Design and Fabrication of Shell Structures
aided by radial basis functions and reconfigurable mechanisms

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Propositions

accompanying the dissertation

Design and Fabrication of Shell Structures

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by

Chiang Yu-Chou

1. Neither architect nor engineer can complete a design of a building independently.
2. Mathematics-based form-finding methods can provide more solutions than physics-based ones.*
3. Structural supports of an architectural shell structure are as important as a shell's shape, if not even more important.*
4. Bent shells can be decomposed into a three-layered structure: two membrane shells sandwiching a middle layer of shear stress.*
5. Mangoes can be cut into reconfigurable mechanisms.
6. Confidence cannot differentiate enterprising investors from speculative ones, but knowledge can.
7. The architecture, engineering, and construction (AEC) industry needs something like the "process design kit" in the semiconductor industry, to increase efficiency.
8. It is not shameful for an architect to pick off-the-shelf products.
9. Engineers that only repeat 50-plus-year-old construction methods should be ashamed of themselves.
10. Optimization implies interchangeability.

These propositions are regarded as opposable and defendable, and have been approved as such by the promotors prof.dr. M. Overend and dr.ir. F.A. Veer .

*This proposition pertains to this dissertation.