

Rob|Arch 2012

Preliminary Schedule

DAY 1: Monday 17th of December 2012

08:30-09:00 Registration

09:00 Welcome and Introduction to the first international Conference for Robotic Fabrication in Architecture, Art and Design

Prof. Klaus Semsroth (Dean of the Faculty of Architecture and Regional Planning, TU Vienna)
Sigrid Brell-Cokcan, Johannes Braumann (Association for Robots in Architecture)

Session I:

Session Chair: Johannes Braumann (Robots in Architecture)

09:30 Keynote Research

Digital by Material: Envisioning an Extended Performative Materiality in the Digital Age of Architecture
Gramazio & Kohler, ETH Zürich

Projects:

10:15 Free Molding Technology
Yaron Elyasi, Etto Studio

10:30 Outside Itself: Interactive Installation Assembled by Robotic Machines Untouched by Human Hands
Frederico Díaz, artist

10:45 Coffee break

Session II:

Session Chair: Alexander Schiftner, Evolute

Research:

11:00 Geometry Optimization: Realization of Fluid-form Structure Composed of Spherical Components, Fabricated by Means of Computer Software and Robotic Arms
Lukáš Kurilla, Ladislav Svoboda, CTU Prague

11:30 Robotic Pouring of Aggregate Structures: Responsive Motion Planning Strategies for Online Robot Control of Granular Pouring Processes with Synthetic Macro-scale Particles
Karola Dierichs, Tobias Schwinn, Achim Menges, ICD University of Stuttgart

12:00 Magnetic Architecture: Generative Design through Sensoric Robots
Dubor Alexandre, Diaz Gabriel-Bello, IAAC

12:30 Automating Eclipsis: Automated Robotic Fabrication of Custom Optimized Metal Façades Systems
Nathan King, Jonathan Grinham, Harvard GSD, Virginia Tech Center for Design Research

13:00-13:45 LUNCH Break

Session III

Session Chair: Christian Peer (KUKA)

13:45 Keynote Industry

KUKA: Innovations in Industrial Robotics
Alois Buchstab, KUKA GmbH

Industry:

14:15 splineTex: Architectural Composite Materials
Valentine Troi, superTEX composites GmbH

14:30 Industrial Robots in Architecture: Trends and Innovations from ABB
David Kittl, Martin Kohlmaier, ABB AG Österreich

- 14:45 Revolution in Steel Beam Fabrication
Andreas Hofer, Zeman GmbH
- 15:00 21st Century Art- The Marriage of Inspiration and Innovation: Robots Evolve to Become the Artist's High-Performance Tool
Manfred Hübschmann, David Arceneaux, Stäubli Robotics
- 15 :15 Modular Robotics: From Individual Modules to Complex Robotic Structures
Christian Binder, Schunk Intec GmbH
- 15 :30 New Perspectives for Architecture and Design: Fabrication using Robotic Machining Centres
Alfred Kaser, A² Anlagentechnik & Automation GmbH
- 15:45 Rapid On-site Fabrication of customized Freeform Metal cladding Panels: Robotic Devices in Shipping Containers Shifting from Research to State-of-the-Art
Peter Mehrtens, Bemo Systems

16:00 Coffee break

Session IV

Session Chair: Fabian Scheurer, designtoproduction

Research:

- 16:15 The Framed Pavilion: Modelin and Pouring Complex Systems in Architectural Education
Richard Dank, Christian Freissling, Institute for Architecture & Media TU Graz
- 16:45 Irregular Substrate Tiling: The Robotic Poché
Ryan Luke Johns, Nicholas Foley, University of Michigan
- 17:15 RoboSculpt: Unique Molds for Design with Minimal Waste
Mathew Schwartz, Jason Prasad, University of Michigan
- 17:45 Augmented Reality and the Fabrication of Gestural Form
Ryan Luke Johns, Greyshed / Princeton University
- 18:15- Robotic Immaterial Fabrication
Steven Keating, Neri Oxman, MIT Media Lab
- 19:30 - 20:00 Round Table at the Conference Dinner Location
- 20:00 - 23:00 Conference Dinner @ Palmenhaus
Award Ceremony for the KUKA Young Potential Award

DAY 2: Tuesday 18th of December 2012

Session Chair: Sigrid Brell-Cokcan (Robots in Architecture)

09:00 Keynote Workshops

Morphospaces of Robotic Fabrication: From theoretical Morphology to Design Computation and Digital Fabrication in Architecture
Achim Menges, ICD University of Stuttgart

09:45 Coffee break

Session V:

Session Chair: NN

Workshops:

- 10:00 Robotically Fabricated Wood Plate Morphologies
Tobias Schwinn, Oliver David Krieg, Achim Menges, ICD University of Stuttgart
- 10:30 Processes for an Architecture of Volume: Robotic Wire Cutting
Wes McGee, Jelle Feringa, Asbjørn Søndergaard, University of Michigan, TU Delft, Aarhus School of Architecture
- 11:00 Augmented Fabrications: A New Control Model for Synchronous Robotics
Brandon Kruysman, Jonathan Proto, Sci-Arc

11:30 Interlacing: An Experimental Approach to Integrating Digital and Physical Methods
Kathrin Dörfler, Florian Rist, Romana Rust, TU Vienna, TU Graz

12:00- 12:45 Lunch Break

Session VI:

Session Chair: David Kittl, ABB

12:45 Keynote Projects

Fabricating the Steel Bull of Spielberg
Clemens Neugebauer, Martin Kölldorfer, artists

Projects:

13:15 Morphaux: Recovering Architectural Plaster by Developing Custom Robotic Tools
Joshua Bard, Steven Mankouche, Matthew Schulte, Carnegie Mellon University; University of Michigan

13:30 CNSILK: Spider-Silk Inspired Robotic Fabrication of woven Habitats
Elizabeth Tsai, Michal Firstenberg, Jared Laucks, Yoav Sterman, Benjamin Lehnert, Neri Oxman, MIT Media Lab

13:45 Rhino2krl- A Simple CAD to Robot Interface for Fast Process Prototyping
Tom Pawlofsky, Kunstgiesserei St Gallen

14:00 Protocols, Pathways, and Production
David Pigram, Iain Maxwell, Wes McGee, Ben Hagenhofer-Daniell, Lauren Vasey, Supermannoeuvre, University of Technology Sydney, University of Michigan

14:15 From Digital Design to Automated Production of Complex-Shaped Concrete Sub-Constructions with Steel Reinforcement
Jens Cortsen, Silvan Oesterle, Dorthe Sølvason, Hanno Stehling; University of Southern Denmark, ETH Zürich, designtoproduction

14:30 Robot Assisted Asymmetric Incremental Sheet Forming: Surface Quality and Path Planning
Jan Brüninghaus; Carsten Krewet, Bernd Kuhlenkötter, TU Dortmund, Chair of Industrial Robotics and Production Automation

14:45 Coffee break

Session VI:

Session Chair: NN

Workshops:

15:00 HAL: Extension of a Visual Programming Language to Support Teaching and Research on Robotics Applied to Construction
Thibault Schwartz, ECZT, Robots in Architecture

15:30 BrickDesign: A Software for Planning Robotically Controlled Non-standard Brick Assemblies
Tobias Bonwetsch, Ralph Bärtschi, Matthias Helmreich, ROB Technologies, ETH Zurich

16:00 Mill to Fit: The Robarch
Andreas Trummer, Felix Amtsberg, Stefan Peters, Institute for Structural Design TU Graz

16:30 Design Robotics: Towards Strategic Design Experiments
Martin Bechthold, Nathan King, Harvard GSD

17:00 Closing of Conference