

RESEARCH THEME

Title of the doctoral research Framing bio-fabricated materials for design

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Abstract

The research program is aimed at exploring, defining and promoting the role of design in its relationship with materials, science and sustainability.

Considering our current context, we can firmly say that designers need more variety of material choices, materials that could be renewable and circular. We are running out of oil for petroleum-based materials and the constant increment in the world's population is problematic for the acquisition of the land needed to grow more natural materials. In today's world, the only material we have many of is "waste". Alternative solutions are needed, and it is here that we can consider bio-fabricated materials as strategic.

Biofabrication is when a biological system is used in the fabrication of a material. It is an innovative and sustainable design paradigm focused on the farming of materials with living cells. Organisms such as yeast, bacteria, fungi and algae are fermented and farmed to synthesize natural and renewable materials but with new properties. Biofabricated materials can also be seen as a collaboration between the designer and nature.

A common problem with new innovative materials is that designers don't understand what they are made of, let alone what they can potentially do. For that reason, we need to plan more investigations around this new and challenging topic. Designers must develop a critical and ethical understanding of how best to apply these new biological tools and, the academia has to explore how design can come together with living systems to help tackle global problems such as pollution and climate change.

For this purpose, the candidate will study and frame the complex panorama of these emerging and circular materials for guiding future designer to design with them.

Keywords Bio-fabricated Material, DIY-Materials, Speculative Materials