

DIGITAL DESIGN + FABRICATION
SPRING CHALLENGE

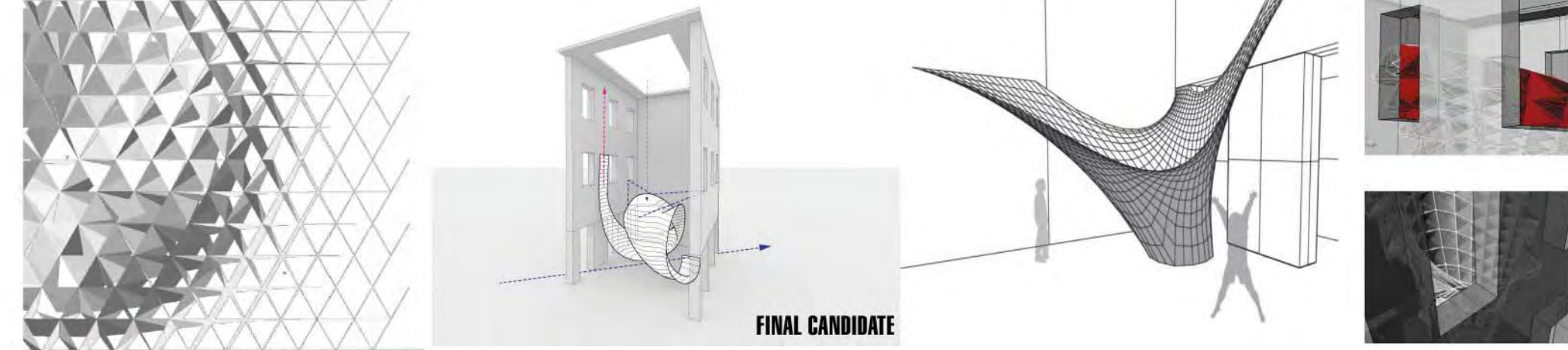
The ARCHITECTURE SPRING CHALLENGE event was an international design workshop intended for architecture students interested in exploring integrated digital design and fabrication tools.

Integrated Digital Design and Fabrication
 Architectural Design was taught as an integrated, multidisciplinary process. Following this tradition, the design process was enriched with structural testing of parametric models in Karamba, a structural analysis plugin for Grasshopper. The handling of virtual simulation methods in the fields of parametric and digital production was the primary focus of the workshop. This week long intense workshop did result in a full scale built structure.

Format & Output
 The Architecture Spring Challenge Program was organized as a six day event with 25 international students and 6 tutors. Introduction to Rhino/Grasshopper/Karamba was followed by project design development and daily reviews of student group projects which entered into a competition mode. The selected project was fabricated and assembled as a group effort. The event closed with an exhibition and presentation with guests. The output was a parametrically designed and digitally produced human scale structure fabricated out of corrugated cardboard.



INITIAL PROPOSALS



2012 TEAM

Andrei is currently teaching at the Institute of Architecture at the University of Applied Arts - Die Angewandte in Vienna. He studied as a Fulbright Student at GSD Harvard University, where he graduated with distinction. His research focus lies in Digital Design and Fabrication for which he was awarded the Harvard Digital Design Award in 2009. He worked as an architect for internationally renowned offices such as Jakob + MacFarlane, BCO Paris and Foreign Office Architects (FOA) London.

Bence studied architecture at the TU Vienna, the Academy of Fine Arts Vienna and the University of Applied Arts in Vienna receiving his professional degree 2007 from the University of Applied Arts in Vienna / Studio Group team with distinction. He was employed with Zahra Hadid Architects in London having gained experience on a number of high profile projects, ranging from urban scale to cultural institutions. He is currently teaching at the Institute of Architecture at the University of Applied Arts in Vienna Studio Group Vienna.

Trevor Part is currently a PhD student in the Media x Design Lab at the Ecole Polytechnique Fédérale de Lausanne; his research and teaching there focus on computational design in urban systems. He received his Master of Architecture Degree from GSD Harvard University where he was awarded the Digital Design Prize. His work has been published in Skylar City and Architecture at the Edge of Everything Else.

Hina studied architecture and graduated from the "Ton Minus" University of Architecture and Urbanism - Bucharest, Romania (DIGI Arch). She took master courses at the Dessau Institute of Architecture (DIA), Anhalt University of Applied Sciences - Dessau, Germany (Sommer), having Prof. Christiane Pörsch as studio supervisor. She tutored and organized a series of parametric design and digital fabrication workshops in collaboration with Bence Pap and Andrei Georgehe.

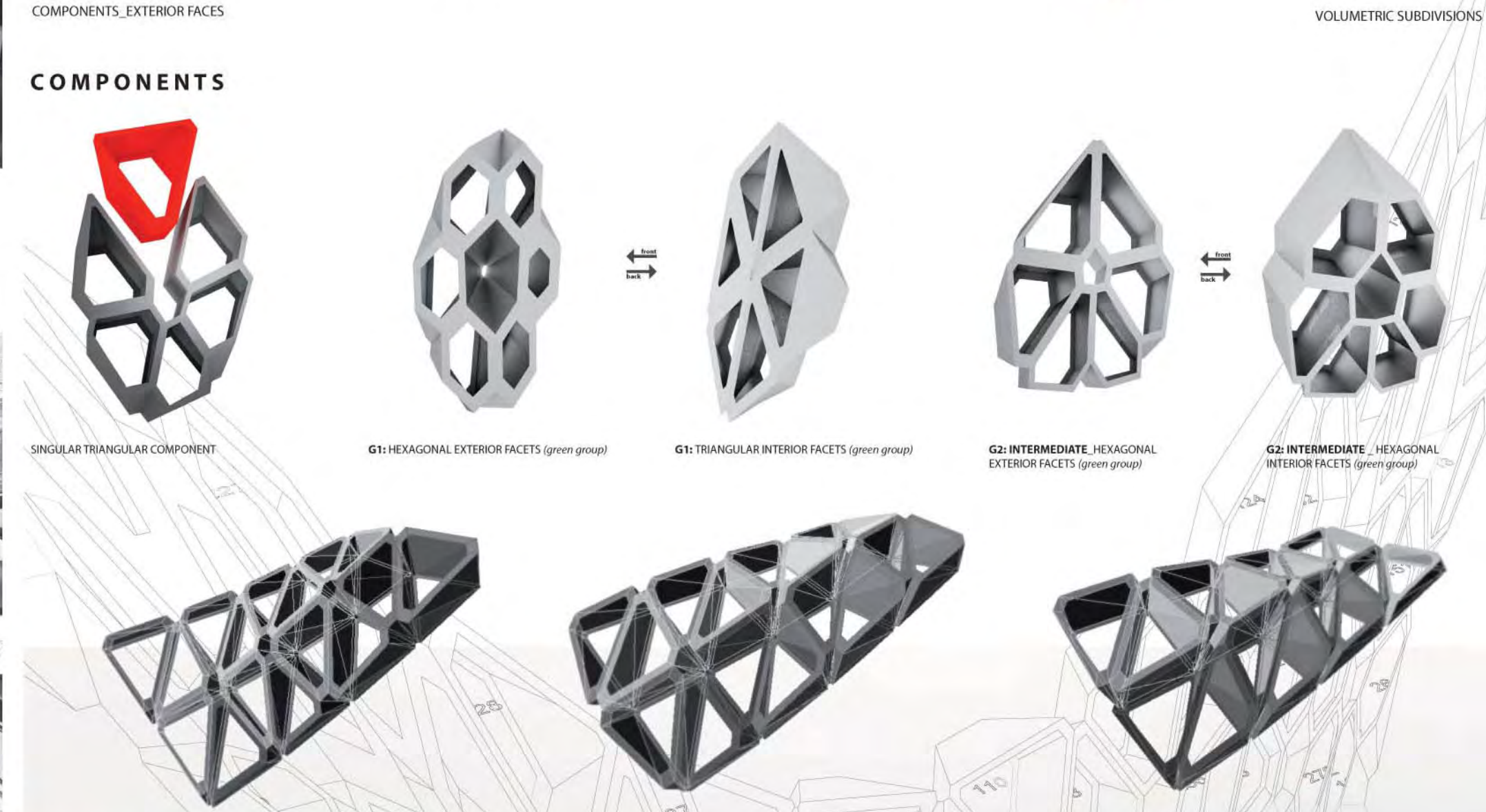
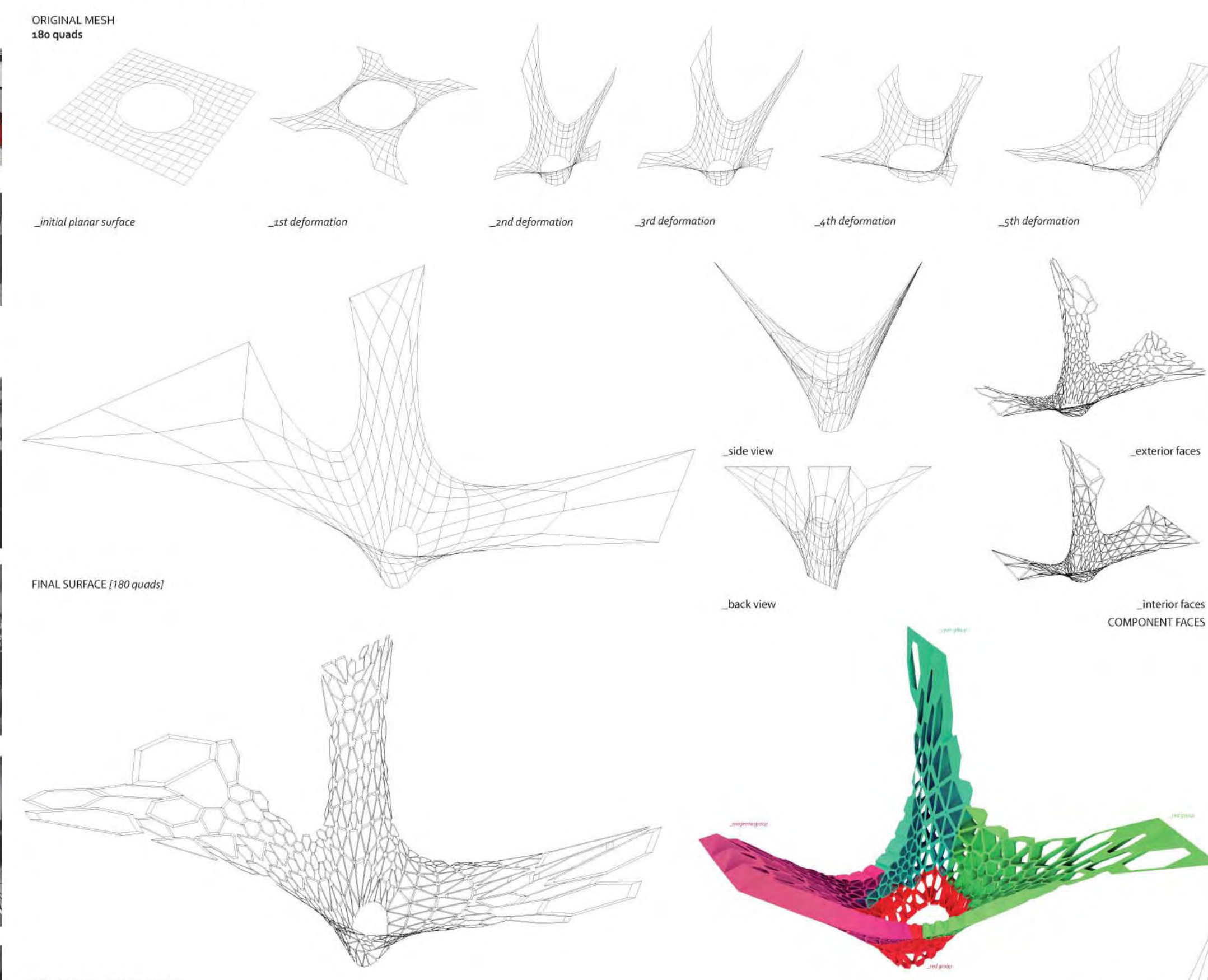
Chenwei was born in Linz, Austria and is a civil engineer. After finishing his academic studies at the Technical University Vienna he worked as a research assistant at the Institute for Structural Concrete at the TU Vienna. This four years term at the TU combined research activities and lecturing and resulted in a PhD-thesis with the title "Numerical and Experimental Investigations Regarding the Transformation of Flat Slabs to Double Curved Shells".

Matthias lives and works in Vienna. The focus of his work and studies lies on the integrative development of geometry, structure and design. He is currently teaching digital design at the architectural institute of the Georg Simon Ohm University, Nürnberg. He is leading the department for geometry and design at Bollinger-Grohmann-Schneider ZGmbH, Vienna and has been working for Coop Himmel(b)au, Vienna and Werner Sobek Engineers, Stuttgart.

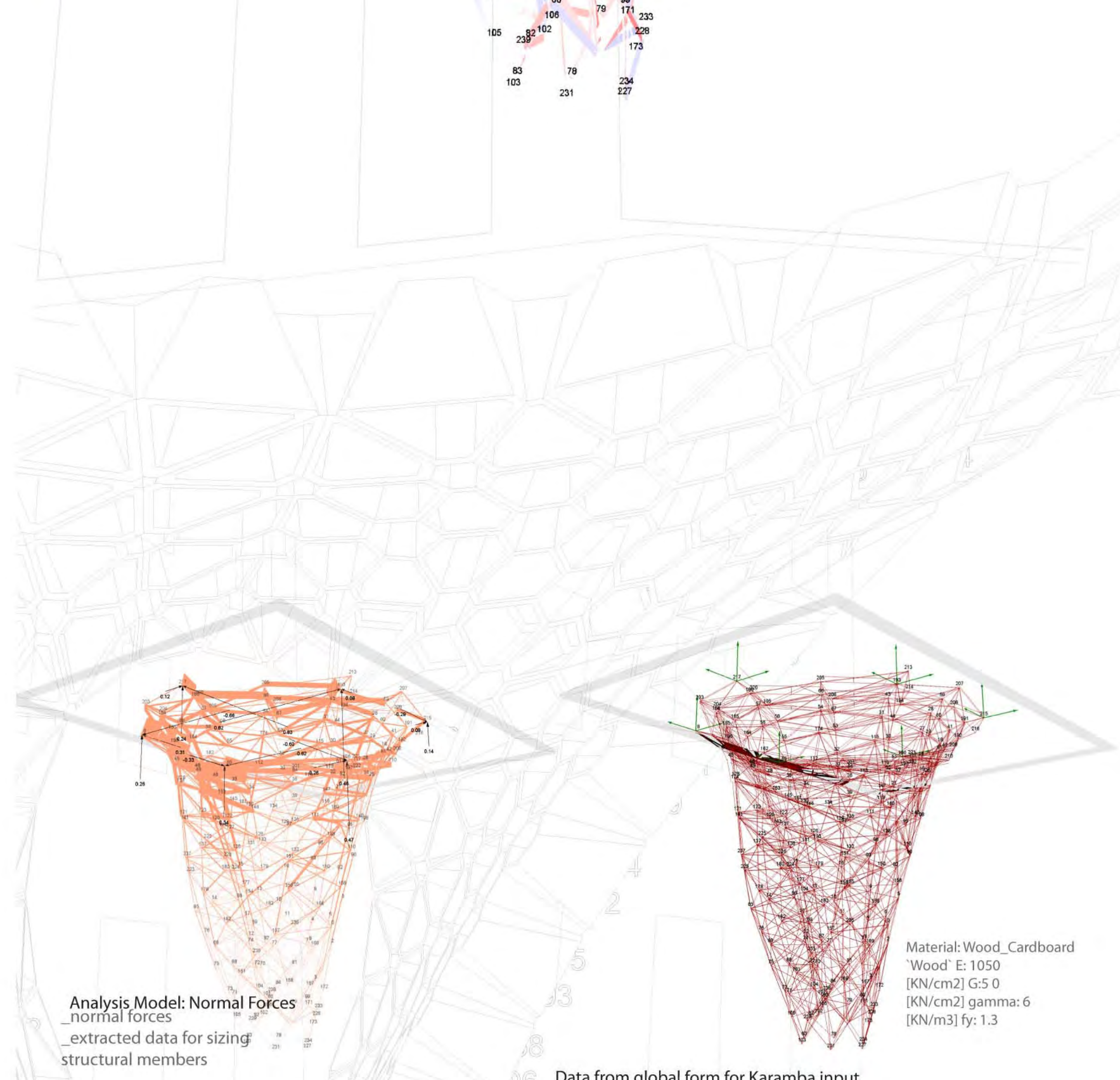
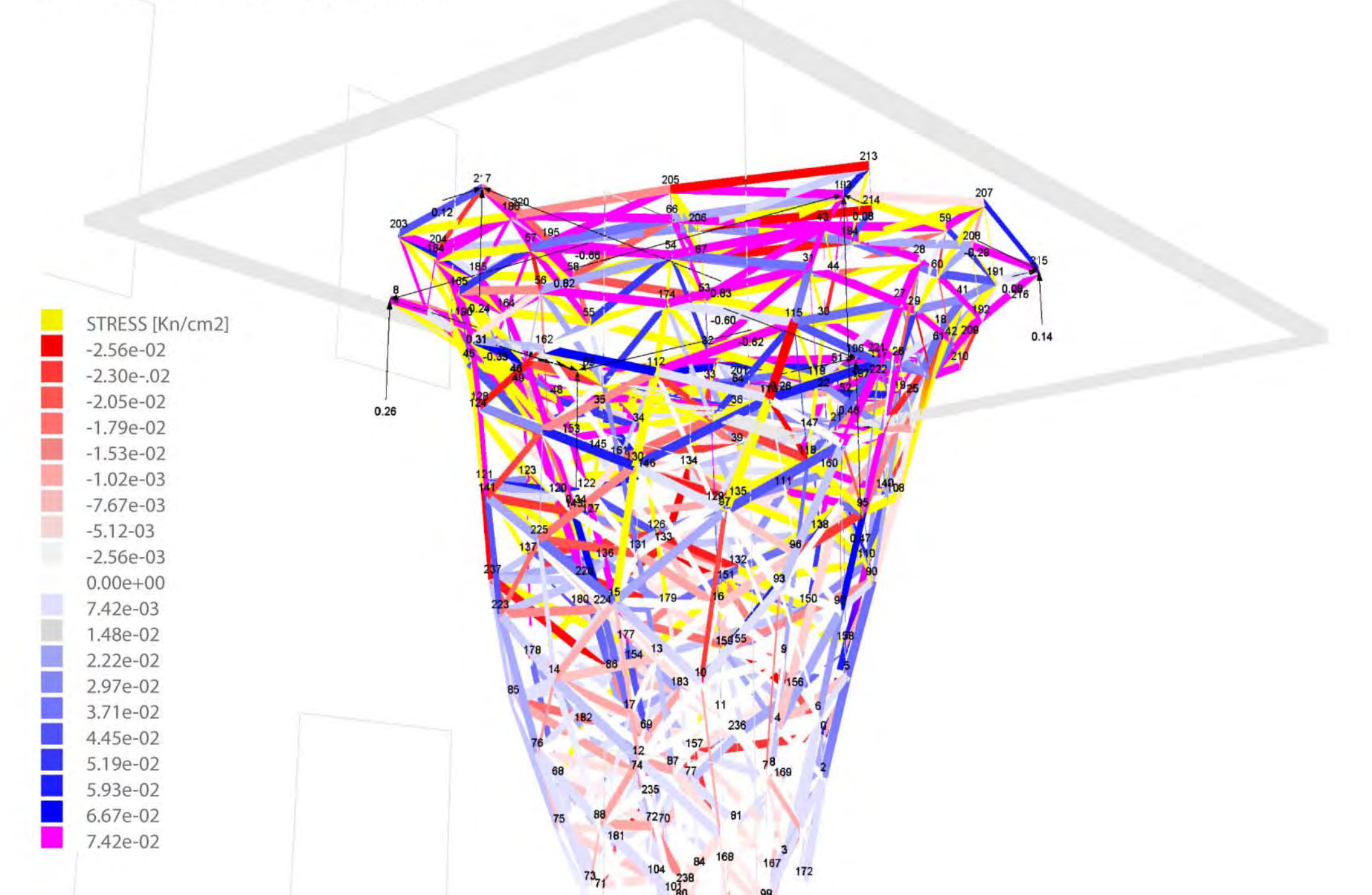


SURFACE

SURFACE EXPERIMENTATION IN KARAMBA



Analysis Model: Stress
 _stress forces
 _extracted data for sizing structural members



Material: Wood_Cardboard
 Wood E: 1050 [KN/cm²] G: 0 [KN/cm²] gamma: 6 [KN/m³] fy: 1.3

Analysis Model: Normal Forces
 _normal forces
 _extracted data for sizing structural members

Data from global form for Karamba input
 _extracting vectors
 _defining support points
 _defining material properties
 _defining load values

