8448cubed is an architectural design exhibition showcasing creative digital design techniques. It explores how the coupling of architectural design with digital modelling and manufacturing methods allow for a deeper comprehension and experience of space and form. The core of this collection is held together by the idea of spatial concepts within constraints of a cube 8448 millimetres³ in volume. Materials are creatively cut using computer-aided architectural design tools, parametric design techniques and digital manufacturing processes. 8448cubed offers a unique opportunity to experience the digitalized future in the field of architecture and design.

Artworks by students in both Bachelor of Design in Architecture and Design Computing programmes, curated by Rob Beson, Damien Butler and Dr Marc Aurel Schnabel, are presented at the Gaffa Gallery, Sydney, 1–3 November 2007.
Contributors:

Course Lecturer/Coordinator  Dr Marc Aurel Schnabel
Course Tutor   Rob Beson
Course Tutor   Damien Butler

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Kane Chow  Yiu Leung  Sascha Solar-March
Kai Chung  Harrison Lillis  Rose Steedman
Vinata Ciputra  Ashleigh Liu  Guy Steiner
Stephen Clement  Chenyi Liu  Paul Sztajer
Clare D’arcy  Thomas Loosli  Samantha Tan
Marlee Dawson  Peter Lu  Alison Tham
Jenny Doan  Zoe Mairs  Nicholas Toubia
Anna Dominguez  Carly Martin  Lucy Urquhart
Alexandra Durkin  Xina Meng  Isabelle Whelan
Emma Favretto  Lily Ng  Anthony Wong
Bruce Feng  Wipawee Nitivorananant  Nicholas Wright
Sarah Gaydon  Lara O’donnell  Alister Wright
Tina Gibson  Ben Osland  Yong Ying-Alan Wu
Leigh Goyen  Martin Peterzen Hagel  Yi Wu
See Ho  Tuan Pham  Yan Lu Xue
Lachlan Howe  Xiao Qian  Yasunari Yahiro
Francis Hur  Wendy Qiu  Ana Yin
Dean Katsikaros  Chelsea Quinn
Raymes Khoury  Amanda Ros
Samuel Kim  Thomas Rubenach
Yi-Ni Lai
**8448cubed** is an architectural design exhibition showcasing creative digital design techniques. It explores how the coupling of architectural design with digital modelling and fabrication methods allow for a deeper comprehension and experience of space and form. The core of this collection is held together by the idea of spatial concepts within constraints of a cube 8448 millimetres$^3$ in volume. The artworks are creatively conceived using computer-aided design tools (Autodesk Maya®), parametric design techniques (Gehry Technologies Digital Project®) and digital manufacturing processes (Roland MDX650 Milling Machine).

Taking place in November 2007, **8448cubed** marks a new milestone for interdisciplinary design within the Faculty of Architecture, Design and Planning at The University of Sydney. Students of both the Bachelor of Design in Architecture and Design Computing programmes present their contemporary works at the Gaffa Gallery, Sydney.

In light of the success brought together by the *Disparallel Spaces* Exhibition at the Tin Sheds Gallery earlier this year, over fifty students of a 3D Modelling-course (DECO1008/2103) compile and present a collection of artwork as the crowning achievement of their innovative engagement with architecture, design, art, and technology. In this exhibition, the designers propose virtual solutions that challenge and defy gravity, dimension, space and volume in unprecedented ways. Each and every design is created with the freedom of innovation, interpretation, and definition without boundaries.

Analogous to *Descartes*’ dualism which addresses influences of the designer (mind) on the design (machine) and vice versa, designers of **8448cubed** develop a meaningful interaction between the two, moving seamlessly in unorthodox ways amongst a range of instruments, each leveraging the last. Thereby the designers master top–level strategies, as well as bottom–up routines that shock and awe. Fuelled also by the influences of Jackson Pollock, and the careful guidance of course facilitators Rob Beson, Damien Butler and Marc Aurel Schnabel, each individual design offers a solution expressing a personal aesthetic within its realm of virtuoso design performance.

The artworks are driven in their spatial and visual qualities by processes of non-conformity. This allows for **8448cubed** to confront problems in architecture from a diversity of eccentric and multi-faceted approaches, setting the trend for novel viewpoints in the art of space and innovation. **8448cubed** offers a unique opportunity to experience the digitalized future in the field of architecture and design.

Dr Marc Aurel Schnabel
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Fluctuation of base:
Law 1: \[ \text{FormalReal.1} = F \cdot \sin(B \cdot \pi \cdot 1 \text{rad} \cdot \text{FormalReal.2}) + 10, \]
where \( F \) & \( B \) = defined parameters

Law 2: Defines initial state

Base opening sizes:
Law 3: \[ \text{FormalReal.1} = Y \cdot \sin(A \cdot \pi \cdot 1 \text{rad} \cdot \text{FormalReal.2}) + 15, \]
where \( Y \) & \( A \) = defined parameters

Law 4: \[ \text{FormalReal.1} = \sin(\exp(\pi \cdot \text{FormalReal.2})), \]
defines exponential fluctuation of complex sound transmission.

Parameters which determine the oscillation of the shells in 3 dimensions (x, y and z):
- Wavelength = Velocity/Frequency
- Velocity = \( V \cdot 1 \text{m/s} \)
- Deviation = Max_frequency – Carrier_Frequency
- Arbritrable level = \( \frac{\text{Note_frequency} – \text{Carrier_frequency}}{\text{Deviation}} \)
- Arbritrable height = Arbritrable level \( \times X \text{mm} \), where \( X \) = relation of 3 arches which defines curvature of one single shell.

\[ F \text{ (Frequency)} \]
\[ V \text{ (Velocity of movement through space which determines how one perceive the space)} \]
\[ D \text{ (Duration of one beat, } F = 1/D) \]
\[ \text{Head_fluctuation} = F \times 1 \text{mm} \]
\[ \text{Duration} = D \times 1 \text{s} \]
\[ \text{Gap_of_each_arc} = \text{Velocity} \times \text{Duration} \]
\[ \text{Frequency} = F \times 1 \text{Hz} \]
Acknowledgements

This catalogue **8448cubed** was conceived and produced using a variety of digital (Adobe Photoshop, Adobe InDesign) and analogue media, re-representations, digital printing, and CNC techniques, mirroring those of the featured artworks.

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