



# Computational Design

From Promise to Practice

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- A cutting edge discourse on the theory and practice of a groundbreaking and emerging technology. Includes case studies by leading researchers in the fields of BIM modelling, digital fabrication, smart cities, responsive environments, and gaming

Computational design is an evolving discipline that operates at the intersection of computer science, engineering, and design. It helps designers leverage technology to develop new strategies, tools, methods, and workflows for thinking about and creating the built environment. While computational design thinking and methods are considered transformative in the architecture, engineering and construction industries, the shift from promise to practice remains a challenge. This book documents the nexus of research and practical collaborations that form the basis of the Computational Design Education and Research program at the University of New South Wales, Australia. The diversity of projects outlined in this publication contributes to advancing an understanding of computational design as an interdisciplinary field that is capable of innovatively addressing real-world built environment challenges.

Contents: Computational Design Theory, Digital Fabrication and Construction, Gaming and Visual Representation, Responsive Environments, Smart and Ubiquitous Cities, BIM Modeling

Associate Professor **M. Hank Haeusler** is the founder and Discipline Director of the Bachelor of Computational Design - the world's first undergraduate degree in Computational Design - at the Built Environment Faculty at the University of New South Wales. He is also Professor at the Central Academy of Fine Arts Beijing; Vice President of the Media Architecture Institute. **Dr. Nicole Gardner** is an architect, lecturer, and Associate Director of Education in Computational Design at the Built Environment Faculty at the University of New South Wales, where she also leads the computational design theory stream. **Dr. Yannis Zavoleas** is an Architect Engineer licenced in Greece. He is Senior Lecturer in Computational Design at the Faculty of Built Environment, University of New South Wales, where he focuses on the influences of computing and digital and analogue tools as "tools for thought" in design creativity.