

take on liquid forms and invite new kinds of patterning. Sean Hanna offers a rigorous examination of microscopic structures achieved through stereolithography, pursuing 'non-homogenous' materials that avoid the cleavage planes and defects characteristic of traditional repetitive structures.

Structures

In the structural realm, papers offer innovative methods for creating ultra-lightweight constructions with insulated composite shells by Martin Bechthold and tensegrities by Katherine Liapi. Two other papers look at how to make structural design more intuitive, using an update on Gaudi's hanging chain models with gravity-sensitive parametric modeling by Axel Killian and a technique developed by Pierre Olsson that makes structurally vulnerable areas of a surface visually obvious.

Surface and Form Generation

Our design projects range in scale and complexity from constructions with 2D cutouts by Terry Surjan, to Cory Clarke's description of full-scale system prototypes to the extraordinary compositions within the Sagrada Familia authored by Mark Burry. The papers explore form generation topics such as natural/artificial/synthetic structure by Santiago Perez, algorithmic design by Yanni Loukissas, and a fresh treatment of surface patterning described by Bradley Bell.

Architectural Practice

Philip Bernstein and Eileen Ruth Webb from the AIA professional community brings their expertise to address changing business practices. Liability implications for automated fabrication are considered by legal expert Vicki Allums. Case studies of Gehry Partners' MIT Stata Center by Shiro Matsushima and an airport terminal at London Heathrow by Alex Kunz. Offer examples efficient practices for collaborative digital workflow.

By changing how we represent building information, the building industry offers increasingly flexible production. Papers by Chuck Eastman and the AIA-TAP group point out the crucial need to set up channels for production with well-considered, standardized languages to reduce risk while increasing efficiency and quality. Anton Harfmann and Scott Johnson explain methods for sorting and coordinating the countless diverse components in a building.

Education

The ACADIA community brings students to the forefront of these explorations. Educators are challenging students to discover possibilities and limitations of tool/material combinations as described by Karl Daubman and to see how virtual tools and physical properties can shape tectonics in a text by Wassim Jabi. Lisa Iwamoto offers an analysis that examines how custom components can accommodate the human body.

Responsive Environments

Finally, the conference includes projects that pursue intelligent, responsive functions. By incorporating mechanical details and sensing functions, Peter Anders, Kas Oosterhuis and James Timberlake probe a new generation of responsive environments that can dynamically respond to a range of changing conditions.

Acknowledgements in brief

In bringing together the ACADIA academic community with the American Institute of Architects, Ontario Association of Architects and paraprofessional communities, we envisioned a forum where ideas could meet action. We invited design and technology specialists, artists and philosophers, individuals from software development, construction, pre-fabricated housing, and law to create a diverse gathering. We tailored the conference activities to engage different kinds of participants, offering specialized hands-on training, academic discourse and practical presentations. Leading individuals were invited to contribute a series of keynote addresses.

Education Summit and Canada Design Network colloquia were organized to provide vehicles for considering how automated fabrication can invigorate architectural education. A series of exhibitions including the Digital Fabricators exhibition from London's Building Centre Trust, juried design work and work-in-progress exhibits was included in order to provide a generous context of individual approaches to the topic.

The advisory groups of the TAP-PIA group and ACADIA, the SmartGeometry Group, the Integrated Centre for Visualization, Design and Manufacturing at Waterloo and the Digital Fabricators Research Group of London Metropolitan University contributed expertise that informed key approaches to the conference. Cambridge and Toronto communities including the Central Presbyterian Church and the Toronto Society of Architects have shared their resources. The varying priorities of these groups have required much flexibility and no small amount of compromise from many individuals. We gratefully acknowledge their cooperation and support.

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