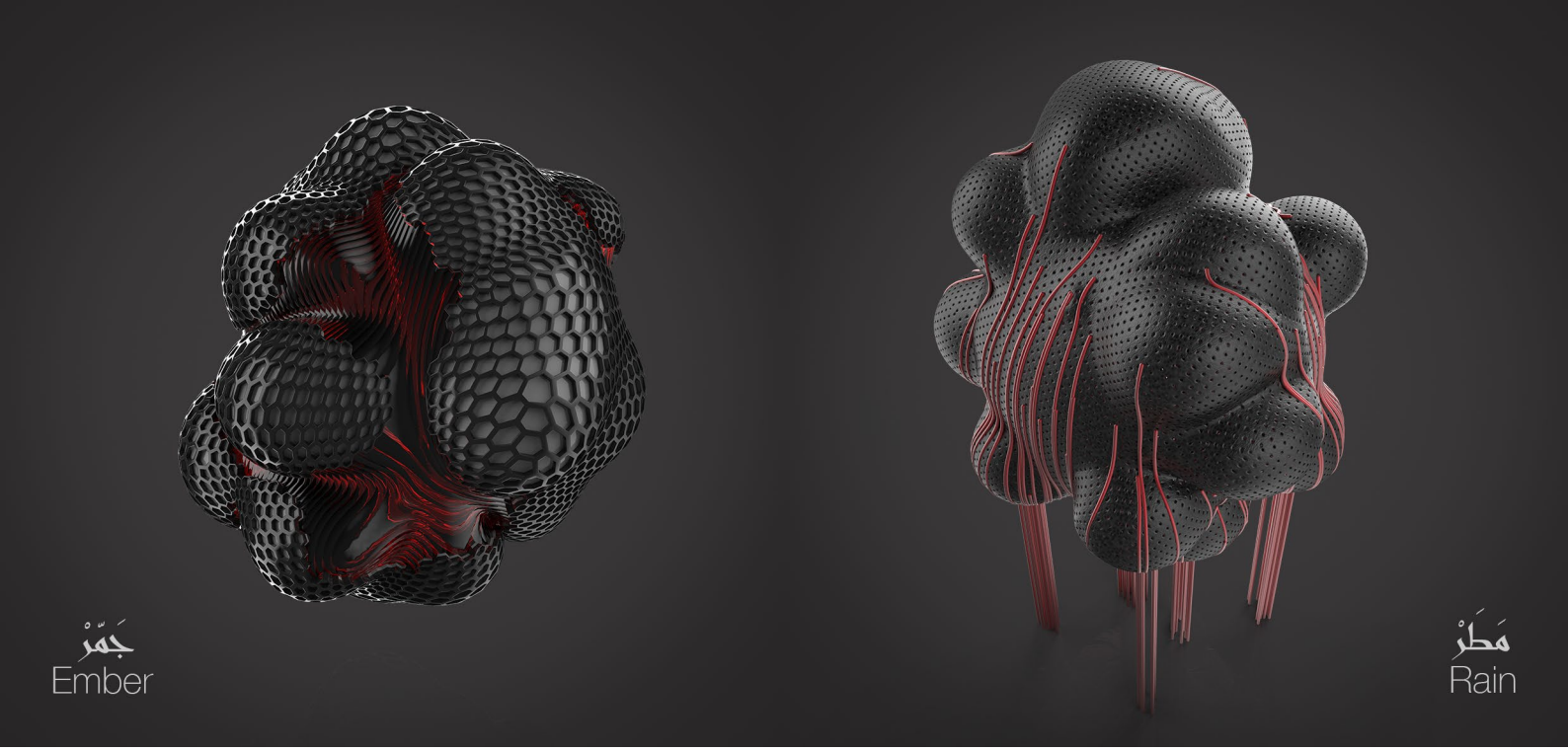

01 B-127// Speculative Architecture

Study on the bio-aesthetics of behavioural models

Year: 2020 3rd master semester. **Function:** Structural system **Client:** Academic project. **Status:** Concept Design. **Digital tools:** Rhino, Grasshopper, Kangaroo 2.0, Weaverbird, Python and Keyshot.

The project is to use agent based modeling to study the bio-aesthetics of behavioural models. My design objective was to create a structure system which could support any elevated form.

I started to design the behavioural model of the structure itself, until I realised that I would need to design a form in parallel so the structure can wrap around it.

On the other hand, I decided to have a reciprocal interaction between the form and structure. In other words the structure should form the form and the form should form the structure.

Since the available fabrication technology was able only to bend 2d plane wires, I started with the design with random planes, which confines structural members, and at the same time intersects with a sphere the initial state of the form. Then I inflated the sphere, which was restricted by the intersecting planes, to have the first form “Ember” (Figure 1).

Afterwards, I used a mesh analysis algorithm by Anders Deleuran, to simulate rain drops behaviour on a surface, which led to the second form “Rain”. Finally, to build a prototype I used 2 different types of wires, which were bended with help of D.I.Wire v1 machine from Pensa Labs (Figure 2).

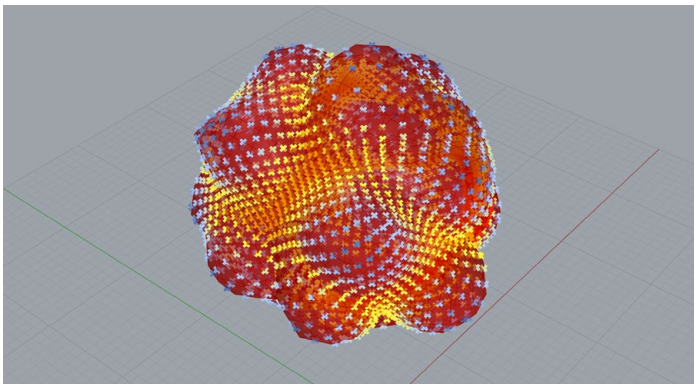

Figure 1: restricted mesh inflation.

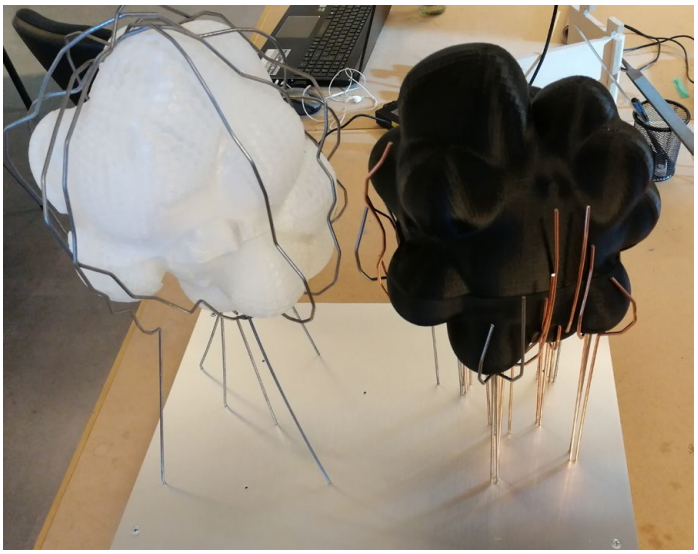

Figure 2: Final Prototype