Bio-Digital, Interactive Urban Algae Canopy Produces A Small Forest's Worth of Oxygen

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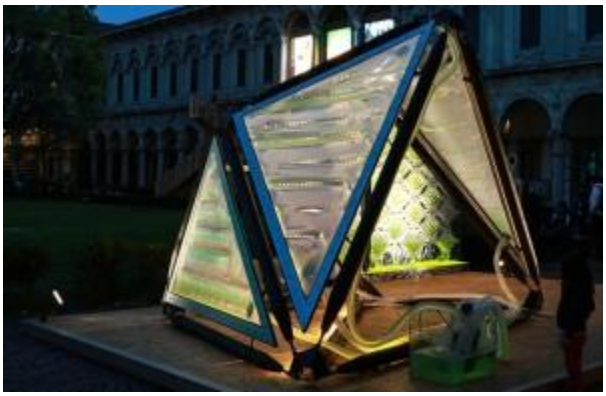

Kimberley Mok

Can biology and architecture come together to create new and compelling forms and functions? We've seen concepts before like biomemetic architecture, responsive "genetic" architecture, and even "mycotecture" using mushrooms to build strong structures.

London-based ecoLogic Studio has experimented with the possibilities of algae before, entwining with dynamically changing inputs derived from real-time data. Their latest development is this fascinating Urban Algae Canopy Module which features bio-digitally activated, micro-algal cultivation that is responsive to various environmental factors like weather changes, light patterns and the movements of the visitors who will see it next year at Expo Milano 2015.

Click here to see “BioCanopy EXPO – Urban Algae Canopy”:
https://www.youtube.com/watch?v=bC7yLdYbnkU

The structure, which will be part of the curated Future Food District project, will be made with a customized ETFE cladding system that employs precise CNC welding techniques. The canopy will change dynamically, thanks to various sensors that will react to environmental variables to control the interior flow of water and carbon dioxide, which act as a growing medium for the algae within.

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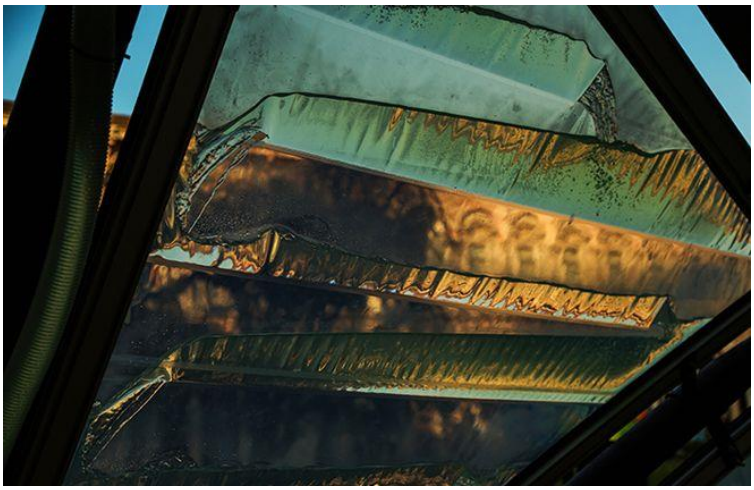

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Like their previous "tweetable cyber-garden," this canopy will react to visitors' kinetic movements and factors like sun by growing more algae on sunnier days to create more shade, or vice versa -- all of it in real-time. Most importantly, it will be capable of producing the same amount of oxygen as four hectares of woodland, and 330 pounds (150 kilograms) of biomass per day -- 60 percent of which will be natural vegetal proteins.

This full scale prototype is the first of its kind in the world, and a culmination of six years of research into how algal production could intersect with technology, architecture and feeding the planet. Says Claudia Pasquero of ecoLogicStudio:

> “It is now time to overcome the segregation between technology and nature typical of the mechanical age, to embrace a systemic understanding of architecture. In this prototype the boundaries between the material, spatial and

> technological dimensions have been carefully articulated to achieve efficiency, resilience and beauty."

Imagine cities covered with these algal canopies -- this could be the future of how a new, responsive and biologically-based architecture could help solve the problems of food scarcity, deforestation and energy, all in one. More over at ecoLogic Studio and Expo Milano 2015.