

How Virtual Became Real

Workshop at the Tishk International University in Erbil

Presenter:

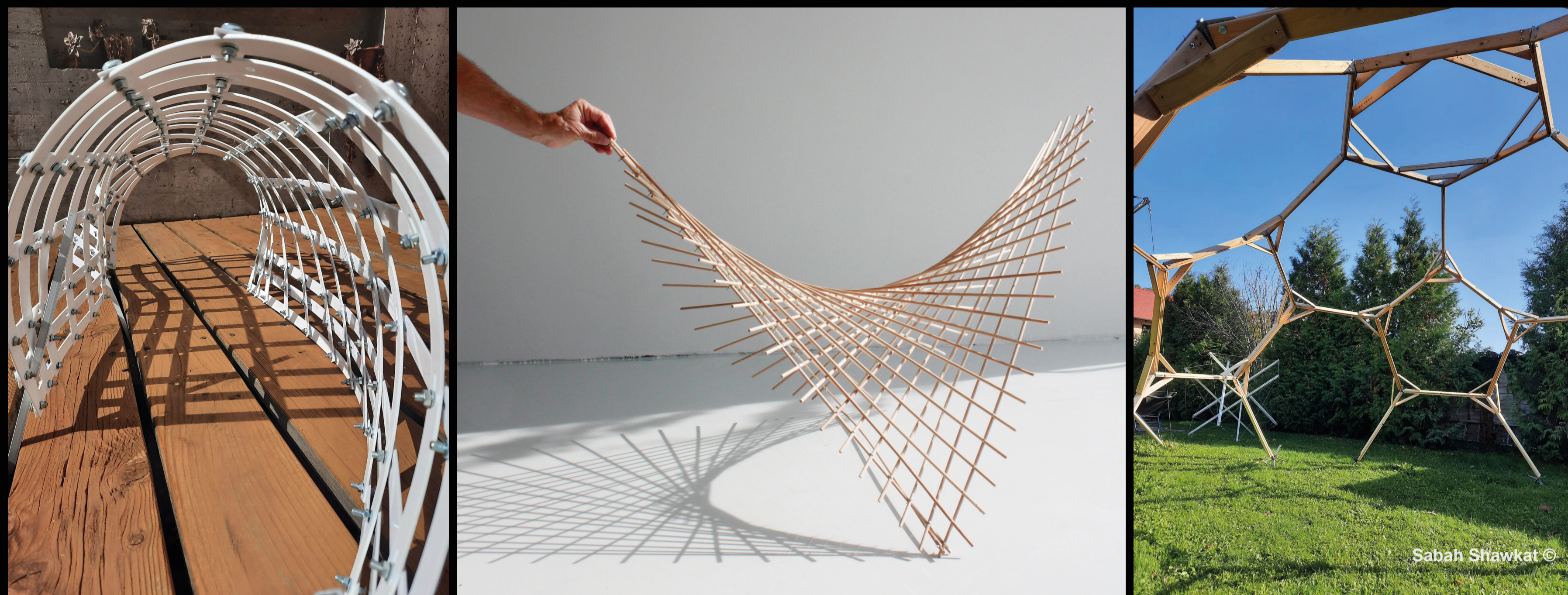
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Abstract and Objectives:

Static shapes are often straight with horizontal lines and may appear quiet and active shapes are diagonal with orthogonal lines. This behaviour of traditional interpretation of geometrical design was caused by a lack of the existence of computational and material characteristic tools. The principles behind this “computation” have also been computationally recreated and are now in principle available to designers.

Our aim will be to free constructions from shapes that are based on straight lines. As it is known, the basic elements of standard shapes are line and plane, positive-curved line guides the spherical geometry, while a negative-curved line guides hyperbolic geometry. The “Form Finding” method allows to search for shapes regardless of traditional compositional, static, or constructional principles using a virtual, so-called trans-architecture. Evolution in nature, which optimized natural structures, has also become a major source of inspiration for the shapes of structures in construction and architecture. However, the “Free Form” shapes have no analogy in nature, and it is impossible to describe them exactly mathematically. We want to choose our own approach to the issue of shape search and optimization of the so-called free form membrane constructions of synclastic and anticlastic shapes.

This problem requires designers to understand and analyse sets of relationships between parameters and components. One of the useful tools for producing architectural designs is to convert aims into abstracted shapes. In its long history, algorithmic plan as a form-finding strategy, permitted designers to oversee complex non-standard associative geometries, recommending a move from the computerized representation of frame to its efficient representation into a parametric demonstrate through code. Modern geometry became more attractive in the architectural design process with great innovations from form-finding stages to the final fabrication.

We will create virtual and subsequent real models in a creative way by physically searching for a form and applying numerical methods based on finding the shape and modelling the equilibrium state of geometric nonlinear shapes.

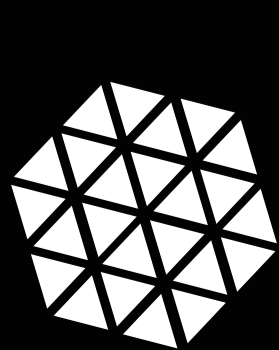
Workshop Outcomes:

Following the completion of this workshop, the participant is able to:

- Understand the basic theory about traditional (form follows function) and non-traditional (form follows force) lightweight design.
- Create physical models of tensile membrane structures and grid elastic shells for public spaces, pleasure, and relaxation.
- Design virtual and subsequently construct real models (simply of wood or steel) in a creative way by physically searching for a form.
- Use modern geometry in the creation for the public spaces design process: from innovative form-finding to the final industrial fabrication.



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