Editorial

This issue of IJAC was compiled with the ambition to reflect on the aspect of critical thinking and speculative thought as it underlies architectural computing. Technological advances and scholarly research in our field go along with, and are preconditioned by, questions of motivation, values, perception and culture. These questions are often implicit in, but sometimes also give way to, predominantly technical presentations. This observation motivated us in the editing of this issue of IJAC as a step towards a broader discussion of these questions. While the final selection of papers in this issue results from the IJAC blind review process, most of the papers presented in this issue expand on articles published earlier in the Proceedings of the 16th International Conference on Computer Aided Architectural Design Research in Asia (CAADRIA): Circuit Bending, Breaking and Mending, held at the University of Newcastle, Australia in 2011. In the following, we introduce the framework that guided the editing of this issue of IJAC and outline the relevance of, contributions made by, and potential connections between, the eight research papers contained in this issue.

Architectural Computing Values

The architectural computing community comprises two distinct yet often interrelated areas of activity: informal designing and formal reporting on research. While much has been written on the topic of integrating architectural designing and researching in general, we felt that the question of how this may be possible in our particular field of inquiry would be of interest and value not only to ourselves, but to the wider academic community. For this issue of IJAC, we called for articles which extend the scope of typical IJAC contributions by introducing a more speculative and critical approach to architectural computing. Digital architectural design, in our view, constitutes not only a technical domain but also a field of ideas. In this context, technologies can be seen not only as driving architectural development, but also as emerging based on, and in support of creative cultural statements. Technologies in this sense can be seen as both as means and as ends of designerly vision. Furthermore, technical innovations do have cultural consequences that are often overlooked. Beyond technical and scholarly rigour, research in architectural computing is grounded in intentions and values, which in turn enable judgements and choices. This is more readily recognized and discussed in relationship to designing, but rarely discussed in the context of research. All eight papers contained in this issue of IJAC relate to this aspect, albeit in a variety of ways.

Speculation and Critical Reflection

Designing involves a leap of faith into the unknown. The same applies to research, where the initial drivers of most inquiries are curiosity and initiative, built on the trust that new and relevant answers can be found. As in designing, we argue that speculation is the motor of research. But as in designing, we find speculation requires rigour to justify outcomes formally. We see rigour in research less as adhering to and replicating known standards and ways of doing things, but more as a choice to be open towards being held accountable for one's work. Forms of rigour in research should in this sense mirror the nature of the inquiry pursued. In this issue of IJAC, contributing authors extend the scope of their papers to include speculative continuation of rigorous inquiry on a broad range of subjects, ranging from visual programming and parametric design amplified to include energy simulation to questions of reinventing traditional culture. In their paper *Biofeedback And Virtual Environments*, Erik Champion and Andrew Dekker show how a line of inquiry can be continued from a specific study on commercial biofeedback devices into a productive speculation on potentials of biofeedback in the digital modelling of architectural settings. Integrating a technical inquiry with a discussion questioning relationships of humans with virtual spaces, this paper demonstrates how research can not only provide answers but also breed new questions. Chin Koi Khoo, Flora Salim and Jane Burry's paper *Designing Architectural Morphing Skins with Elastic Modular Systems* demonstrates how an open-ended designerly inquiry into morphing building skins can derive its rigour from a continuous implementation, feedback and evaluation cycle. In this paper, speculation forms the fundamental driver for subsequent stages of the inquiry that adopt formal methodology.

Architectural Computing and Culture

Several papers collected in this issue show how research into technical concerns can lead to reflection on questions relating to values and culture. Dominik Holzer's paper *BIM's Seven Deadly Sins* for example describes shortcomings of conceptions of BIM as found in architectural practice and concludes by emphasizing the need to flexibly adapt design office culture to new ways of working. The implicit claim is that technological advantages are innately bound to thinking and behaviour. Similarly, Bianca Toth, Flora Salim, Jane Burry, John Frazer, Robin Drogemuller and Mark Burry show how questions of energy simulation can benefit from a broader concern of improving design communication networks in their paper *Energy-Oriented Design Tools for Collaboration in the Cloud*. Kaon Ko and Salvator-John Liotta, while working through digitally-supported designing, are motivated by their interest in whether – and how – traditional Japanese culture can be expressed through digitally supported processes and digitally designed

manifestations. Their paper, *Decoding Culture Parametrically: Digital Tea House Case Studies*, explores the paradoxical necessity to break with tradition to sustain it as an on-going practice. Integration of digital processes and human sensitivity is at the centre of Tsukasa Takenaka and Aya Okabe's paper *Development of the Seed Scattering System for Computational Landscape Design*, which aims at creating environments perceived as 'natural' through generative digital processes. Starting from the other end of the spectrum, Daniel Davis, Jane Burry and Mark Burry set out to study technology in their paper *Understanding visual scripts: Improving collaboration through modular programming*, to uncover to what extent this hinges upon use cultures and value judgements. Stanislav Roudavski's article *Selective Jamming: Digital Architectural Design in Foundation Courses* exposes the challenges of architectural pedagogy not only as the task of introducing the necessary technical skills but also as a socio-cultural project of finding, motivating and keeping allies. We hope this IJAC issue will offer readers a wider perspective on architectural computing as a field of ideas and culture as well as an arena of technical explorations. Finally, we thank all authors and reviewers who have dedicated much time and effort to bringing this issue of IJAC together.

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