

# Generative Solar-Climatic Configuration

## Mathematical Derivation of Building Envelopes as to Climatic Requirements

### Background and aim:

Early design decisions have great influence on final energy performance and comfort of buildings. Proper consideration of such influences requires using simulation engines. The existing simulation methods can be too data demanding and slow for early stage computational design explorations (e.g. in optimization loops or form-finding). The aim of this project is to devise and prototype fast and design-friendly simulation methods for generative design of optimal envelopes.

### Research question:

How to adapt and develop direct sunlight and view-shed simulation methods for generation of optimal envelopes?

### Design objective:

To design and prototype a suite of generative methods for fair and optimal provision of solar irradiation, radiative cooling potential and view shed.

### Methods:

- Spatial Computing (Computational Geometry & Linear Algebra)
- Physical Analysis of Light and Principles of Naturally Lit Design
- Computer Programming (Python or C#)

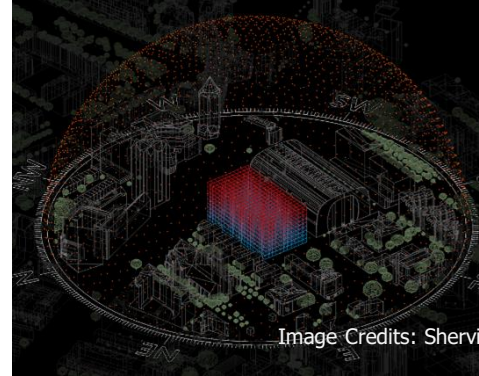


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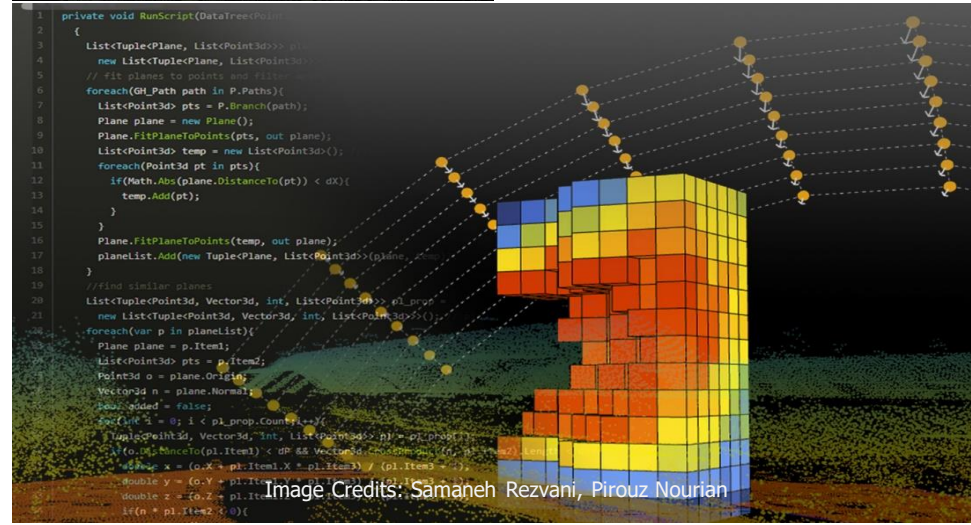
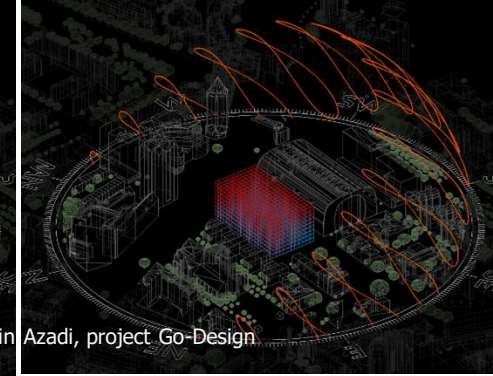


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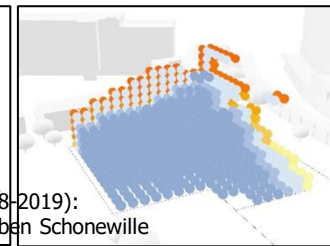
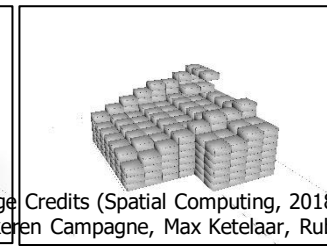
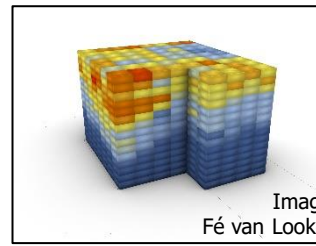


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