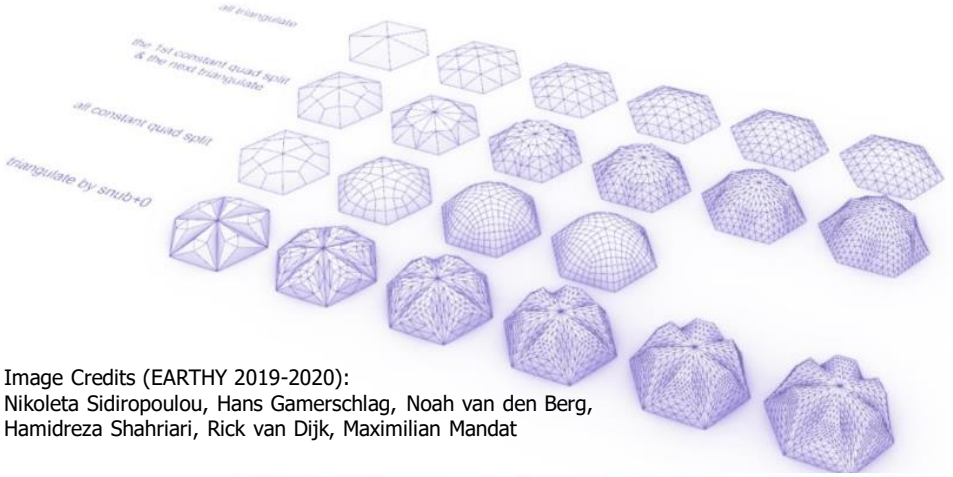
Topological Shell Design

For Modular Approximation of Optimal Catenary Shells



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Background and aim:

Masonry/Earthy structures can be made with sustainable materials while offering strong structural properties, especially if designed as compression-only structures. Optimal masonry structures might take complex geometric shapes that present constructability challenges. We aim to develop combinatorial methods for approximating optimal shells with modular blocks.

Research question:

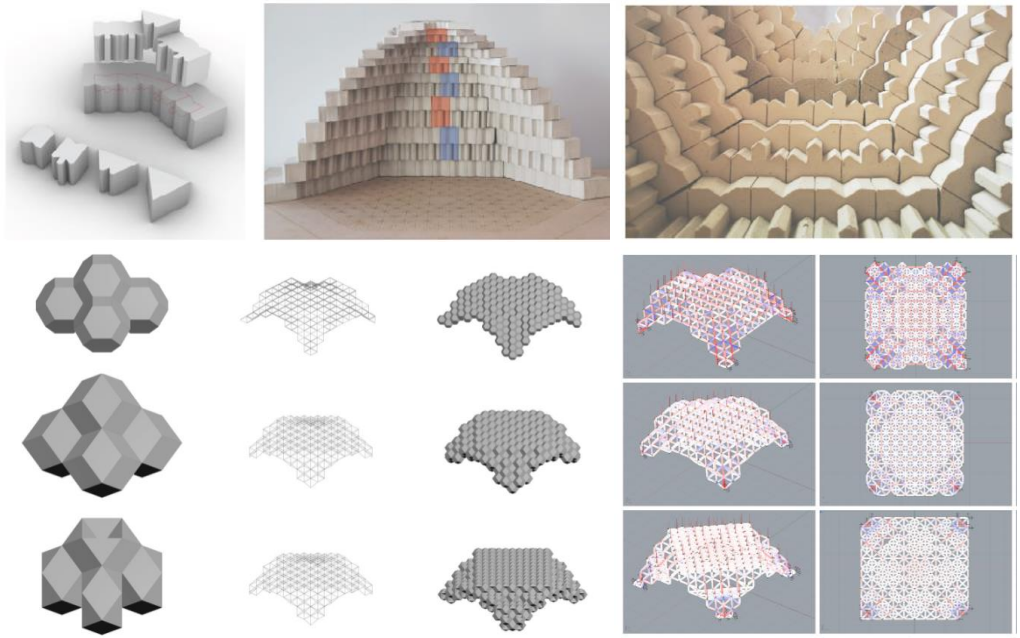
How to approximate optimal shell structures as an assembly of modular blocks for easy construction?

Design objective:

To design and prototype a combinatorial process for modular polyhedral shape approximation.

Methods:

- Geometric Design and Tessellation
- Computational Geometry (optionally in Python)
- Structural Design and Mechanics
- Material Science



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Building Technology Graduation

Theme: Computational Design/Generative Design

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