVAL BFILM/BANALE7

<http://xarch.tu-graz.ac.at/proj/banale/00/>

SPECIAL AWARD FOR EXPERIMENTAL INFORMATIONSYSTEMS

(AS PART OF THE XARCH-COLLECTIVE)
FOR "XARCH.TU-GRAZ.AC.AT"
1998

<http://xarch.tu-graz.ac.at/>

FROM THE AUSTRIAN STATE PRIZE FOR MULTIMEDIA ART

<http://rurban.xarch.at/staatspreis98.html>

FOR FURTHER DETAILS ON THIS SECTION PLEASE VISIT

<http://richdank.com/vitae/>

SKILLS / LANGUAGES

COMMAND OF THE WRITTEN AND SPOKEN NATURAL LANGUAGES

GERMAN	FIRST LANGUAGE *
ENGLISH	BUSINESS FLUENT *
FRENCH	ELEMENTARY KNOWLEDGE

OPERATING SYSTEMS

APPLE	INTERMEDIATE
LINUX	ADVANCED *
WINDOWS	EXPERT *

SOFTWARE

AUDIO/VIDEO	
AFTER EFFECTS	EXPERT (INCLUDING SCRIPTING) *
CUBASE	INTERMEDIATE
ENCORE	ADVANCED
PREMIERE	EXPERT (INCLUDING SCRIPTING) *
WAVELAB	ADVANCED
CAD	
ARCHICAD	ADVANCED
AUTOCAD	EXPERT (INCLUDING SCRIPTING) *
3DS MAX	ADVANCED (INCLUDING SCRIPTING)
MAYA	EXPERT (INCLUDING SCRIPTING) *
MAXWELL	EXPERT *
REVIT	ADVANCED
RHINO	EXPERT (INCLUDING SCRIPTING) *
ROBOTSTUDIO	ADVANCED
DESKTOP PUBLISHING AND GRAPHICS	
ACROBAT 3D	EXPERT (INCLUDING SCRIPTING) *
FREEHAND	ADVANCED
ILLUSTRATOR	EXPERT (INCLUDING SCRIPTING) *
INDESIGN	EXPERT (INCLUDING SCRIPTING) *
PHOTOSHOP	EXPERT (INCLUDING SCRIPTING) *
NET	
PLAINTEXT HTML	EXPERT (INCLUDING SCRIPTING) *
OFFICE	
ACCESS	BEGINNER
EXCEL	EXPERT *
POWERPOINT	EXPERT *
WORD	EXPERT *

PROGRAMMING/SCRIPTING

ARDUINO	EXPERT *
C++	INTERMEDIATE
FLASH	ADVANCED
GRASSHOPPER	EXPERT *
JAVA	EXPERT *
JAVASCRIPT	EXPERT *
LISP	ADVANCED
MAXSCRIPT	ADVANCED
MAX/MSP	ADVANCED
MEL	EXPERT *
PHP	EXPERT *
PROCESSING	EXPERT *
PURE DATA	ADVANCED
PYTHON	BEGINNER
SQL	ADVANCED *
UTILITIES	
ECLIPSE	INTERMEDIATE
ULTRAEDIT	EXPERT *

HARDWARE

CNC MACHINERY	
3D PRINTER	ADVANCED
ABB ROBOTS	EXPERT *
LASERCUTTERS	EXPERT *
MILLING MACHINES	EXPERT *
INTERACTIVE DEVICES	
ARDUINO PLATFORM	EXPERT *
TRACKING SYSTEMS	ADVANCED

ALL ITEMS MARKED WITH * ARE PRACTICED ON A DAILY BASIS

THE PRIVATE CHAPTER

95

RICHARD DANK - LIVING WITH BARBARA, DAUGHTER MIA MIYUKI AND SON LINO ALEKSI ABOVE THE LENDPLATZ - QUIT HIS BASKETBALL CAREER, BUT STILL LOVES TO PLAY THAT GAME. MOREOVER HE IS AN EXPERIENCED FREE CLIMBER, AMATEUR BOXER AND REGULAR BLOOD DONOR.

FOR FURTHER DETAILS ON THIS CHAPTER PLEASE VISIT

<http://richdank.com/?bmlr>

<http://richdank.com/pictures/>

<http://richdank.com/contact/>



**ALL CONTENT IS (PARTLY OR WHOLLY) ORIGINATED BY RICHDANK, EXCEPT DIFFERENTLY NOTED.
THE FOOTAGE IN THIS PUBLICATION WAS ALSO PRODUCED BY RICHDANK, OTHERWISE CREDITS
ARE DENOTED. STILL, FEW PICTURES HAVE NO OR UNVERIFIED SOURCE INFORMATION. THIS
MEANS THAT THEY HAVE UNKNOWN COPYRIGHT STATUS!
(C) RICHDANK 1995-2015.**

**FOR FURTHER DETAILS ON THAT PLEASE VISIT
<http://richdank.com/imprint/>**