

“Mother Teresa” University



# Book of Abstracts

3<sup>rd</sup> TSD Conference  
Skopje, 25 October 2019

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*Design and Prototyping of a parametric bamboo structure. Designing with non-standard geometries to be used in a parametric design.*

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**Abstract**

The digital shift happened in both computational design and digital fabrication tools has provided a new resource for designers to explore and tap into. Although spatial possibilities that these models provide can be endless, there are still difficulties when working with nonstandard geometries due to the precise nature of the computer. This study's main aim is to explore a methodology of introducing a natural nonstandard material in a parametric design and prototyping process. In order to define possible design solutions that use components that are similar in form, but change in precise dimensions, some constant parameters need to be identified and input into a parametric model. This research explores a research by design approach, showcasing a parametric approach during the design phase in order to assess different design solutions and to test the ease of assembly in the process. Both the design and final prototype are results of this parametric exploration. With the design being explored in different iterations and a prototype being assembled after following the instruction generated in the parametric software. The final prototype is achievable at the end by following the design process and built in 12 hours of manual work with prior knowledge to the design itself, not being necessary. Going forward, finding more ways to incorporate nonstandard materials into parametric design processes would open a range of new possible materials to be used, from natural materials to even 're-using' waste or left overs as possible building components and combining them with computational design tools we can generate a sea of possibilities.

***Keywords: parametric design, prototyping, bamboo structures, nonstandard***

