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swiss extrusion engineering

# **Dal design alla mobilità**

Le infinite possibilità del policarbonato per produrre in modo sostenibile con la stampa 3D

**Pierpaolo Ruttico**

INDEXLAB - Politecnico di Milano

# About Indexlab

Indexlab is a leading design and innovation research lab based in Italy at Politecnico di Milano.



# Services



We specialize in a variety of disciplines and offer design, R&D, consulting, system integration, educational programs, and artistic productions.

# R&D / New applications

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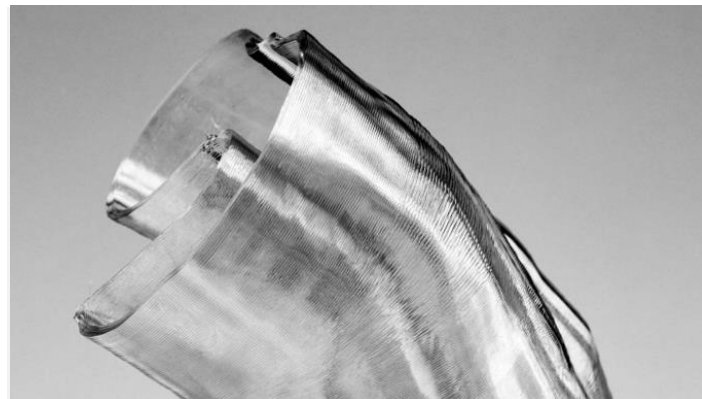
Superframe



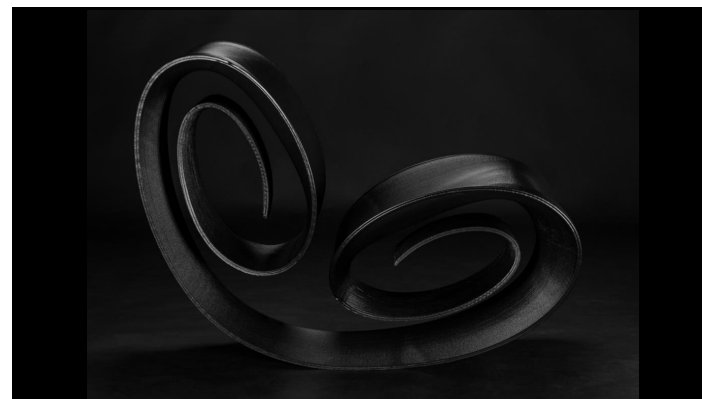
Flowing Branches



Aperol Terrazza



Amarcord



One Line Two Coils



New01 bike

# Superframe

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Superframe is a new construction system that combines flat panels with complex 3D-printed frames to sustainably solve the challenge of paneling surfaces with double curvature.

Made in collaboration with Pininfarina, Gimac, eXgineering, Eco 2 Zone, Design Differente, Eurocooling, and Nieder, Urban Lounge is a purifying tower constructed using the Superframe system. Created for the 2021 Milan Design Week, it was exhibited in the garden of the Museo della Scienza e della Tecnologia in Milan.

# Flowing Branches

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Flowing Branches is a system that enables the creation of complex spatial structures through conformal printing on a curved mold. It utilizes an angled extruder and printing rings with variable cross-sections.

Flowing Branches was unveiled for the first time at the SAIE fair in Bologna in 2020 and was the result of a collaboration between Indexlab, Gimac, and eXgineering, with Arbloc, which developed the mold.

# Aperol Terrazza

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The first Aperol bar, designed by Vudafieri – Saverino & Partners, featured the introduction of a counter made entirely of recycled polycarbonate, with an effect that recalls traditional Venetian blown glass.



# Amarcord

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Amarcord was first showcased at Mecspe 2023 and later exhibited at the Triennale di Milano. The project is the result of a collaboration between Indexlab, GIMAC, eXgineering, and other partners such as GPEM, OMNICAP, and FASB, who contributed advanced technologies for motion digitization and steel bending.

Amarcord is multidisciplinary project where Indexlab, with Gimac and eXgineering, pioneered 3D printing with variable layer heights. Their work created a dynamic polycarbonate shell, symbolizing continuous movement variation.

# One line Two Coils

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Designed by Ron Arad, this chair showcases advanced research in robotic 3D printing, where variations in layer height create a unique, sculptural form that transforms into a work of art.

One line Two Coils is an ultra-limited edition with only nine pieces available. Currently on display at the Rossana Orlandi Gallery in Milan.

# New01bike

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Designed by INDEXLAB, New01bike is a cutting-edge bicycle featuring a 100% recycled polycarbonate frame, produced through non-planar 3D printing. Currently on display at the Design Museum of Munich

The New01bike, known for its innovative design, was featured in the 2022 "Cult Object, Design Object, Bicycle" exhibition at the Design Museum of Munich, highlighting it as a key milestone in the evolution of the bicycle industry.

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