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Rob Beson & Damien Butler

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Curators: Dr Marc Aurel Schnabel & Rob Beson

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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 millimetres³ 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*.

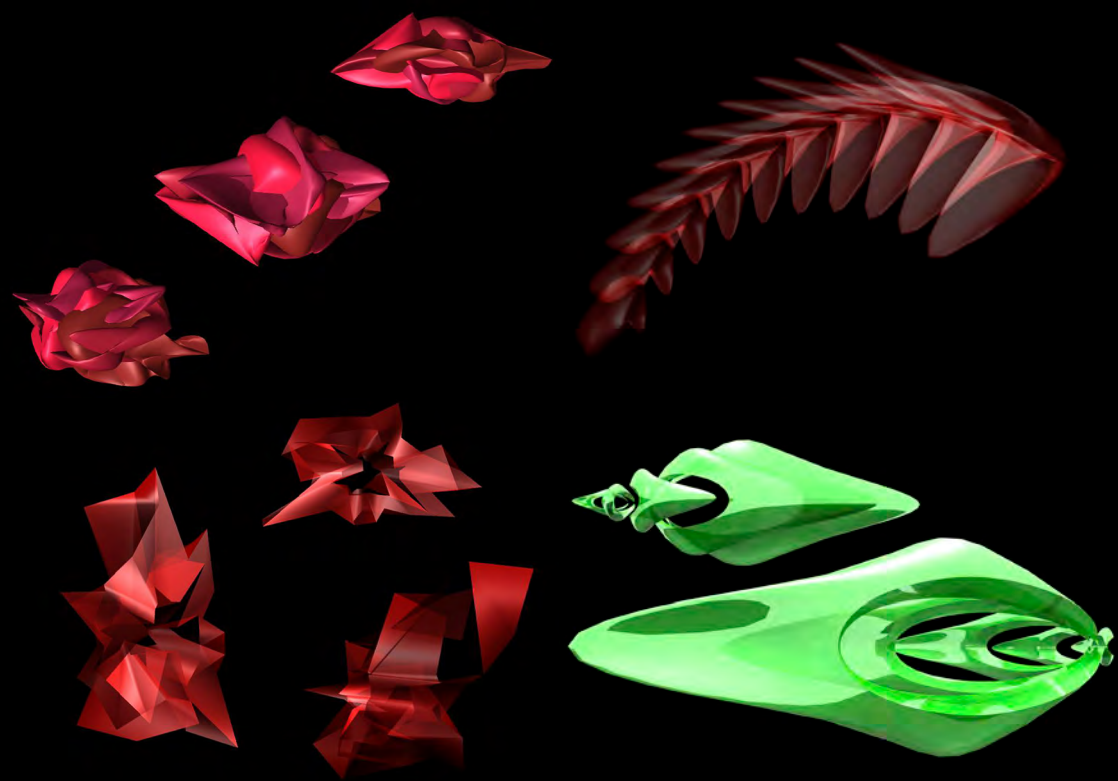
In light of the success brought together by the *Disparallel Spaces* Exhibition at the *Tin Sheds Gallery* earlier this year, over fifty students of a 3D Modelling-course (DECO1008/2103) compile and present a collection of artwork as the crowning achievement of their innovative engagement with architecture, design, art, and technology. In this exhibition, the designers propose virtual solutions that challenge and defy gravity, dimension, space

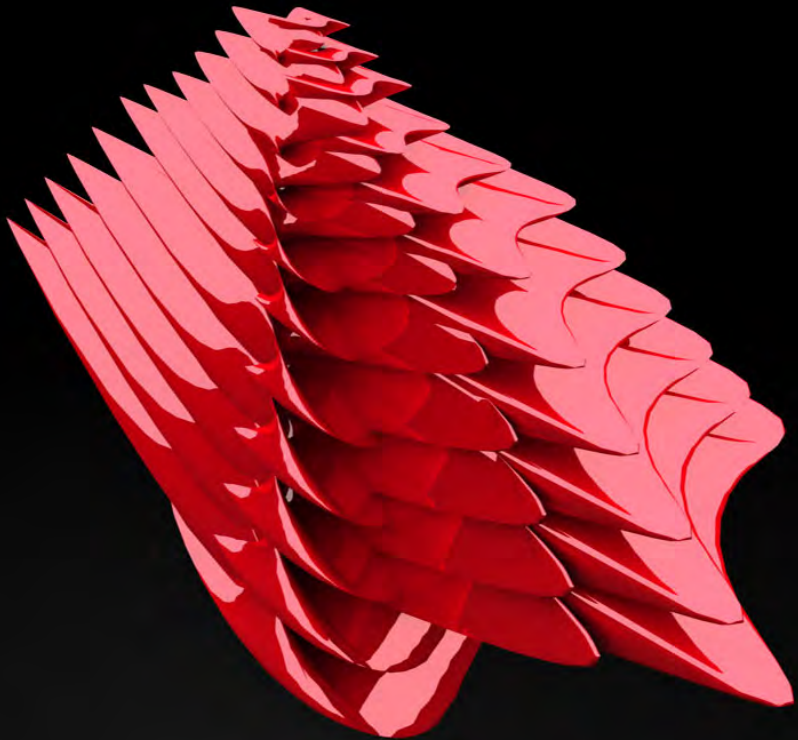
and volume in unprecedented ways. Each and every design is created with the freedom of innovation, interpretation, and definition without boundaries.

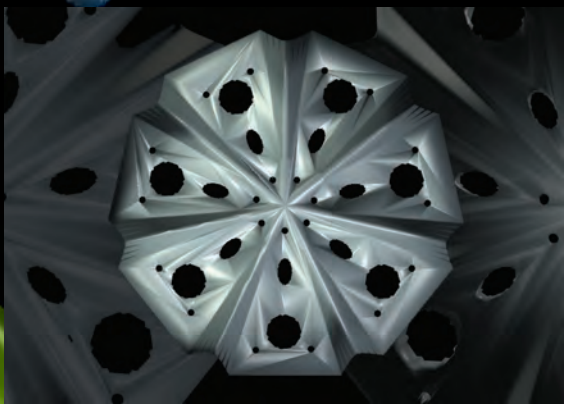
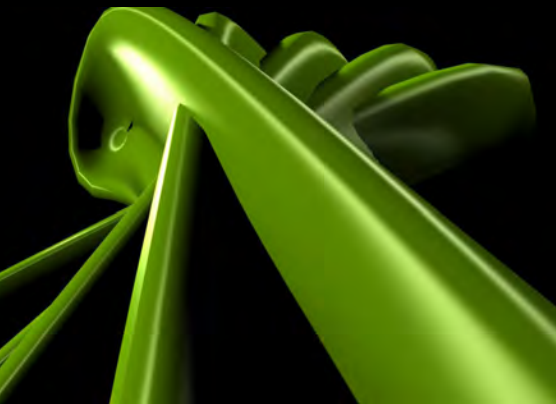
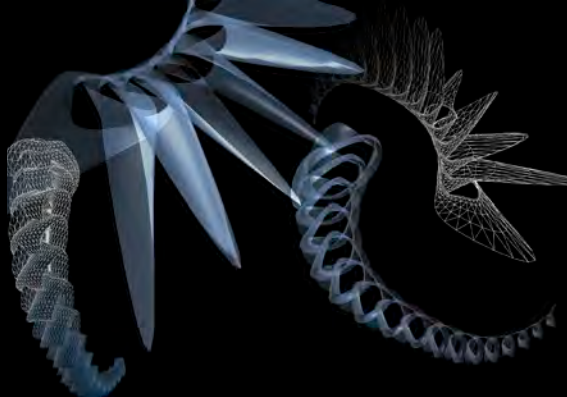
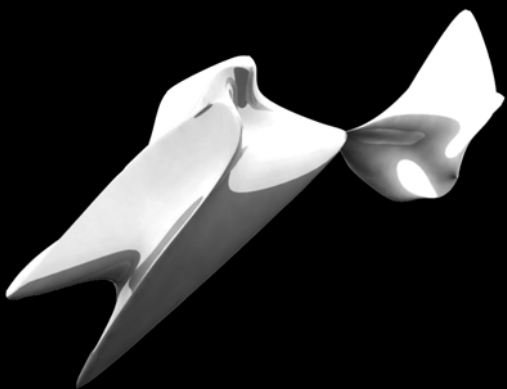
Analogous to *Descartes'* dualism which addresses influences of the designer (mind) on the design (machine) and vice versa, designers of **8448cubed** develop a meaningful interaction between the two, moving seamlessly in unorthodox ways amongst a range of instruments, each leveraging the last. Thereby 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.

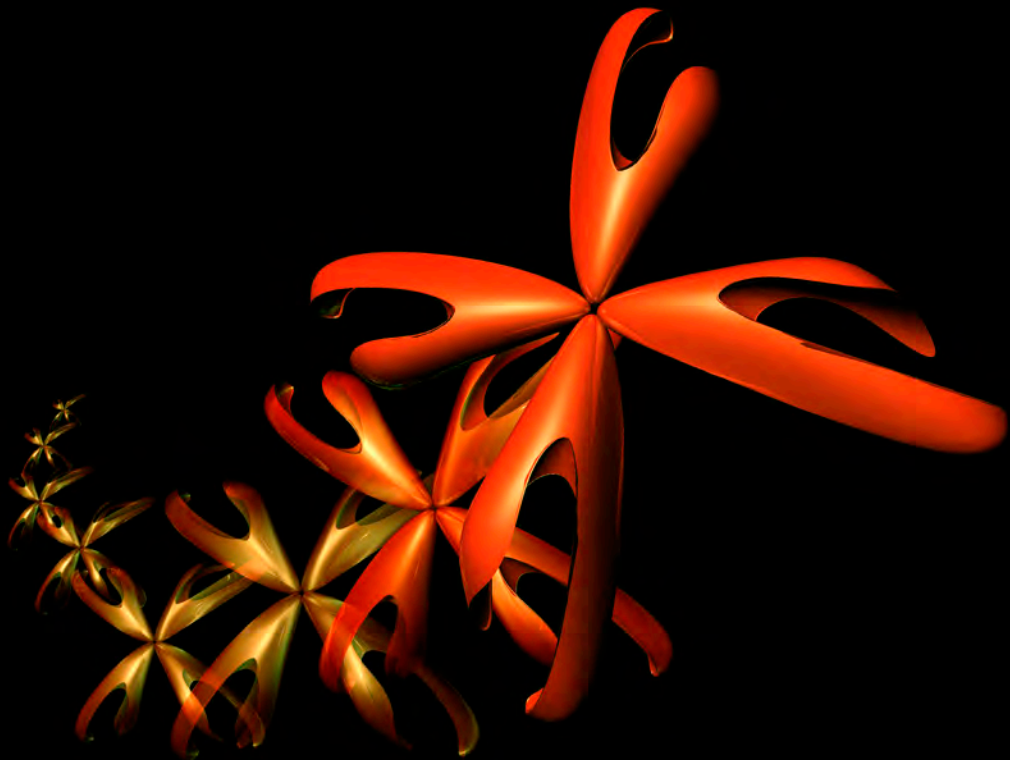
The artworks are driven in their spatial and visual qualities by processes of non-conformity. This allows for *8448cubed* to confront problems in architecture from a diversity of eccentric and multi-faceted approaches, setting the trend for novel viewpoints in the art of space and innovation. *8448cubed*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

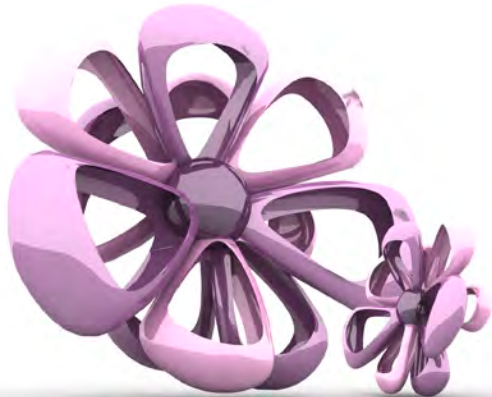
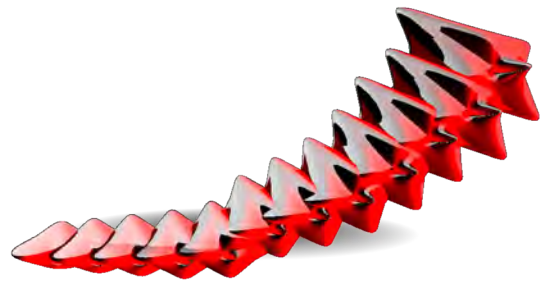
Dr Marc Aurel Schnabel



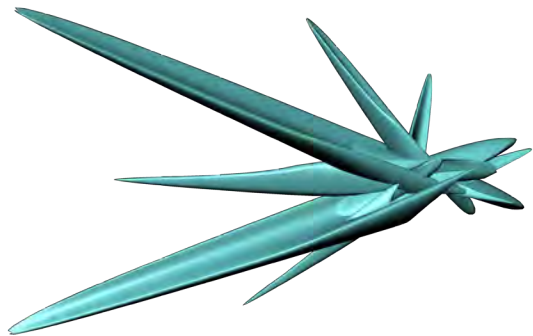
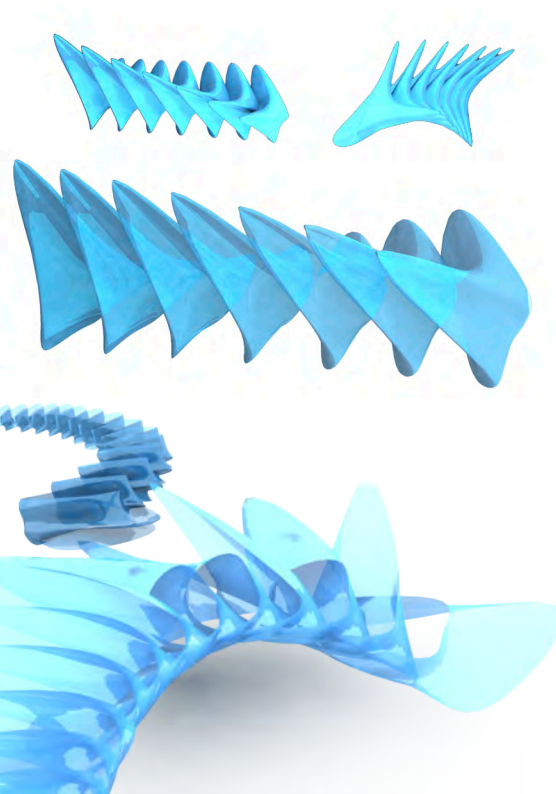


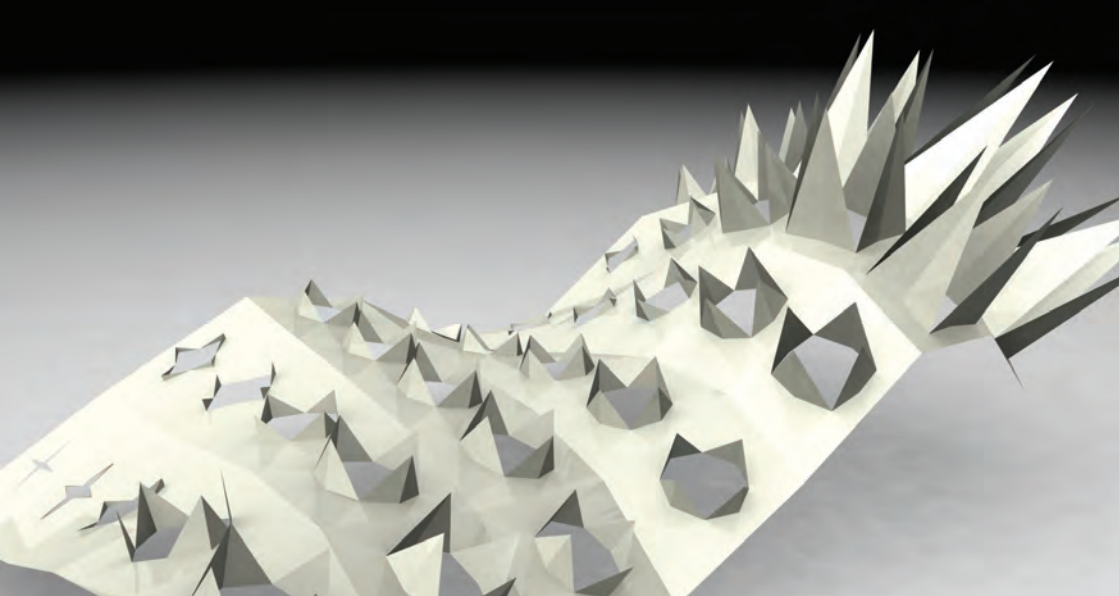




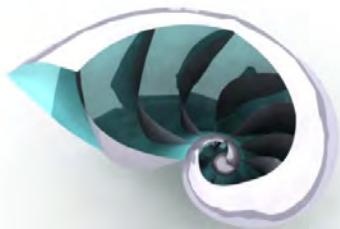
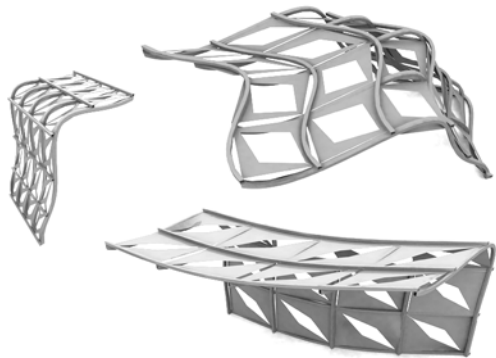
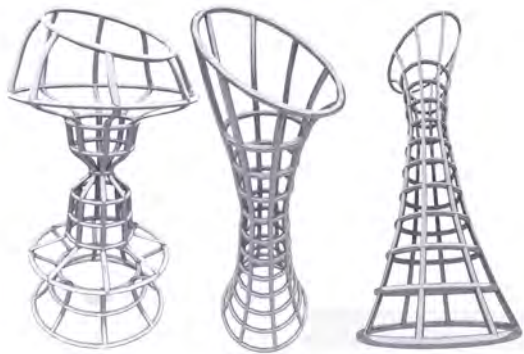


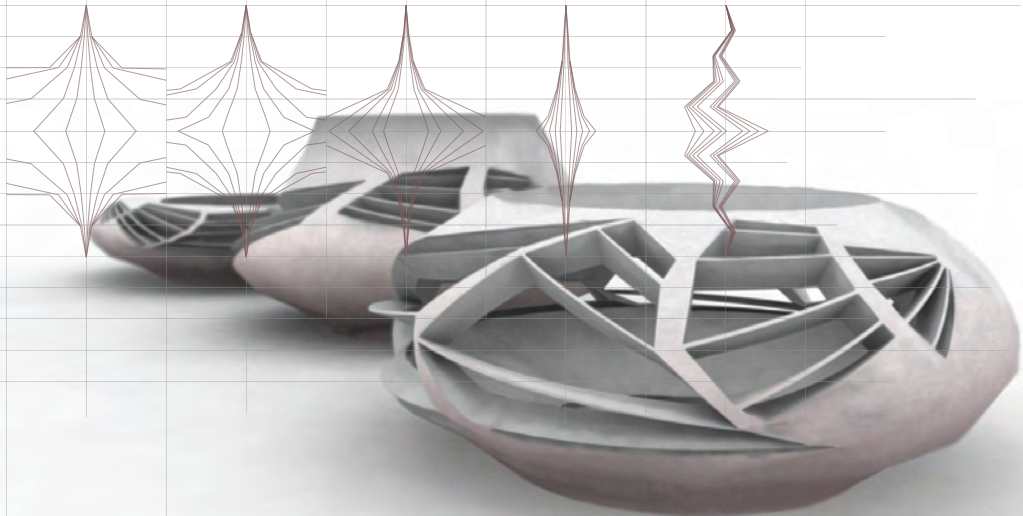




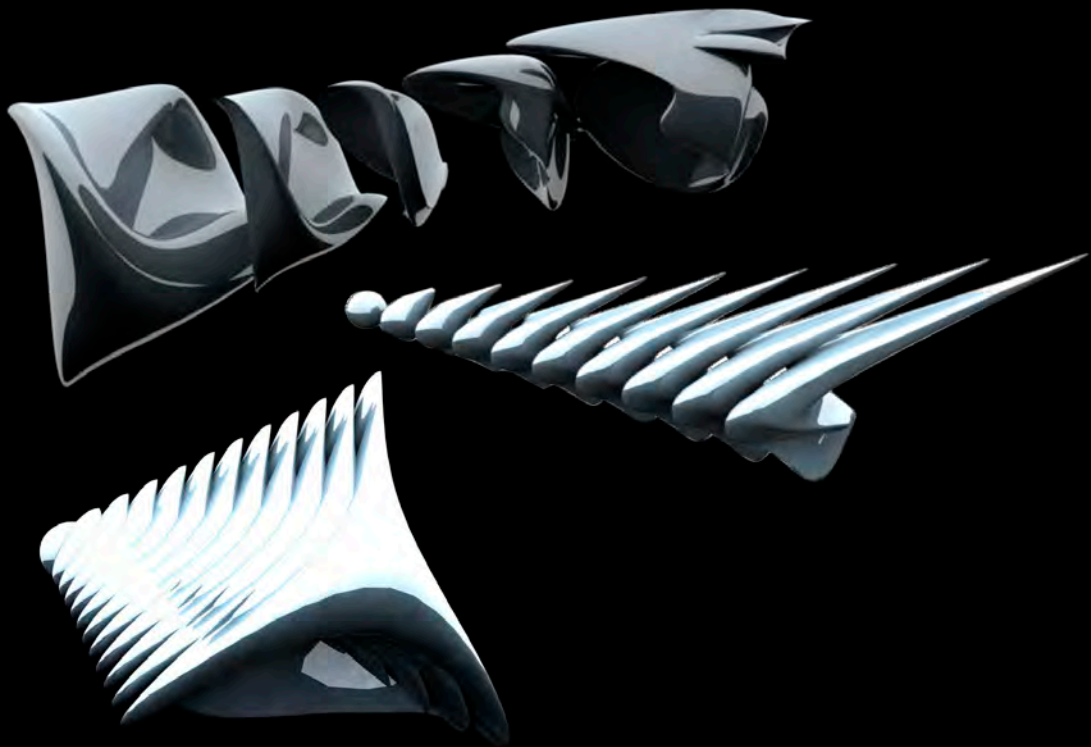


	column 1		column 2		column 3		column 4		column 5		column 6		column 7	
	distance	height	distance	height	distance	height	distance	height	distance	height	distance	height	distance	height
row 1	0.0392145	0.000603032	0.166768167	0.046380931	0.340607833	0.395151737	0.306523667	0.2879997	0.2920145	0.249007972	0.360890833	0.470032138	0.493057167	1.198648447
row 2	0.089987667	0.007287003	0.2068145	0.088459189	0.275344333	0.208750935	0.251616333	0.159300261	0.161960667	0.04248432	0.182719667	0.061003659	0.344414667	0.408549715
row 3	0.165701667	0.045496777	0.2068145	0.088459189	0.289132833	0.289132833	0.265080833	0.186266598	0.208527833	0.090675945	0.280961333	0.221788828	0.429201167	0.790647098
row 4	0.255645667	0.28839208	0.257825333	0.171386561	0.304307333	0.281797577	0.285933	0.233772189	0.278253333	0.215437414	0.396971333	0.625572196	0.5148775	1.675040544
row 5	0.329857167	0.358903565	0.310282167	0.298724227	0.316119333	0.315902579	0.301946167	0.275288812	0.339137167	0.390055281	0.4757415	1.076745617	0.524632833	1.440997363





Value_For_Vertical_Splines (m)	1.3	Increase Factor of Horizontal_Splines	30	Height_of_Bowl (m)	0.3
Value_For_Correct_no. (m)	0.1	Vertical_Divider_Mid_1 (m)	1.8	Circumference_of_Bowl (m)	0.16
Ratio_for_Top_Splines (%)	60	Vertical_Divider_Mid_2 (m)	3.1	Circumference_of_Bowl_top (m)	0.18
Offset_for_Vertical_Splines (m)	0.005	Vertical_Divider_Mid_3 (m)	2.2	Mid_Spline_Point_Bowl_Profile (m)	0.303
equal distance of total (m)	0.168	Vertical_Divider_Mid_4 (m)	2.6	Spline_Point_Bowl_Profile_2 (m)	0.268
Percentage_for_Horizontal_Splines (%)	7	Offset_for_Horizontal_Splines (m)	0.003	Spline_Point_Bowl_Profile_3 (m)	0.21



Fluctuation of base:

Law1: $\text{FormalReal.1} = F \cdot \sin(B \cdot \text{PI} \cdot \text{rad} \cdot \text{FormalReal.2}) + 10$, where F & B = defined parameter

Law2: Defines initial state

Base opening size:

Law3: $\text{FormalReal.1} = Y \cdot \sin(A \cdot \text{PI} \cdot \text{rad} \cdot \text{FormalReal.2}) + 15$, where Y & A = defined parameters

Law4: $\text{FormalReal.1} = \sin(\exp(\text{PI} \cdot \text{FormalReal.2})) + \cos(\exp(\text{PI} \cdot \text{FormalReal.2}))$, defines exponential fluctuation of complex sound transmission.

Parameters which determines the oscillation of the shells in 3 dimension (x,y and z):

Wavelength = Velocity / Frequency

Velocity = $V \cdot 1 \text{m} \cdot \text{s}$

Deviation = Max_frequency - Carrier_Frequency

Arb_level = $(\text{Note_frequency} - \text{Carrier_frequency}) / \text{Deviation}$

Arb_height = Arb_level * Xmm, where X = relation of 3 arches which defines curvature of one single shell.

F (Frequency)

V (Velocity of movement through space which

determines how one perceive the space)

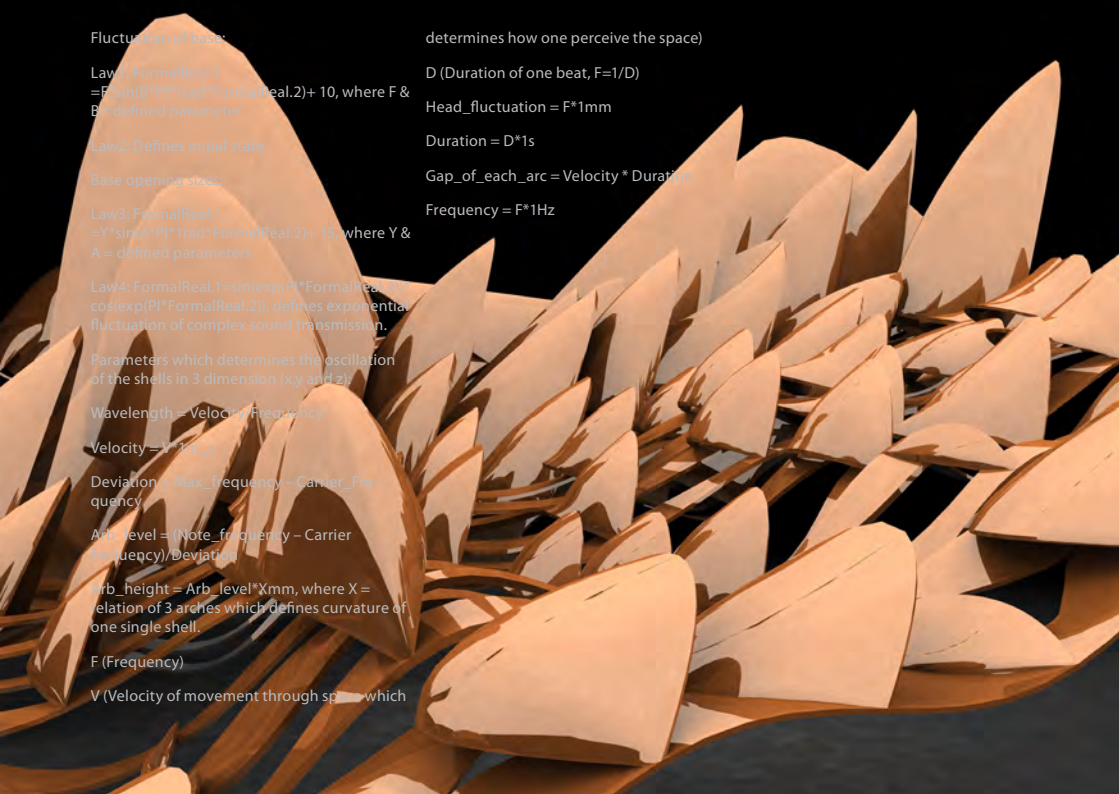
D (Duration of one beat, $F = 1/D$)

Head_fluctuation = $F \cdot 1 \text{mm}$

Duration = $D \cdot 1 \text{s}$

Gap_of_each_arc = Velocity * Duration

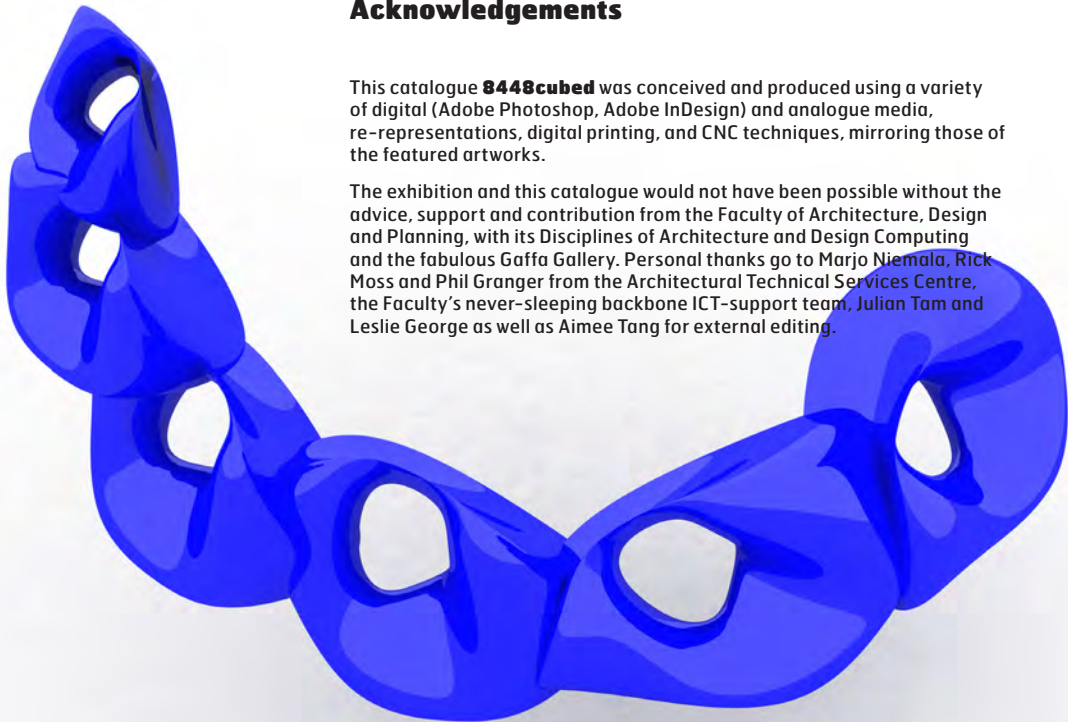
Frequency = $F \cdot 1 \text{Hz}$



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.

The exhibition and this catalogue would not have been possible without the advice, support and contribution from the Faculty of Architecture, Design and Planning, with its Disciplines of Architecture and Design Computing and the fabulous Gaffa Gallery. Personal thanks go to Marjo Niemala, Rick Moss and Phil Granger from the Architectural Technical Services Centre, the Faculty's never-sleeping backbone ICT-support team, Julian Tam and Leslie George as well as Aimee Tang for external editing.





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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.



The University of Sydney

