Editorial

This edition of IJAC focuses on the role of digital media in the process of imagining architectural form. We are particularly interested how digital tools and techniques have become catalysts in the process thinking, imagining, and representing architectural design processes. Taken together, the selected papers illustrate the emerging tendency in computer-aided architectural design to go beyond skills these days, as they focus on exploring new digital processes and languages of architecture while also concentrating on recasting the methods of architecture from the position of the digital present.

Maryam Maleki and Robert Woodbury analyze traditional Persian *Rasmi* domes and subsequently develop a geometric constraints based representation for such domes. They then alter some of the key constraints, thereby enabling them to generate a class of dome structures that are simultaneously coherent with examples from traditional Persian architecture, and with contemporary kinetic architecture. Finally, they present a goal-seeking algorithm to solve this new set of constraints within a propagation-based parametric modeling system.

Sungwoo Lim et al. focus on shape generation in the early stages of design. Their investigations suggest that the interactions of designers with their sketches can be formalized according to a finite number of generalized shape grammar transformation rules. They identify seven highly generalized and abstract shape transformation rules that can be specialized into larger numbers of more specific rules. They then present a prototype shape synthesis system using these types of shape grammar rules.

Roland Hudson is interested in the relationship between the development of a parametric model and the description of the problem. Observing how parametric design is internalized in contemporary architectural design and construction practices, he extends the methodology to structure design goals from incomplete problem descriptions typically found in architectural practice. Iterating, and learning over several real-world situations, it represents an emerging corpus of research focusing on ways of integrating methods evolved in structured, 'laboratory' contexts to situations encountered in design and practice.

Sean Ahlquist and Moritz Fleischmann are experimenting with the space-making capabilities of tension-active system, better known as tension active structures. They start with iterative design investigations in digital and physical space in order to get a deeper understanding of future computational processes, such a particles and spring systems. Physical and digital examples illustrate the capabilities of transformed primitives such as cylinders and meshed point clouds. These examples show the power of simulation tools within the design process in rather complicated structures.

Knut Larsen and Christoph Schindler are describing the movement of energy, information and material in the wood production from man to machine. Whereas pre-industrial craftsmen did use their human power and knowledge to process the material, the future shows that skilled people define rules and machines such as computers and CNC-production units integrate specific knowledge. Hands-on examples document this understanding. Based on student design physical objects in public space were designed, manufactured and constructed using the power of digital media. A 'digital chain' was applied in order to move most information to software running on computers and computer-controlled machines.

In conclusion, the broadness of the examples shows the strength of applying digital media in order to visualizing architectural form. The media offers different views and eases access to historic examples as well as future applications. Digital media is a true catalyst for many tasks of the architectural process, from analyze and simulation to production and operation. Based on the power of processing, the papers illustrate that the output is of higher quality the data that were out into the system. By using graphical and physical output, the digital tools and techniques allow a quality check that supports the daily tasks of architects in education, research and practice. This issue of IJAC is contributing for advancing the contemporary discussion with successful examples.

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