SYMBIOTIC ASSOCIATIONS

"I wonder what would happen if there were a United Organization Of Organisms (UOO, pronounced "uh-oh"), where each species gets one vote. Would we be voted off the planet? The answer is pretty clear."

Paul Stamets

INTRO

As a species, humans are adept at inventing toxins yet equally inept at eliminating them from our environment. Due to current trends, our exposure to dangerous chemicals increases with time as our environment becomes more polluted.

Mushrooms may turn out to be important keys to both human and planetary health. Their indispensable role in recycling organic matter has long been known. Mycelium can be selected and trained to break down toxic waste, converting it into harmlessmetabolites. Mushroom allies may even be able to detoxify chemical warfare agents.The use of fungi to improve the health of the environment by filtering water in order to help trees to grow in forests and plants in gardens is one facet of a larger strategy called by Paul Stamets Mycorestoration.

The broader meaning of Mycoremediation is the process whichfungi degrades or removes toxins from the environment. Mycoremediation practices involve mixing mycelium with contaminated soil, by placing mycelial mats over toxic sites. The powerful enzymes secreted by specific fungi are able to digest lignin and cellulose, the primary structural components of wood. These digestive enzymes can also break down a surprisingly wide range of toxins that have similar chemical bonds with wood.

BRIEF

Noumena, Green Fab Lab and Fab Lab Barcelona present "SYMBIOTIC ASSOCIATIONS" workshop. The purpose of the course is to explore the relationship between digital and biological manufacturing, as multi-scalarconstruction techniques. The Workshop will be based on defining a theoretical and experimental framework focused on the convergence between Digital Tectonics and Organic processes. We will focus on the association between biology and architecture in order to manufacture biological mechanisms.

During the workshop, participants will be involved in a dynamic workflow, studying algorithms based on recursive systems associated with organic and digital manufacturing.The Workshop will be divided into two main phases:
-**Computational Phase:** The studentswill explore digital iterative actions simulating biological growth.
- **Manufacturing Phase:** During this phase we will develop biological reactions, mixing Mycelium withother materials used inrapid prototyping, such as wooden PLA, clay and biodegradable materials.

PROGRAM

During the **Computational Phase**(1 day) participants will explore different generative methods, inspired bycellular automata, L-systems, bio-mimetic simulations, multi - agent and iterative modeling.Rhinoceros and Grashopper3Dwill be the main software used, as well as several add-ons such as Anemone, BOID, Weaverbird, Mesh+ and Mesh Edit.

The**Manufacturing Phase**(2 days)will focus ontranslating digital structures into physical prototypes.Models will be fabricated through additive manufacturing techniques using biodegradable materials such as Clay and wooden PLA. The aforementioned structures will be enrichedwith Mycelium, which will transform them into hybrid living systems, generating multiscalar interconnections with their environment.

LINKS

http://matter.media.mit.edu/environments/details/silk-pavillion
http://hackaday.com/2015/03/27/mediated-matter-at-the-mit-media-lab/
http://www.rainforestinfo.org.au/good_wood/env_imp.htm
https://decroissons.files.wordpress.com/2014/04/paul-stamets-mycelium-running-how-mushrooms-can-help-save-the-world.pdf
http://grasshopper.rese-arch.org/
http://materiability.com/bio-scaffold/
http://sinamostafavi.tumblr.com/
http://www.3ders.org/articles/20131021-3d-printed-mycelium-chair-made-from-water-straw-and-fungus.html
http://materiability.com/mycelium/
http://materiability.com/bio-scaffold/
http://mycelium-tectonics.com/

TUTORS

ALDO SOLLAZZO

Aldo is an architect and researcher. He obtained a Master in Architectonic Design in 2007 and a Master in Advanced Architecture at the Institute for Advanced Architecture of Catalonia (IAAC) in 2012.Moreover Aldo obtained MIT´sFab Academy Diploma in 2014 in the Fab Lab Barcelona.He is an expert in computational design and digital fabrication andsince 2011, he is the manager of Noumena. He is also founder of Fab Lab Frosinone and Director of Reshape – digital craft community.

STARSKY LARA

Starsky studiedin the UFPS - Cucuta Universityin Colombia, wherehe had the opportunityto explore digital tools andtheories. Having completed his studies in architecture, Starsky moved inBarcelona where hebegan working in Willy Müller Architecture officeand subsequently obtained a master in Advanced Architecture from theInstitute for Advanced Architecture of Catalonia (IAAC).In his master thesis he had the opportunityto investigate in additive manufacturing techniquesand programming.Starsky has collaborated with Barcelona Regional and he is currently an external collaborator of Noumena.

matterenergy
organic farming
mycoforesty strategies
mycoremediation

SCHEDULE

2ND / 3RD WEEK OF DECEMBER
TWO WEEKS

FEES

250 € x tutor *day
150 € x assistant *day

REQUIRMENTS

15/20 students expected with basic knowledge of Rhino Grasshopper

FACILITIES

3d printers, laser cutters, wood Pla,