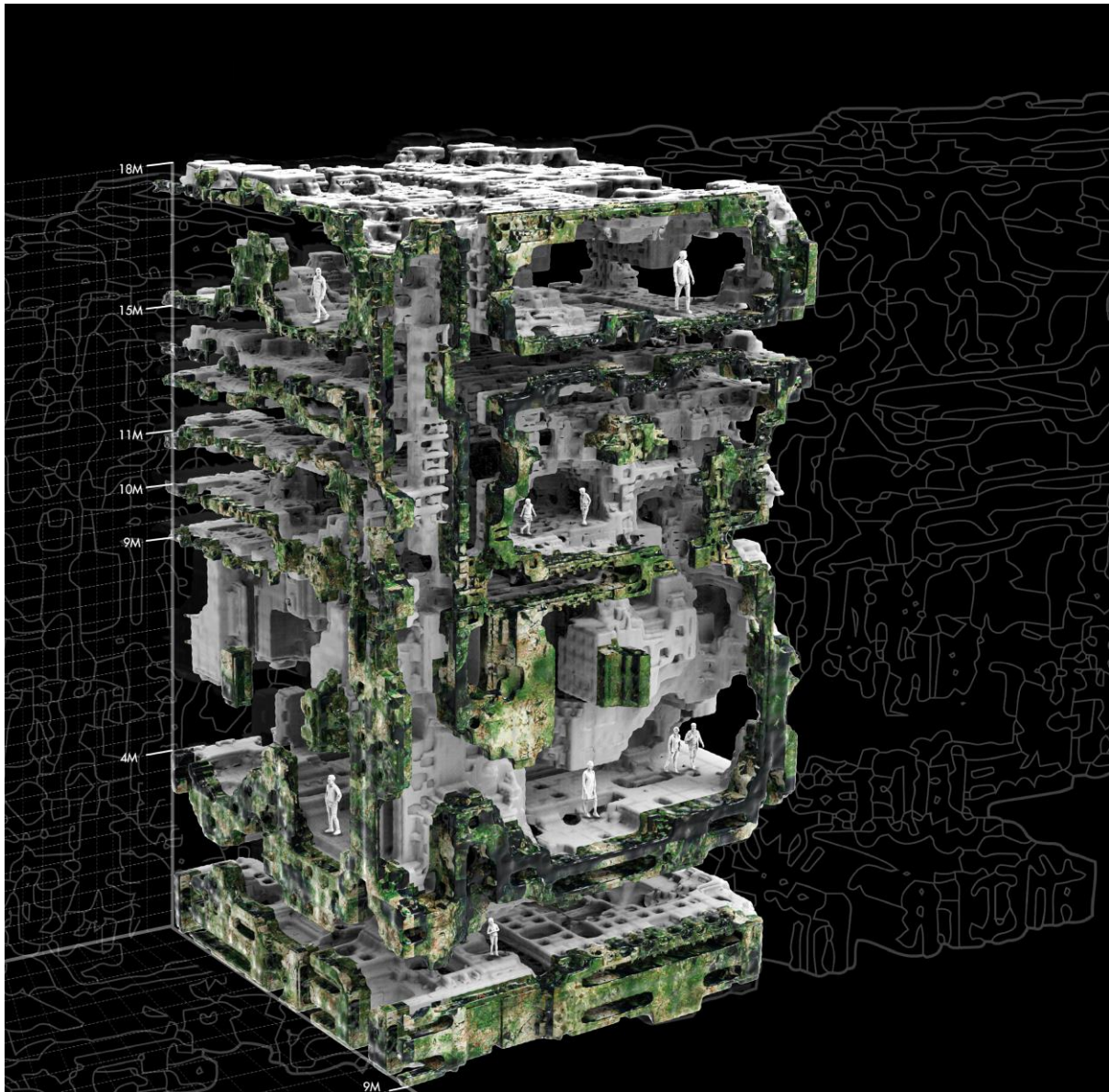


# The Architecture of Bio-degradability

*The Synthetic Landscape Lab @ the University of Innsbruck- Fall 2023*



*GAN-OS - courtesy of the Urban Morphogenesis Lab – UCL - London*

At the Synthetic Landscape Lab we have observed over recent years how the Alps have become a poignant reflection of the effects of global climate change.

We have filmed the striking phenomenon of retreating glaciers and we have mapped their microbiome, revealing human's historical impact on it.

Glaciers' dissolution is not only symbolic of drastic global changes taking place but it is also releasing a unique diversity of ancient contaminants and it is fuelling an intense and entirely new metabolic activity.

Bio-organic growth manifests itself in the unique red coloration of the snow, as well as in the unexpected qualities of the bacteria colonies proliferating within the melting crystals.



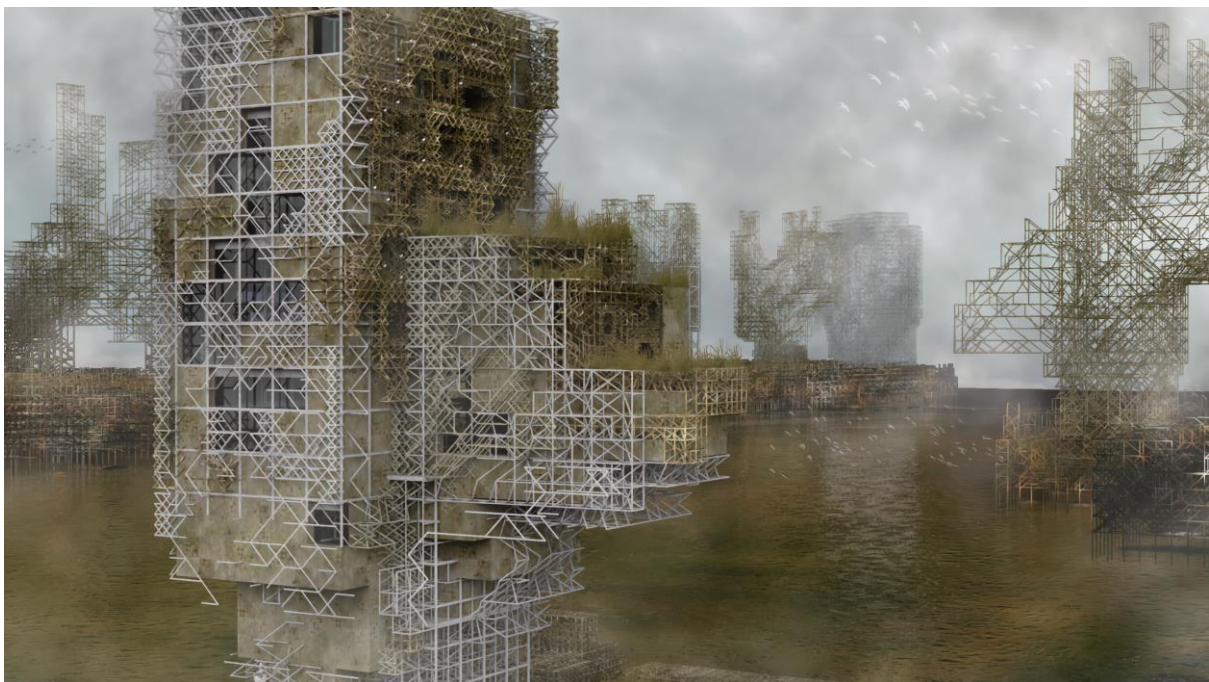
*GAN-OS - courtesy of the Urban Morphogenesis Lab – UCL – London*

:: Metabolic ::

The aim of the studio is to recognize the opportunities offered by these accelerated manifestations of alpine life to design architectural habitats able to support the continued human and non-human inhabitation of these landscapes.

These metabolically circular architectures shall be biologically receptive and materially fully biodegradable.

Taking advantage of the possibilities offered by 3D printing technologies and bio-printing craftsmanship the architecture of biodegradability will be capable of growing into landscapes of “bio-degradability” thus establishing a productive symbiosis with the alpine territory.



*Biocoenosis nest - courtesy of the Urban Morphogenesis Lab – UCL – London*

:: Programmatic ::

These pioneering architectures of bio-degradability seek to question the influence that bio-design innovation can exert on the future evolution of the Alpine region and its industries: building heritage conservation, renewable energy production, sustainable farming and eco-tourism.



*Urban Bio-Lab - courtesy of ecoLogicStudio – London  
NEXT PAGE – AirBubble COP26 - ecoLogicStudio*



To achieve this goal the studio will engage the notion of architectures of bio-degradability at multiple levels:

As a design philosophy, in the context of advanced landscape architecture.

As a collection of material processes affecting human, animal, mineral, microbiological and digital systems and ecosystems.

As an emerging bio-economy of carbon re-metabolization, carbon capturing, carbon trading and carbon offsetting, capable of supporting future and continues life in the region.



*Lithotrophic Landscape of Production - courtesy of Synthetic Landscape Lab.*



:: Methodologic ::

Our creative journey across the Alps will involve the most radical design applications of Artificial Intelligence, Satellite monitoring, robotic 3D printing and bio-polymer craftsmanship.

We will follow a tested design method entailing the following techniques:

- Team work: we will be working in teams including vertical group across the curriculum, supporting cross-fertilization and multidisciplinary exchange.
- Prototyping: each team will research on a specific application of bio-degradable polymers with focus on hands on prototyping.
- AI design workflows: we will learn and test new AI design workflows for generative machine learning, speculative architectural imaging and 2D image to 3D prototyping conversion.

*NEXT PAGE - Landscape of Biodegradability - courtesy of Synthetic Landscape Lab.*



## :: Bibliography, filmography and research links ::

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## Videos

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Lecture about “Countryside, the Future” by Rem Koolhaas

Video Link: <https://www.youtube.com/watch?v=shVxB6wRHo0>

