Abstract

Biomimicry can be understood as a way to develop new solutions based on what the nature already proved to be well-adapted to life on Earth. The content present on my paper consists in answering the following questions: what is biomimicry? How is it being applied on the design process? Who are the bio designers nowadays? And why they are developing bio inspired design instead of brand new purposes? The goal of this project is, first of all, to understand the concept of Biomimicry and how this technique can be beneficial to solve human problems, then to experiment, create and build a digital fabricated product.

The characteristic that turns design inspired by nature more interesting than the other kinds of design in that it takes the nature as its model, which is not only beneficial in the appearance way, but also in the performance results. In nature, animals, plants, microorganisms are truly engineers and have been designing things for their survival for the past billion years. They had all of this years to prove that their specie is able to live on earth healthily by building and destroying things. Considering that, by following the nature examples, we would be able to create the most efficient solutions – considering space, energy, waste, etc. This means that, to build a truly sustainable environment, we do not need to create new rules, but to follow successful rules that are all around us.

Biomimicry is an interdisciplinary process that involves biologists, designers, computer scientists, artists, etc. Looking for names that could represent the mass of researchers that dedicate their time to learn from the nature, I found three respectful names: Janine Benyus, a biologist that propagates the idea that we should learn from the genius that surround us; Ryan Hoover, a board member of the Baltimore Under Ground Science Space where he leads research and development on bio printing; and Neri Oxman, the architect and designer who founded the Mediated Matter design research group at the MIT Media Lab. One section of my paper was dedicated to describe briefly the major works of each of them, from whom I could learn important aspects to be considered in the bio design process and how biomimicry can be a versatile tool to designers and creators in general.

At the end of the theoretical description, a description of what I am planning to deliver at the final meeting is presented. My project consists in a bio inspired pattern that will be digital fabricated by using different techniques and machines. I divided my project in three steps: experimenting, modeling and printing. In the experimenting phase, I will use a sandbox and a Kinect to produce points on Rhino that will work as a guide to my pattern. The inspiration I chose to design the pattern is the epithelial tissue's disposition of cells, specifically the stratified squamous type. On the modeling phase, I will design a nature-based pattern, which is going be an interception between mimicking what exists in nature and following the points generated on Grasshopper with the experiment. On the last phase, the pattern will be printed in 3D, laser cut and cut using the CNC machine. The goal of my project is to explore the side of Digital Fabrication – materials, techniques, software and machines – that I have never explored before as much as the time permit.

References

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