

INDEXLAB

ACADEMIC
INSTITUTIONS

POLITECNICO
MILANO 1863

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PROFESSIONAL
OFFICES

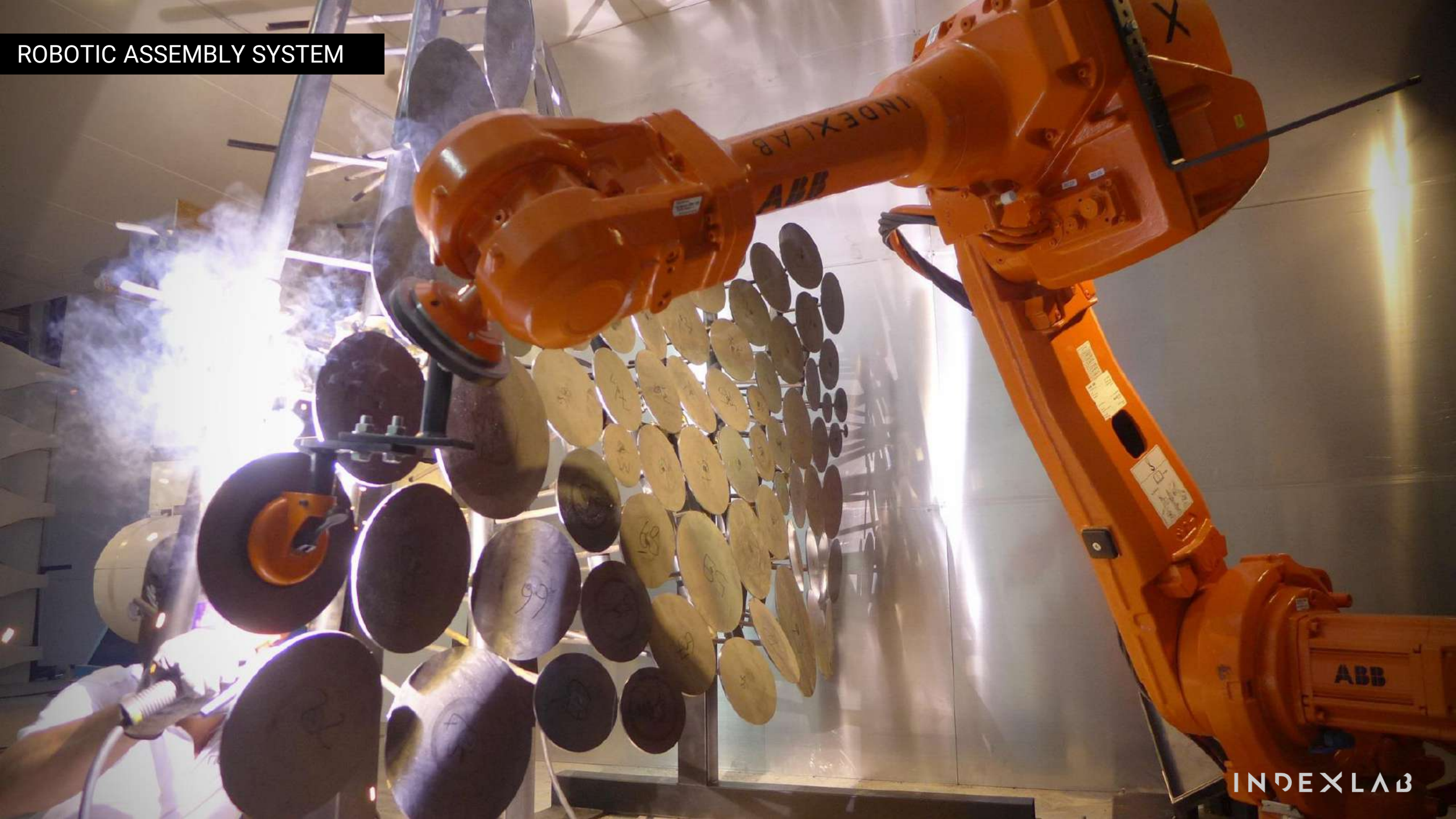
INDUSTRY and
MANUFACTURING

ADVANCING BUILDING CONSTRUCTION SYSTEMS

September 2021
INDEXLAB RESEARCH
Pierpaolo Ruttico

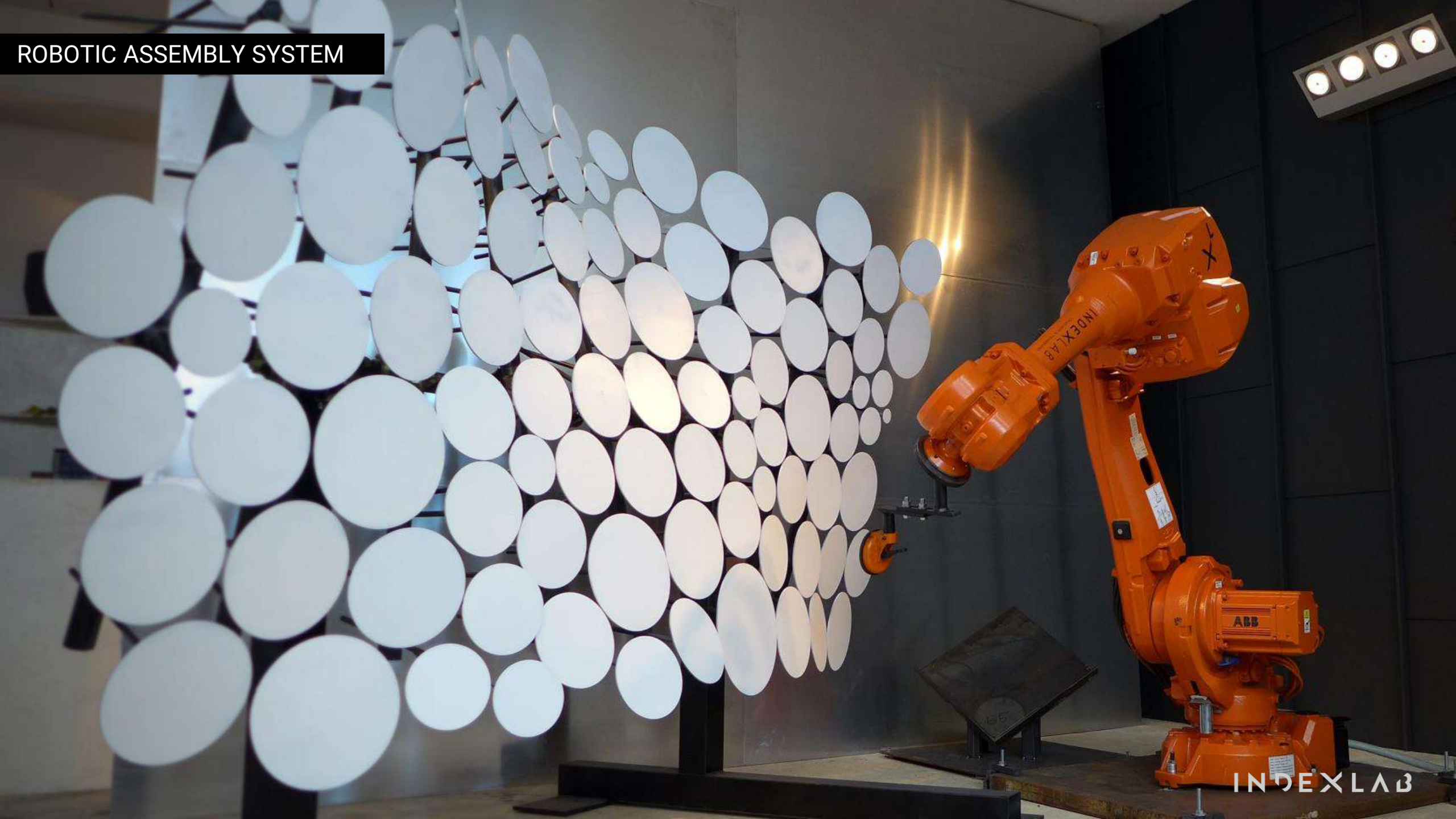
- 01_ RAPID MOLD MANUFACTURING SYSTEM
- 02_ TAYLORMADE OVERCOAT INSULATION SYSTEM
- 03_ ROBOTIC ASSEMBLY SYSTEM
- 04_ ROBOTIC CONCRETE 3D PRINTING
- 05_ ROBOTIC METAL 3D PRINTING
- 06_ ROBOTIC PP-PE-ABS-PC 3D PRINTING
- 07_ ROBOTIC CLAY 3D PRINTING
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- 10_ MULTY-ACTUATOR CONTROL SYSTEM
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- 15_ ADVANCED CLADDING SYSTEMS
- 16_ ARTIFICIAL INTELLIGENCE
- 17_ SOFT ROBOTICS
- 18_ RECONFIGURABLE MOLD SYSTEMS
- 19_ BIM-AAD-CAM
- 20_ VR-AR

ROBOTIC ASSEMBLY SYSTEM

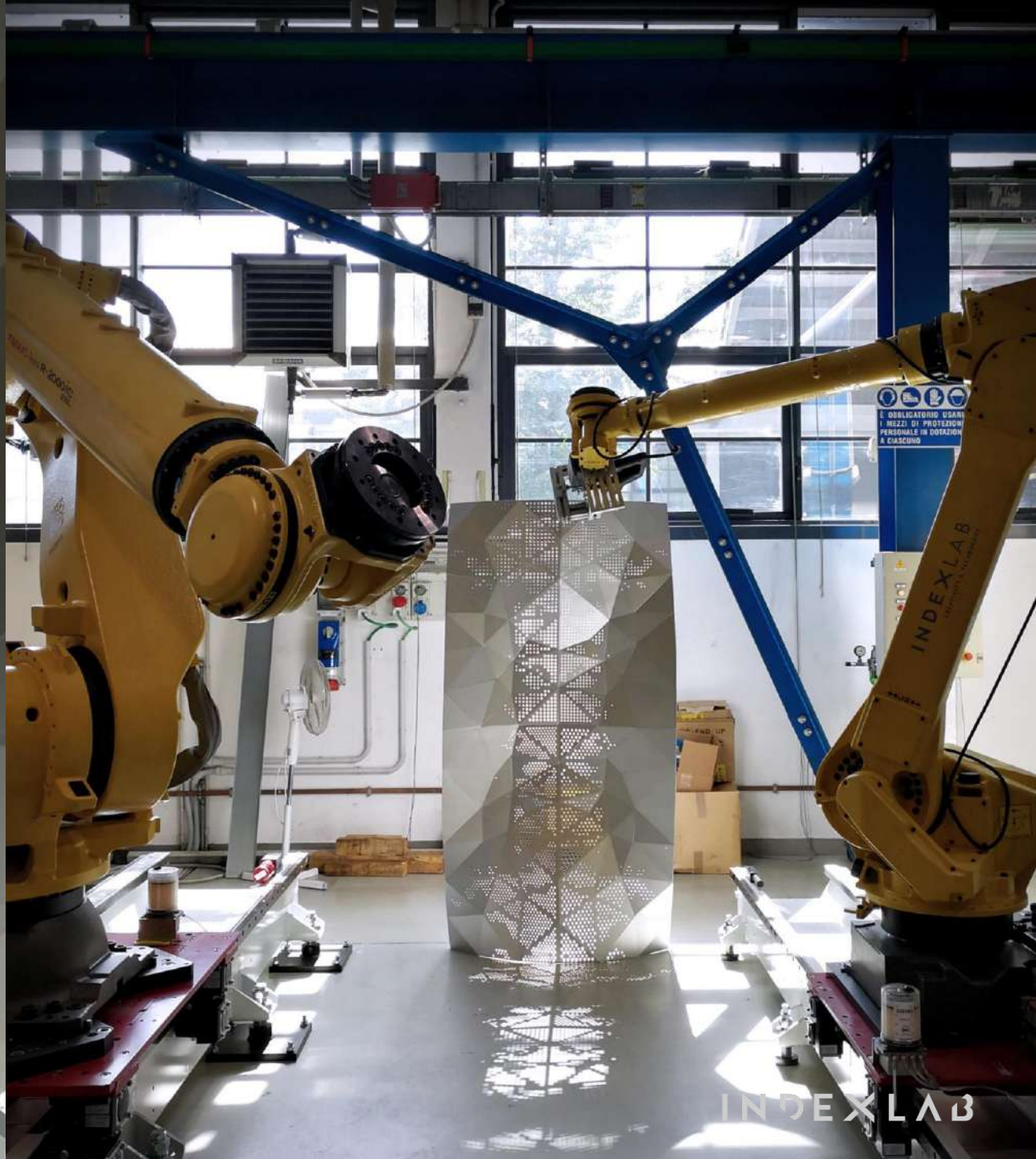


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ROBOTIC ASSEMBLY SYSTEM



ROBOTIC ASSEMBLY SYSTEM



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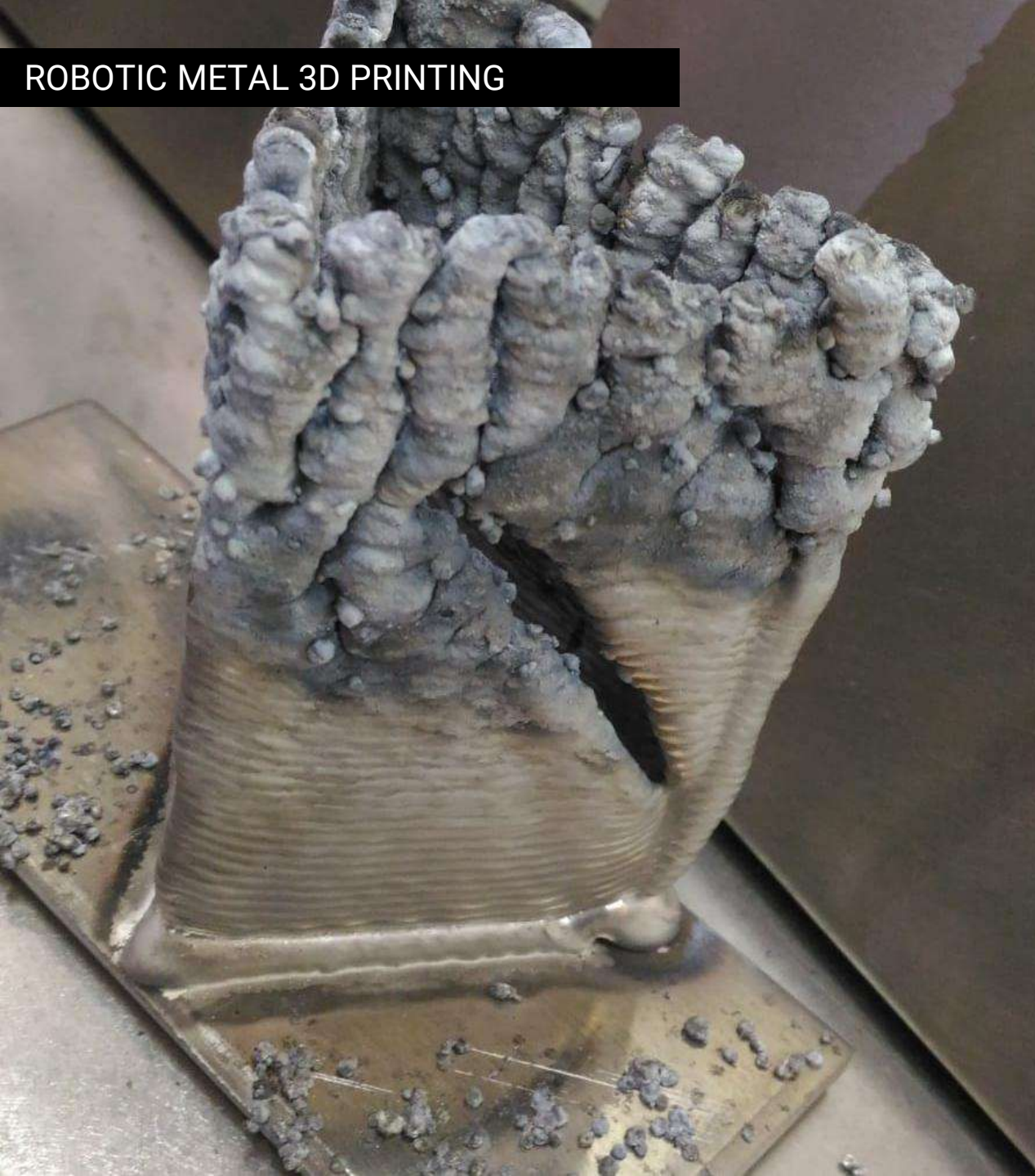


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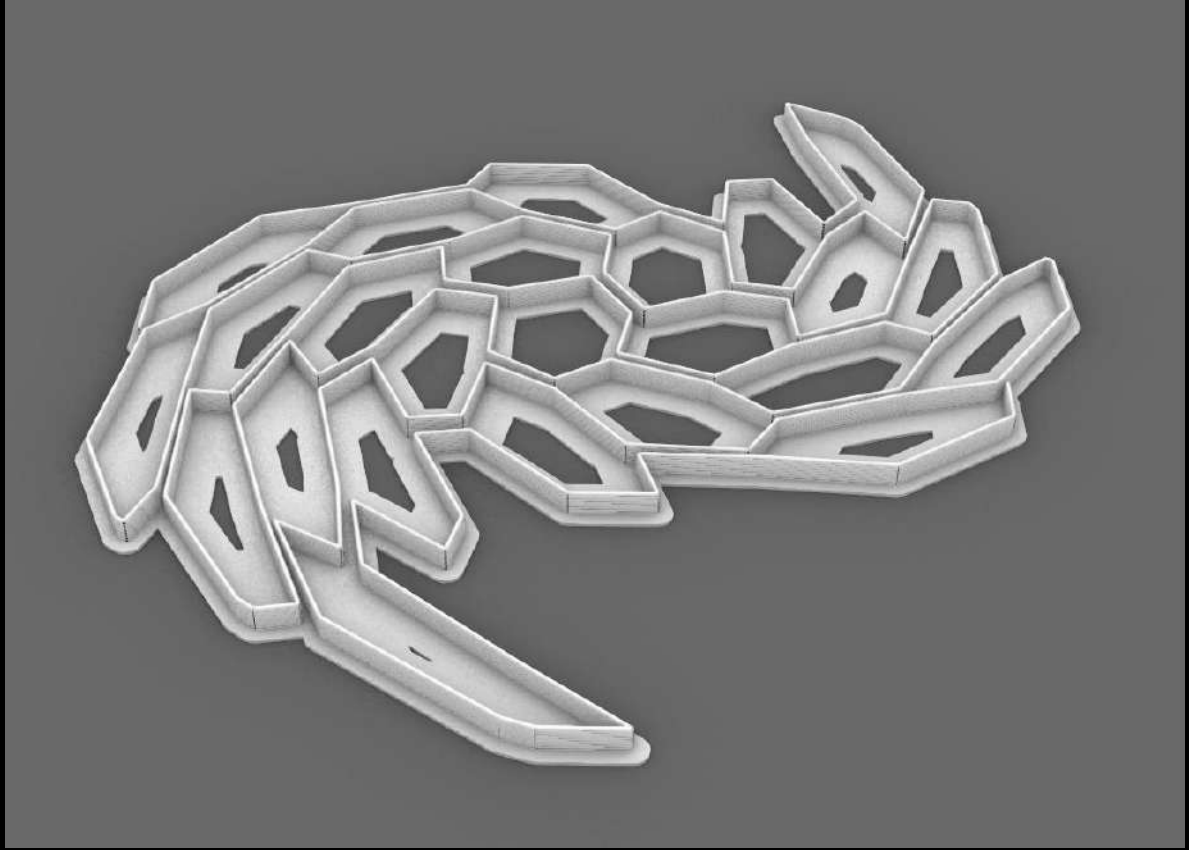
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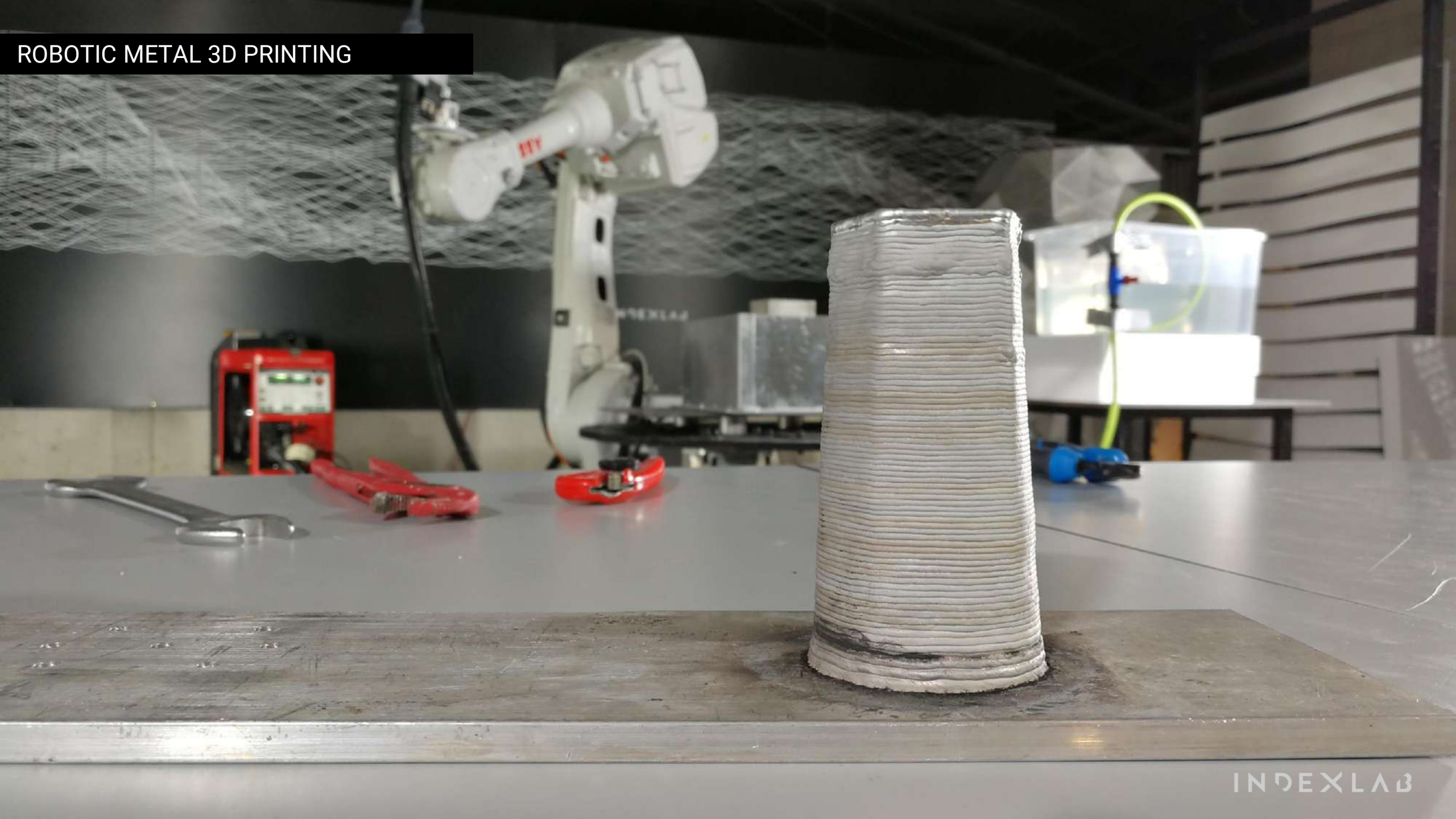
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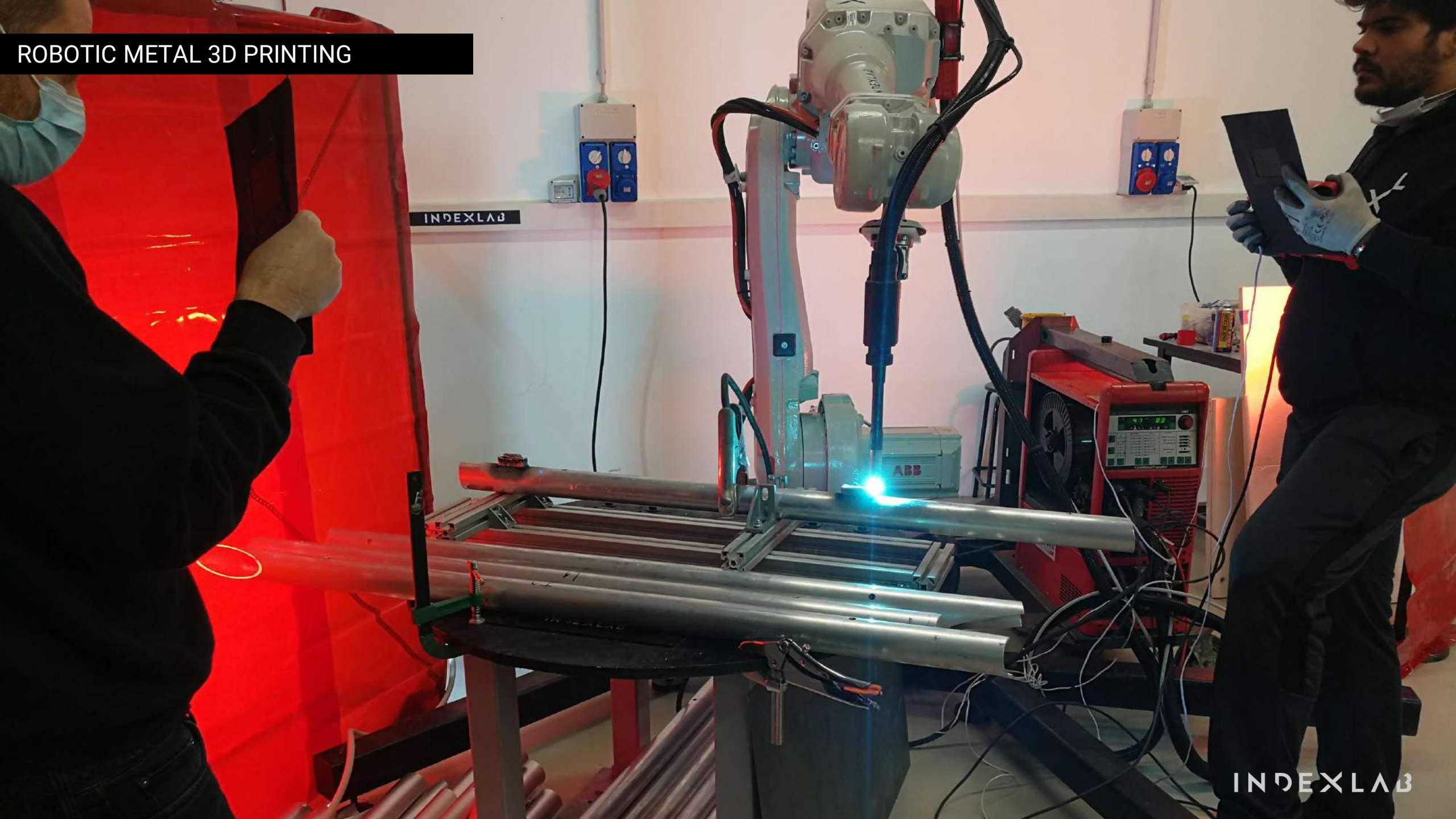
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ROBOTIC METAL 3D PRINTING



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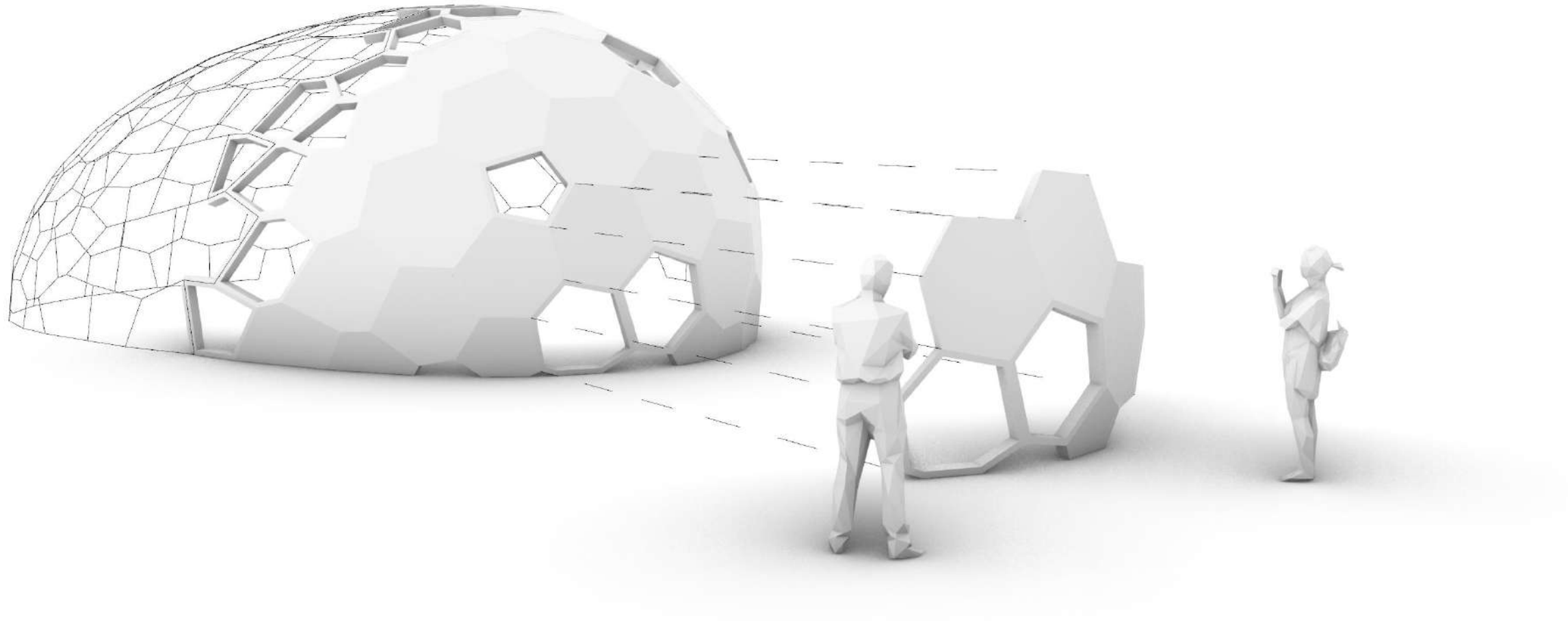
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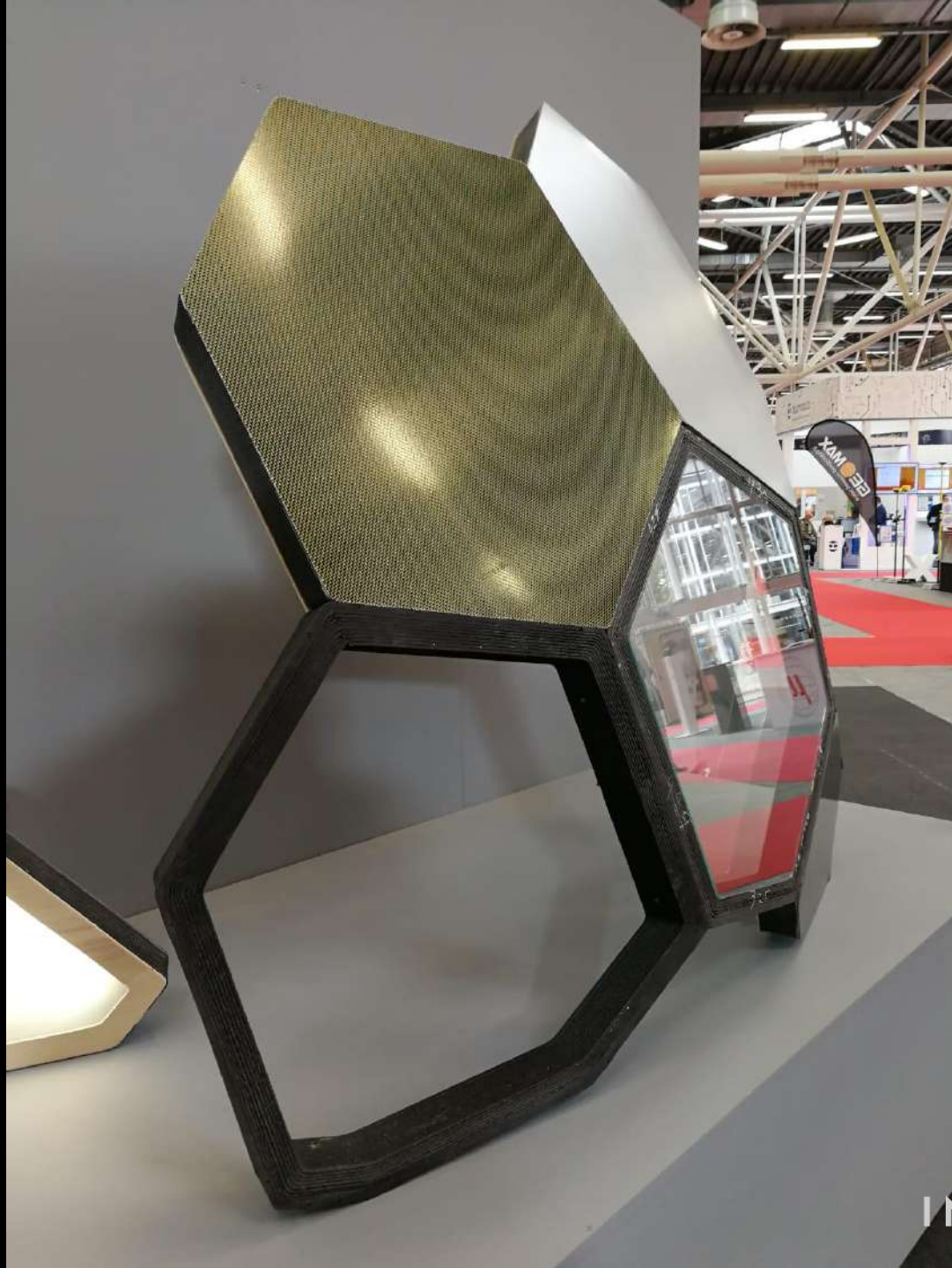


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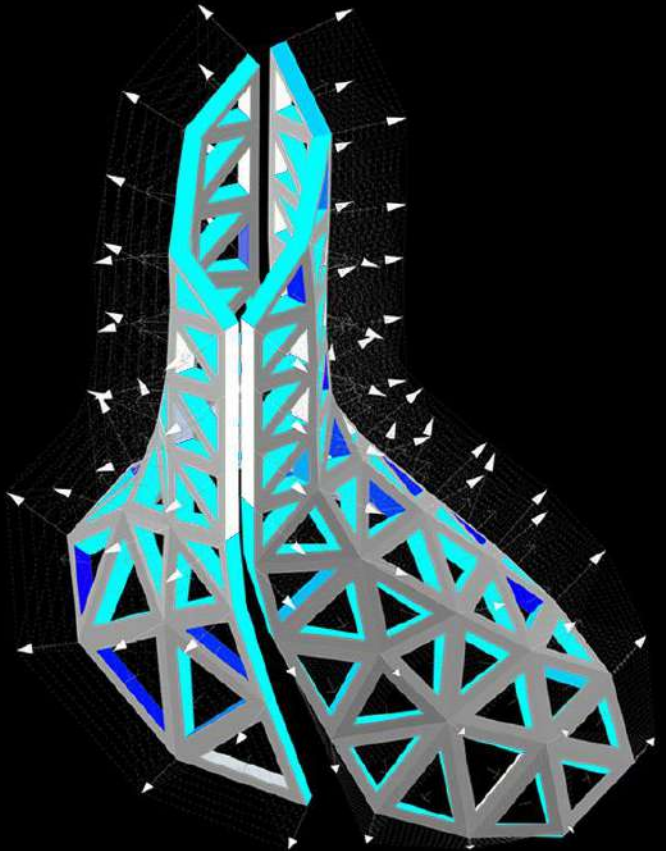
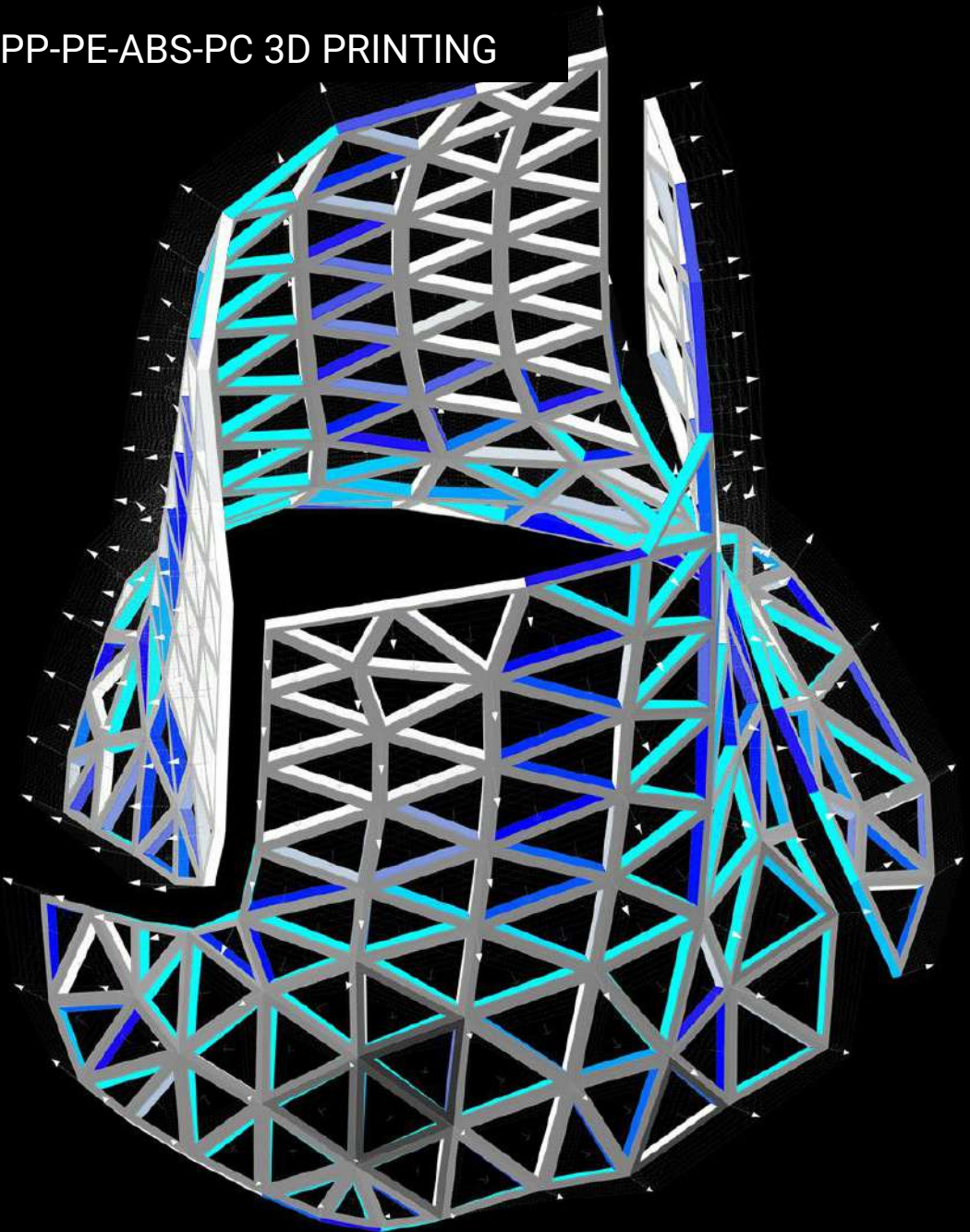
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ROBOTIC PP-PE-ABS-PC 3D PRINTING



ROBOTIC PP-PE-ABS-PC 3D PRINTING



DEVIATION FROM PLANARITY



FLAT

TWISTED

ROBOTIC PP-PE-ABS-PC 3D PRINTING



ROBOTIC PP-PE-ABS-PC 3D PRINTING



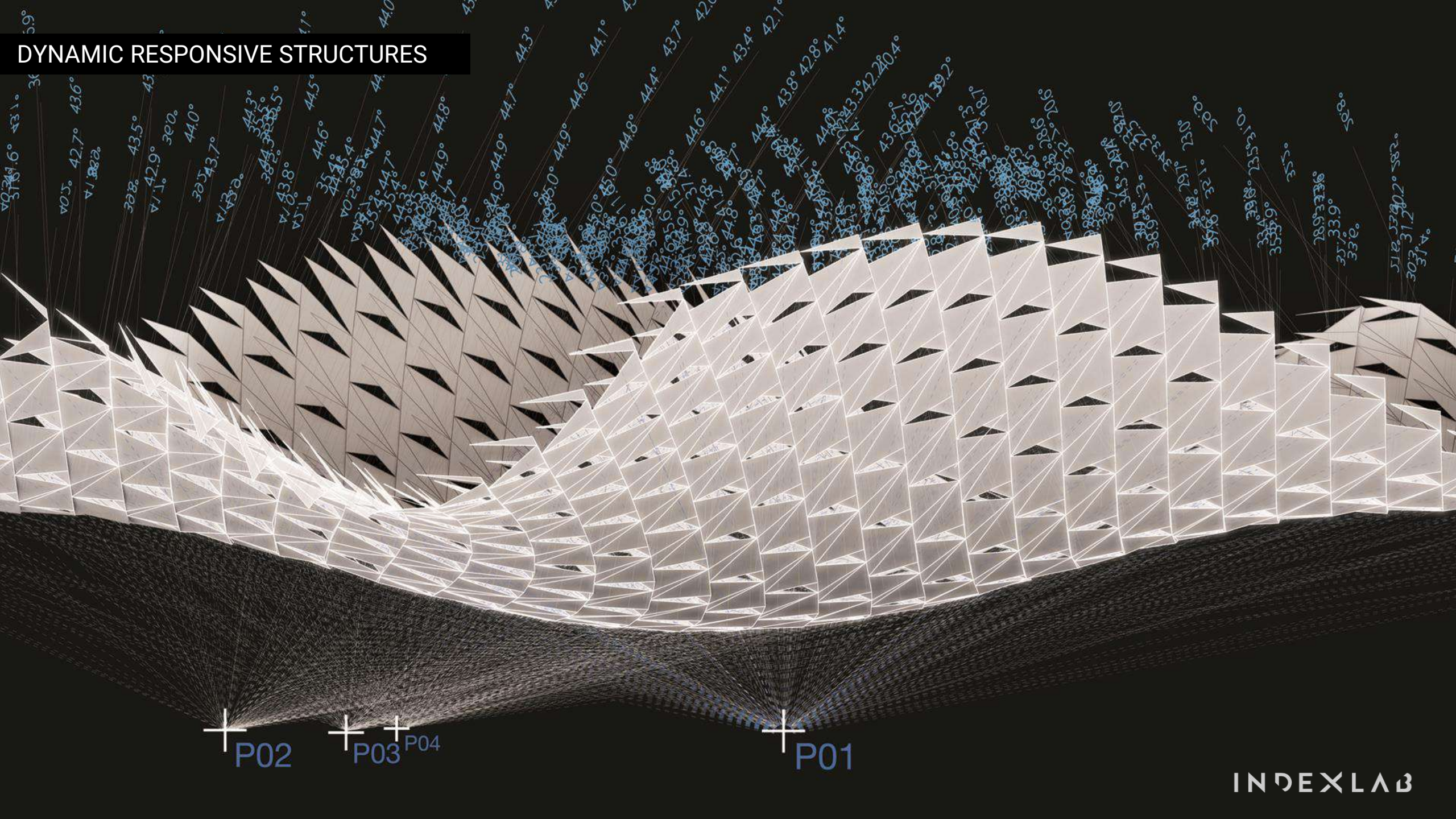
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ROBOTIC PP-PE-ABS-PC 3D PRINTING



DYNAMIC RESPONSIVE STRUCTURES

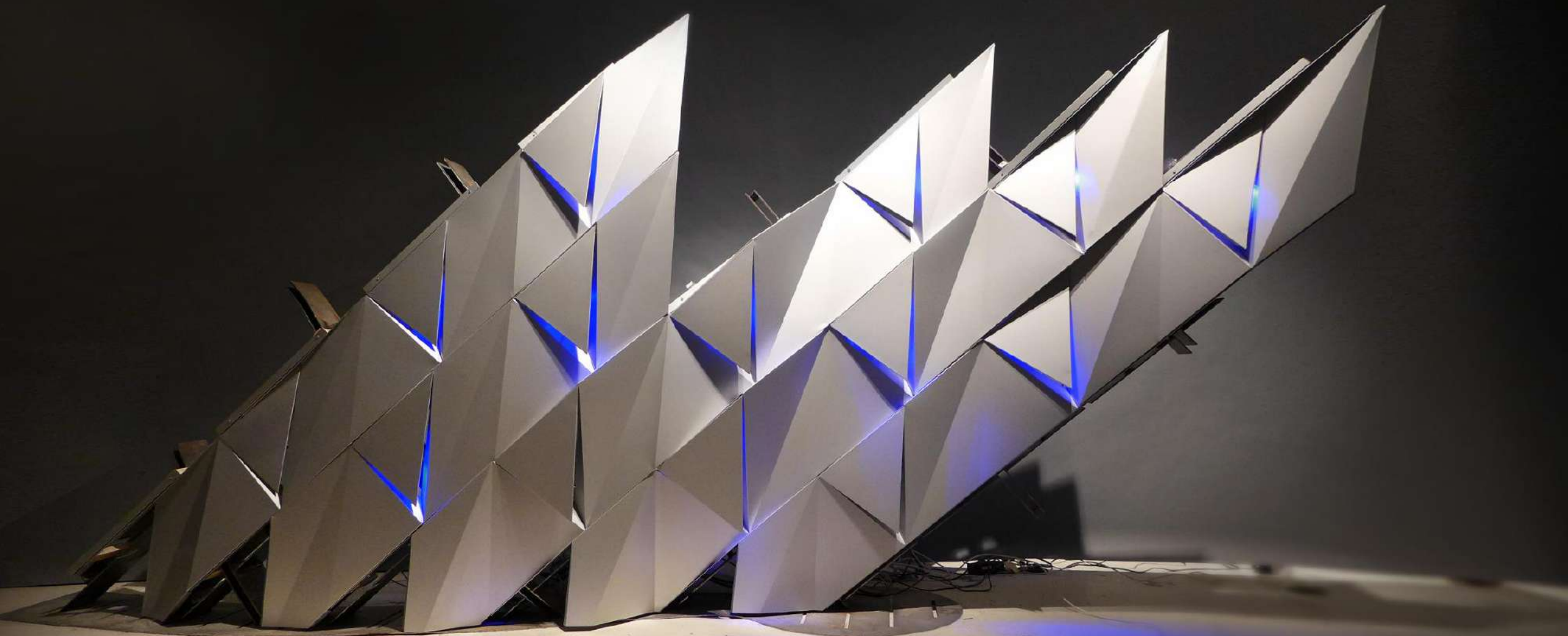


+ P02

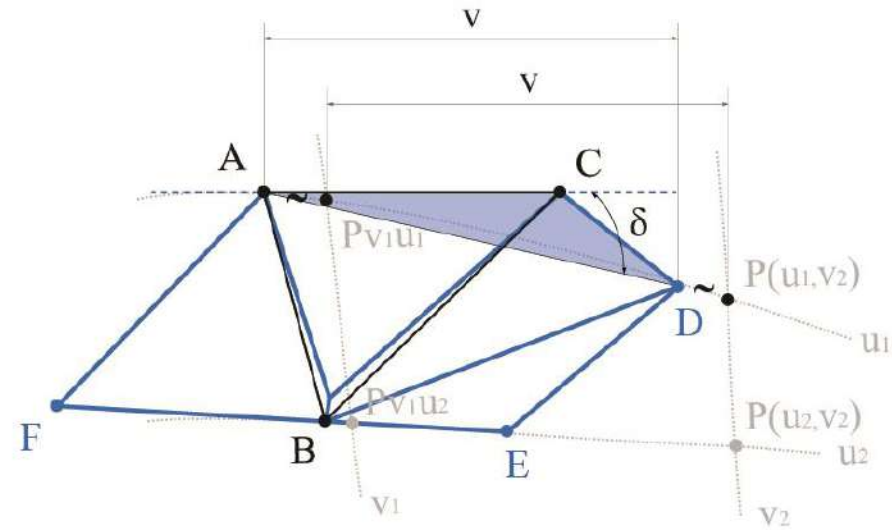
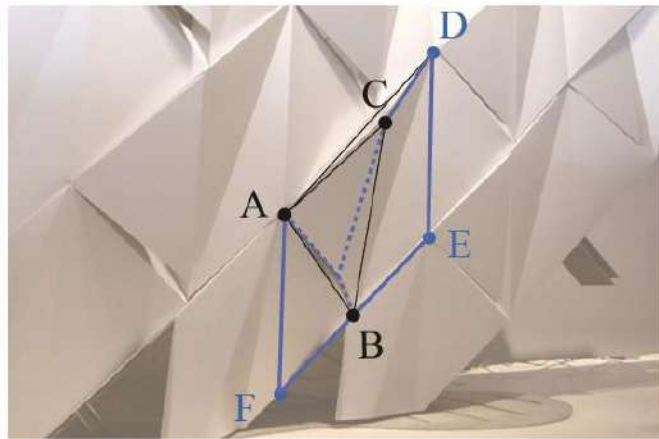
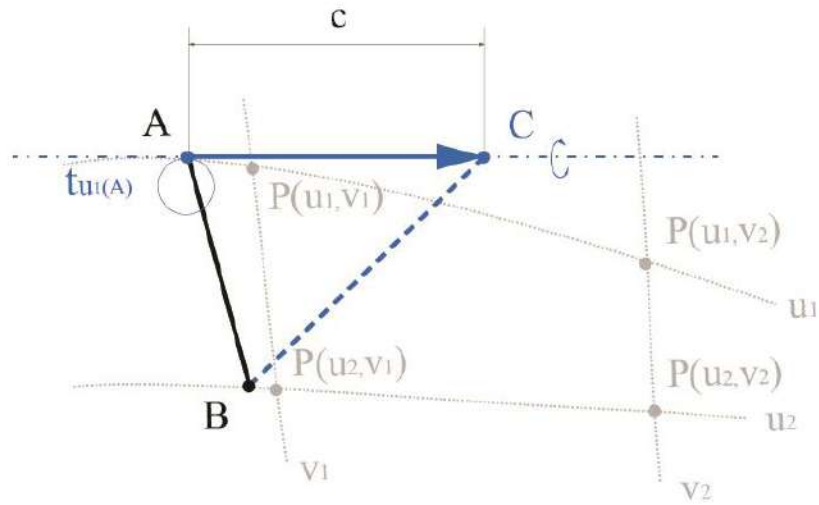
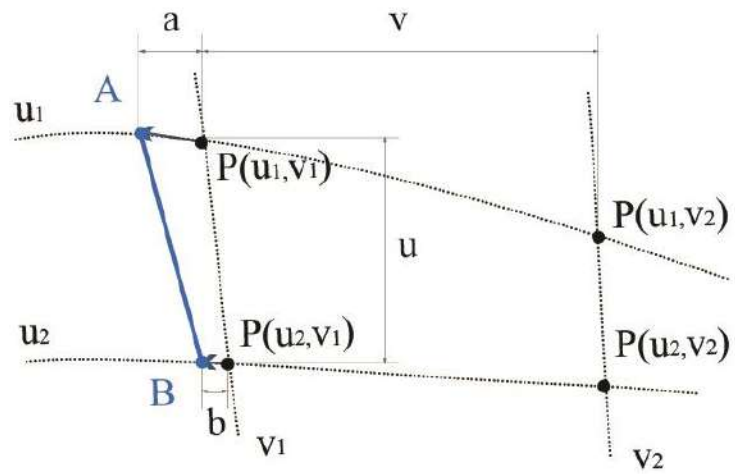
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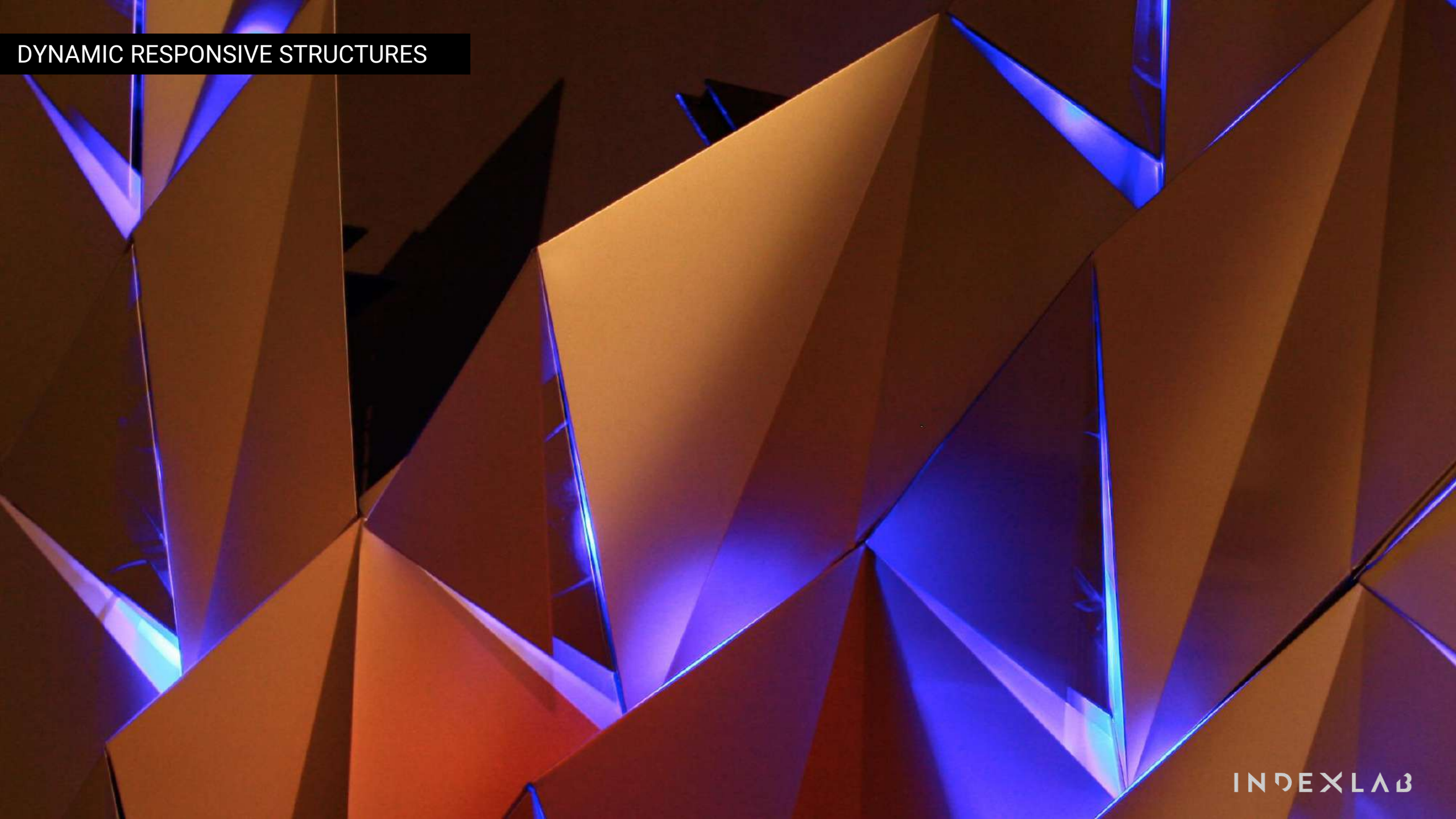
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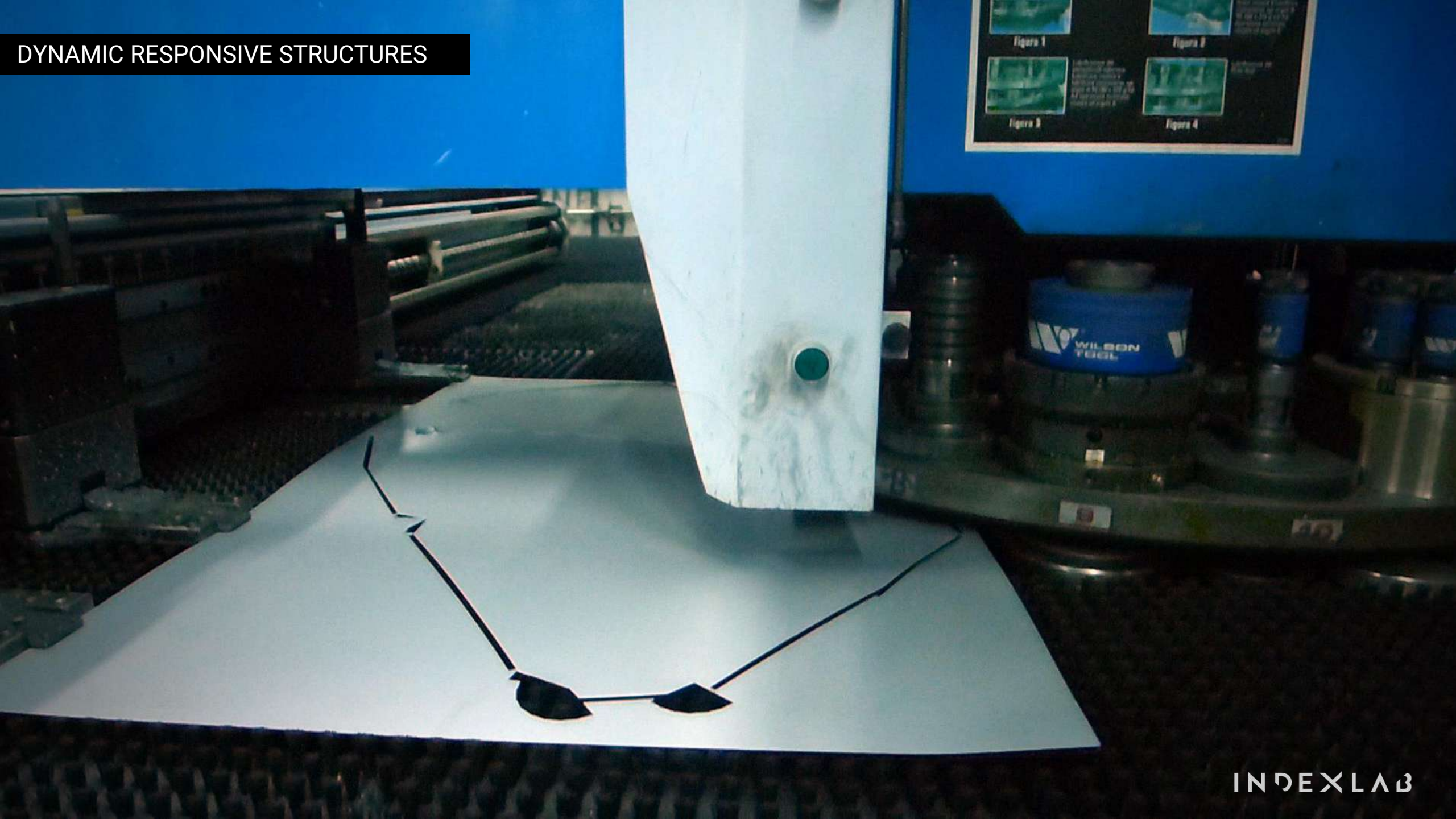
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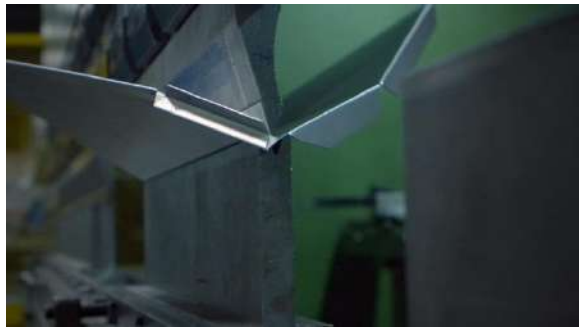
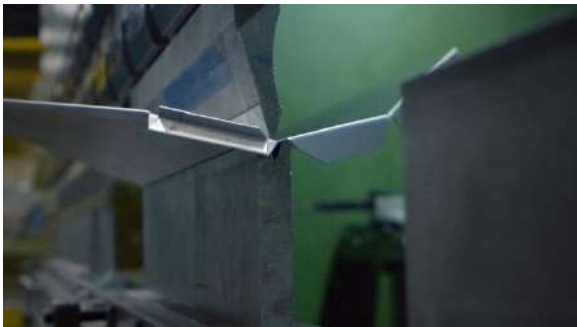
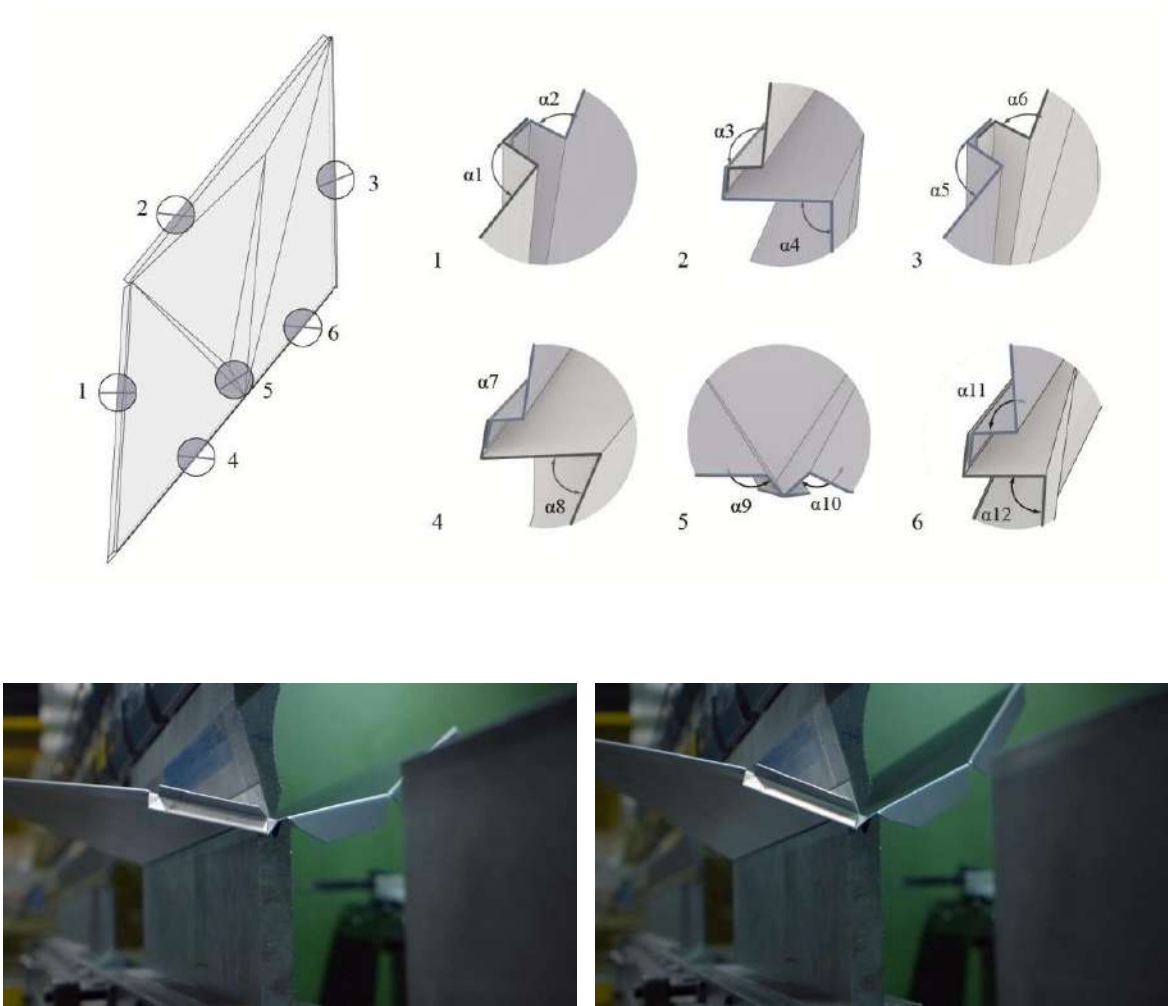
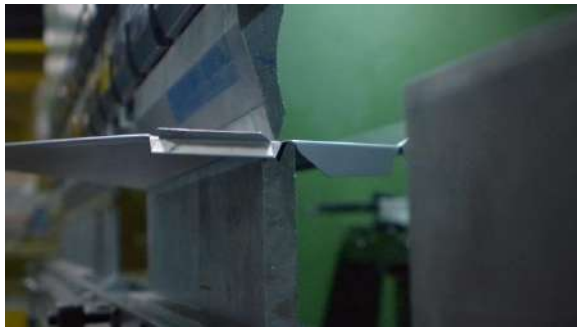
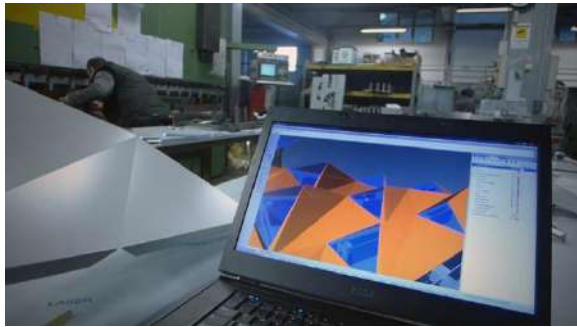
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DYNAMIC RESPONSIVE STRUCTURES



DYNAMIC RESPONSIVE STRUCTURES



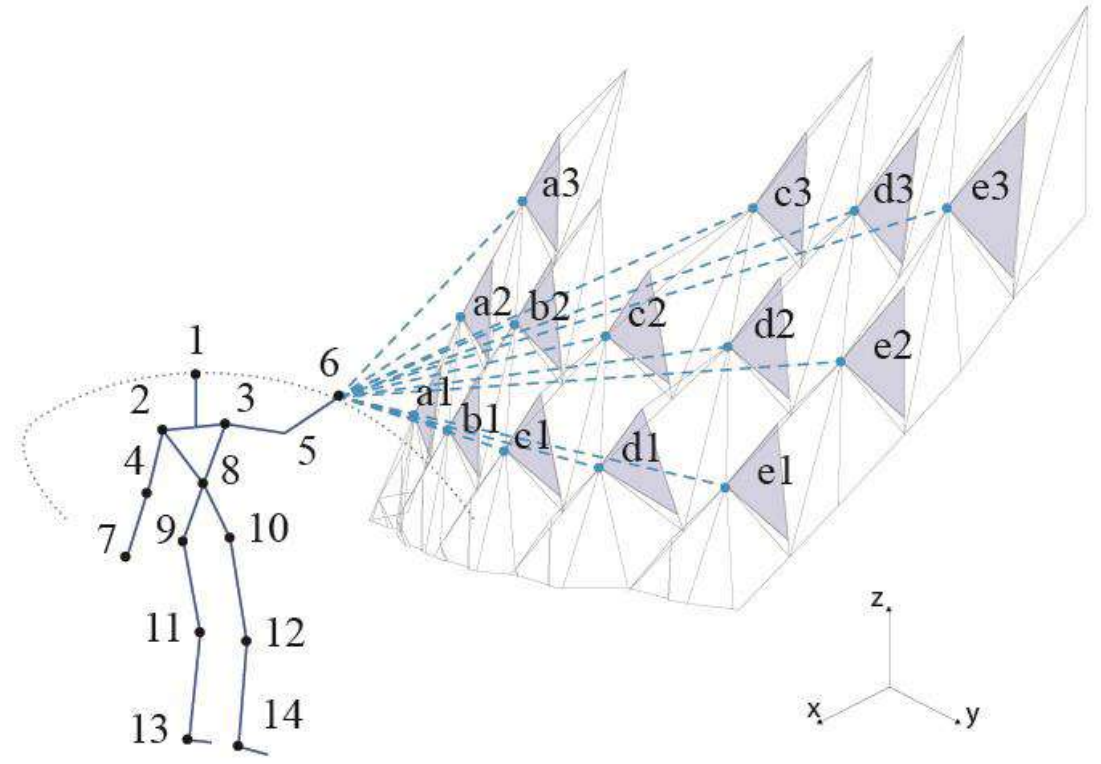
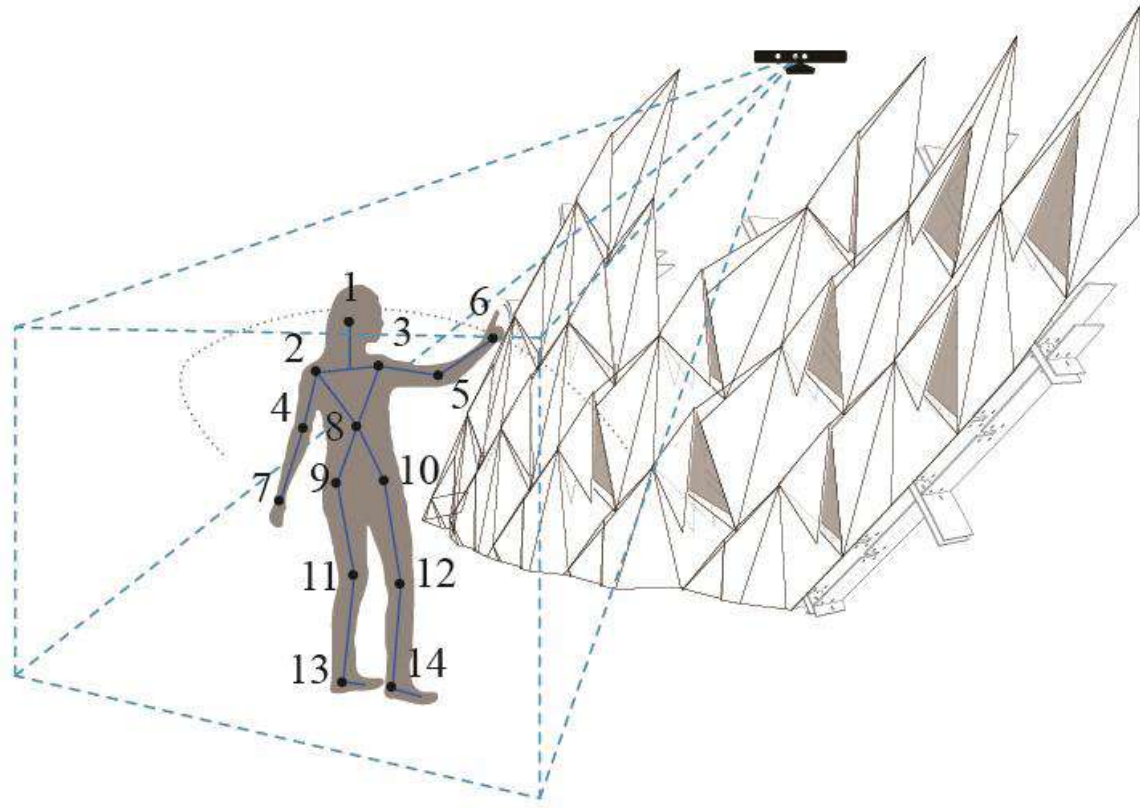
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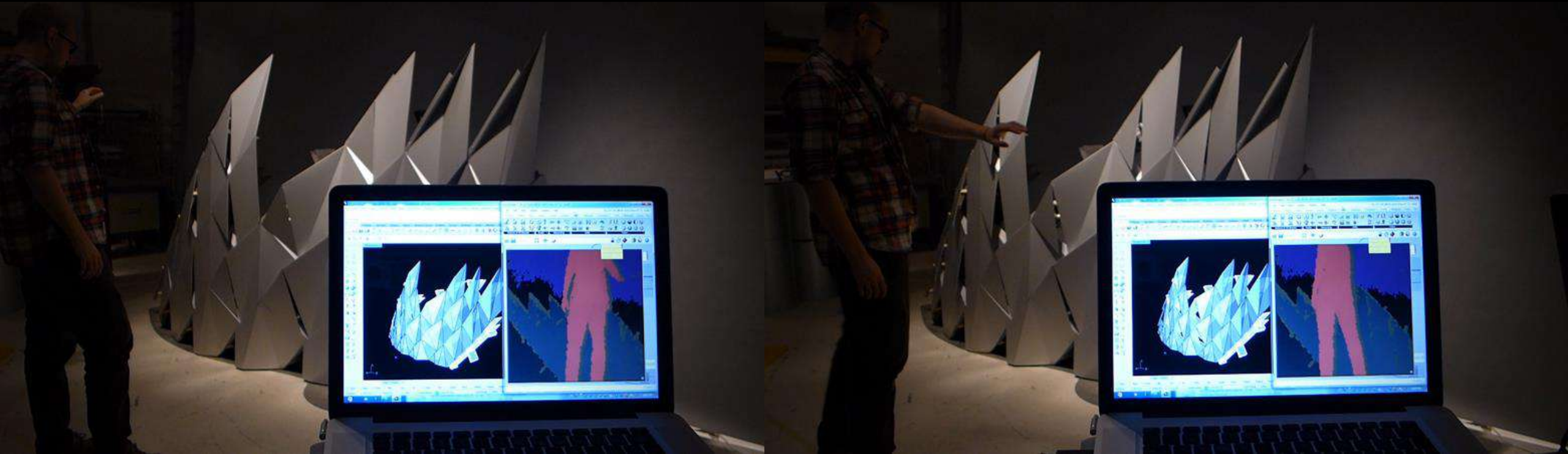
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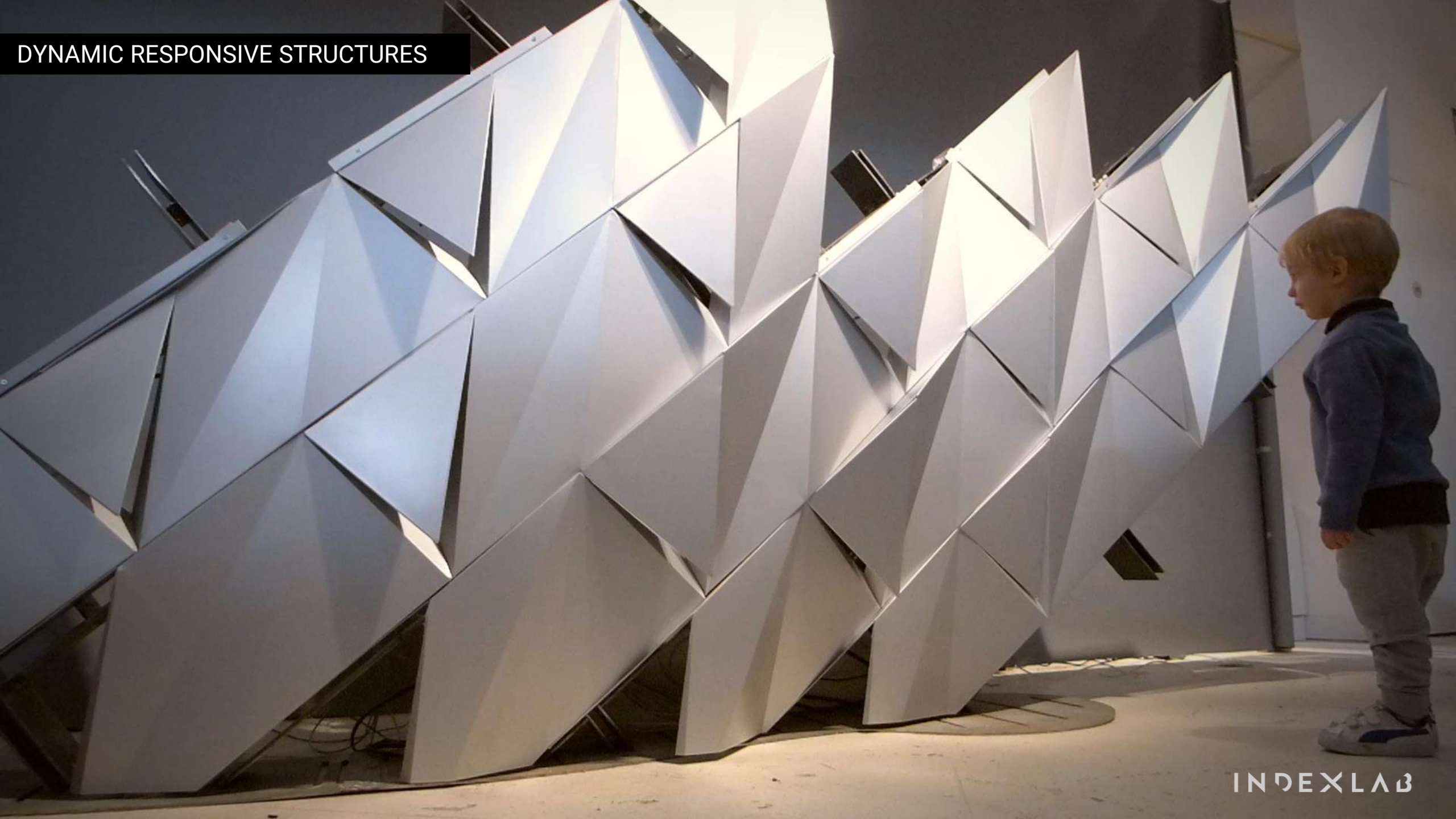
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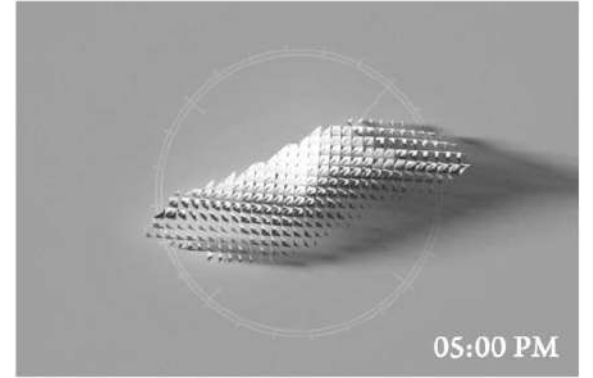
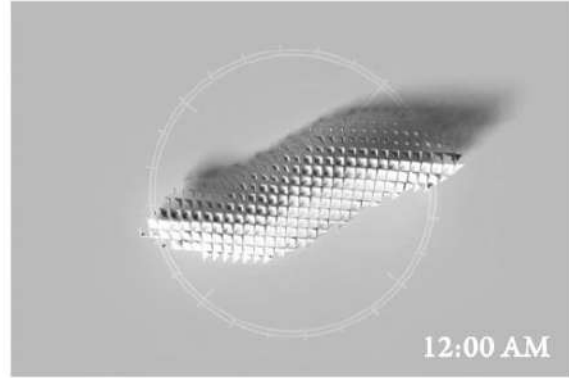
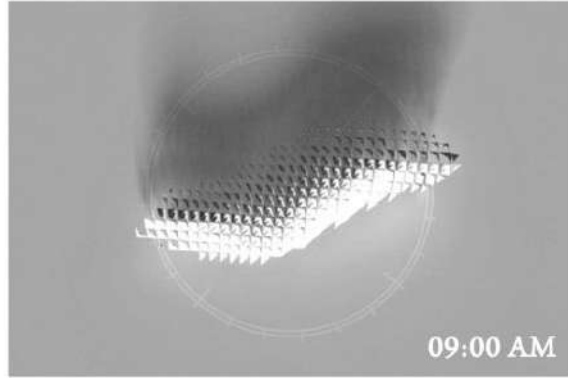
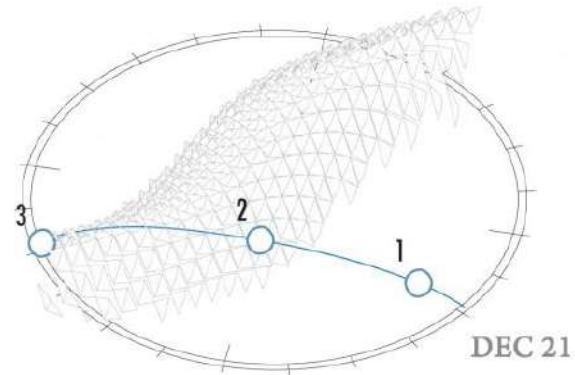
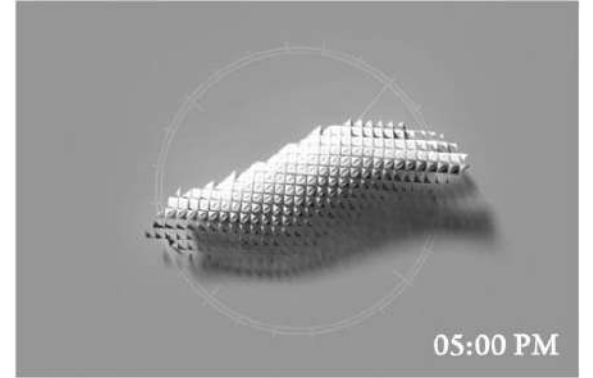
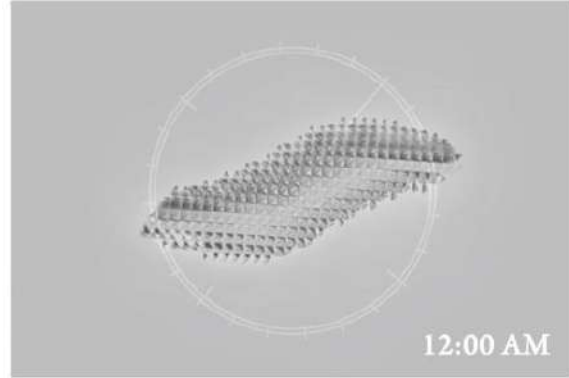
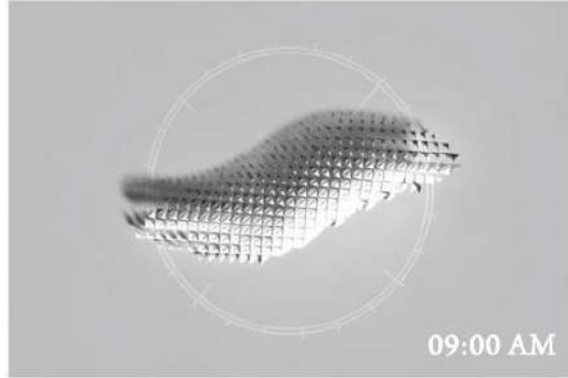
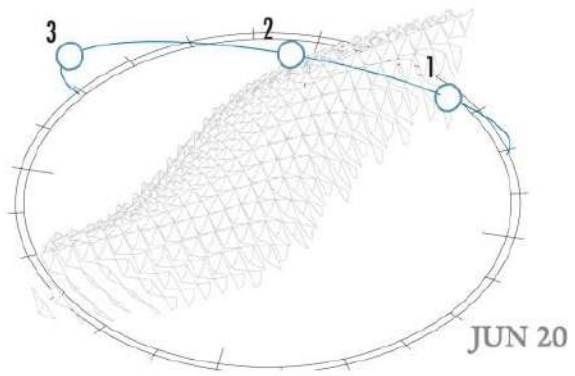
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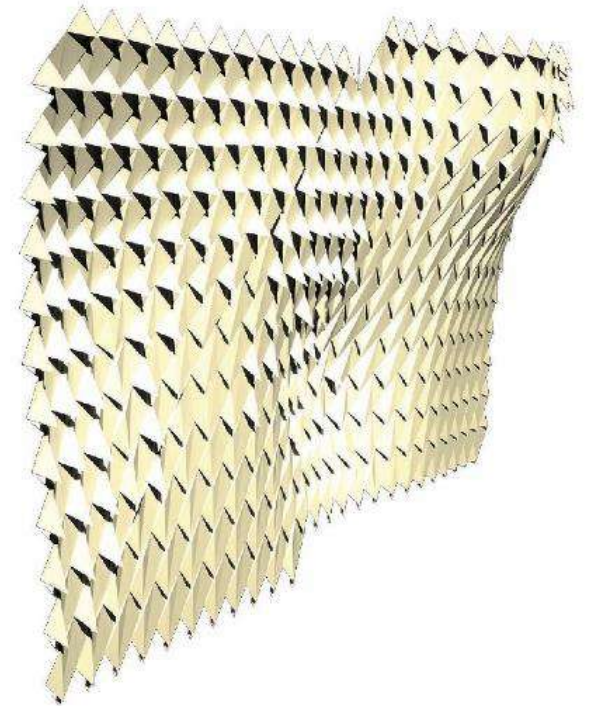
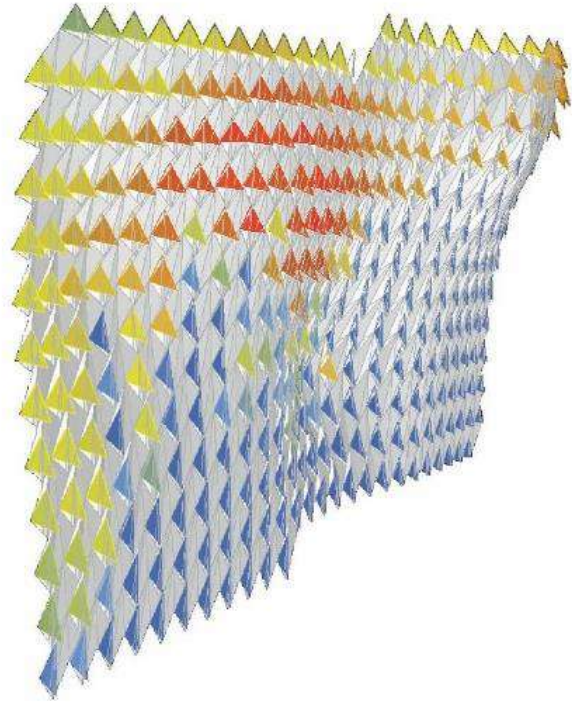
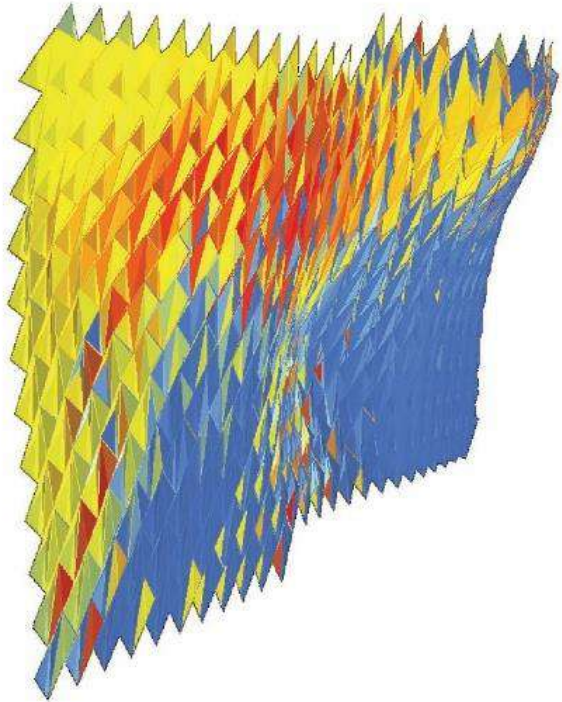
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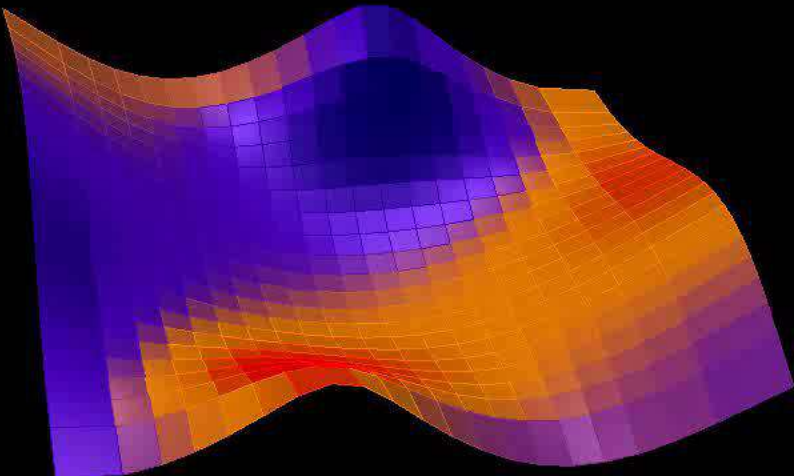
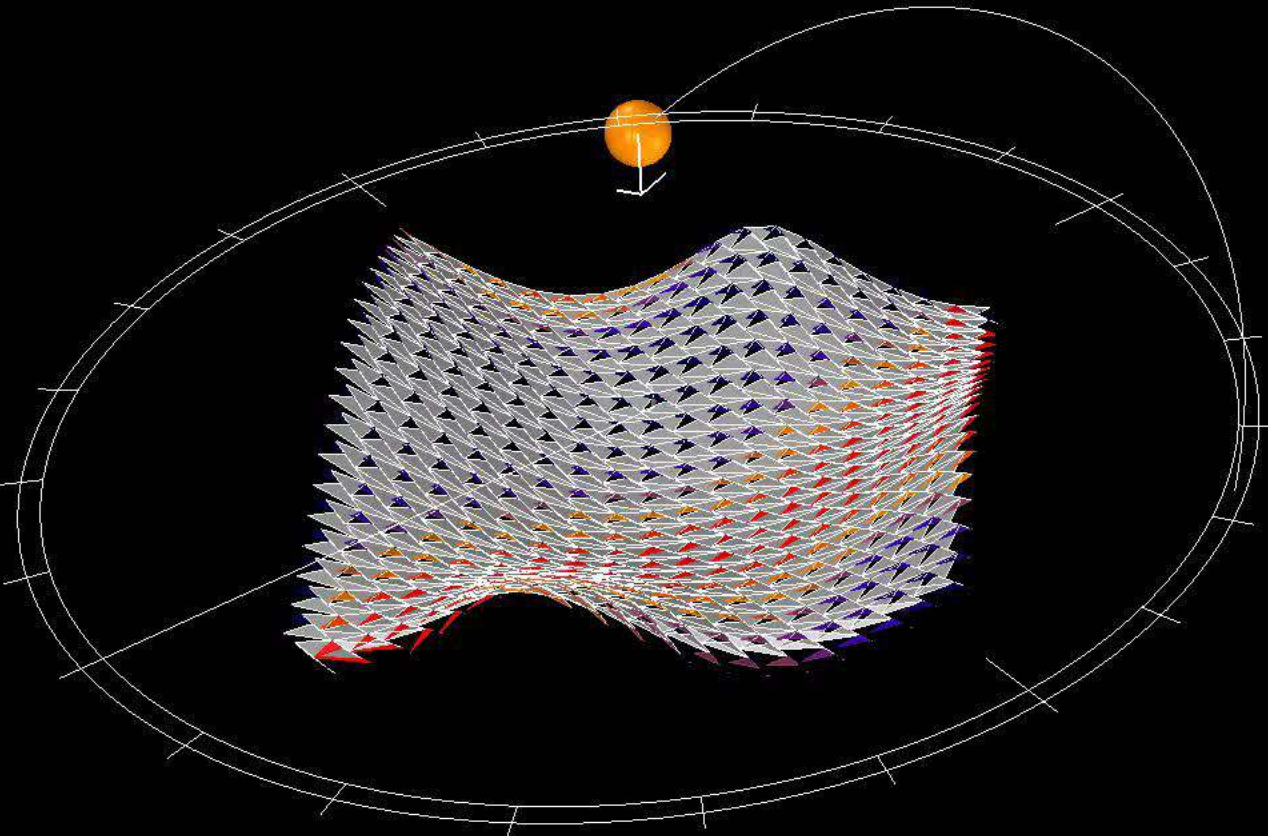
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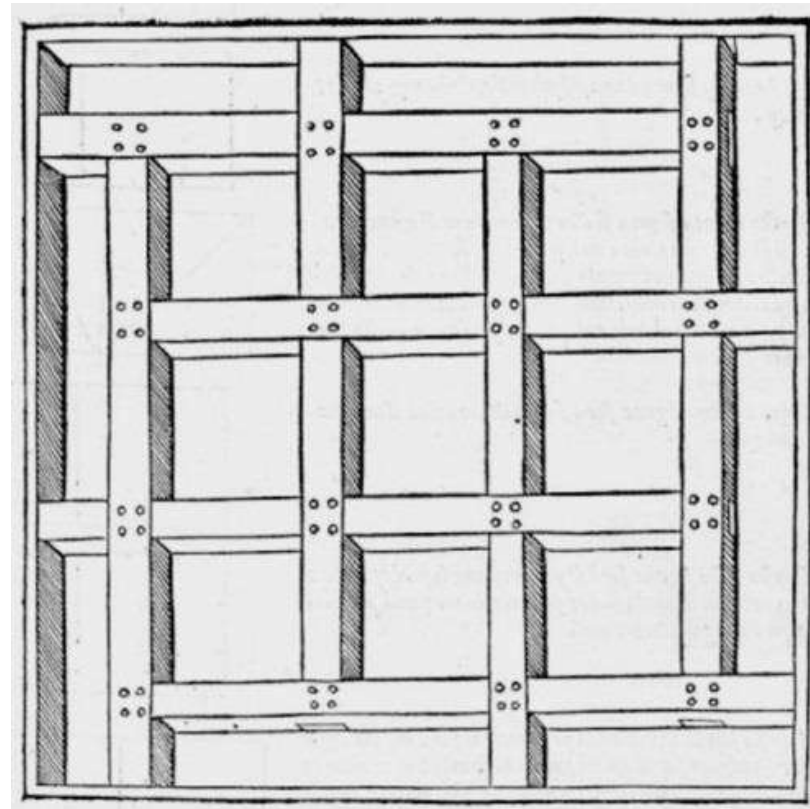
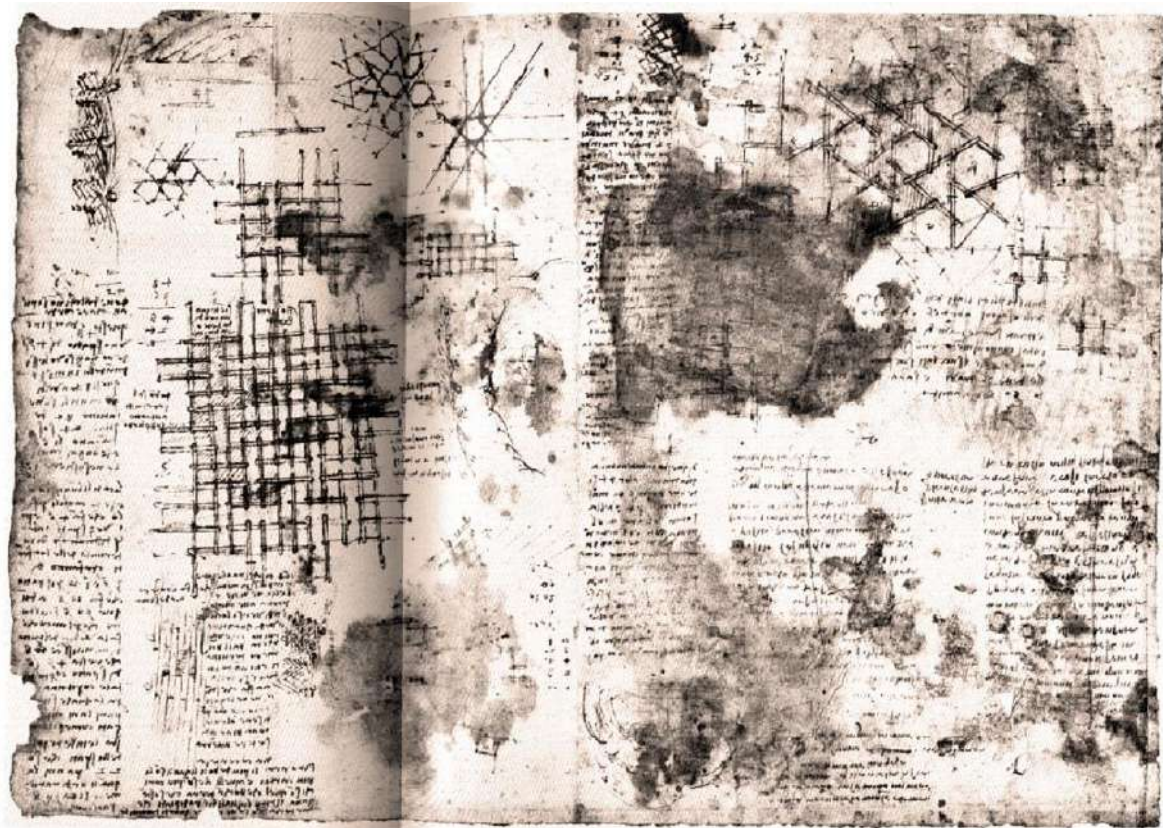


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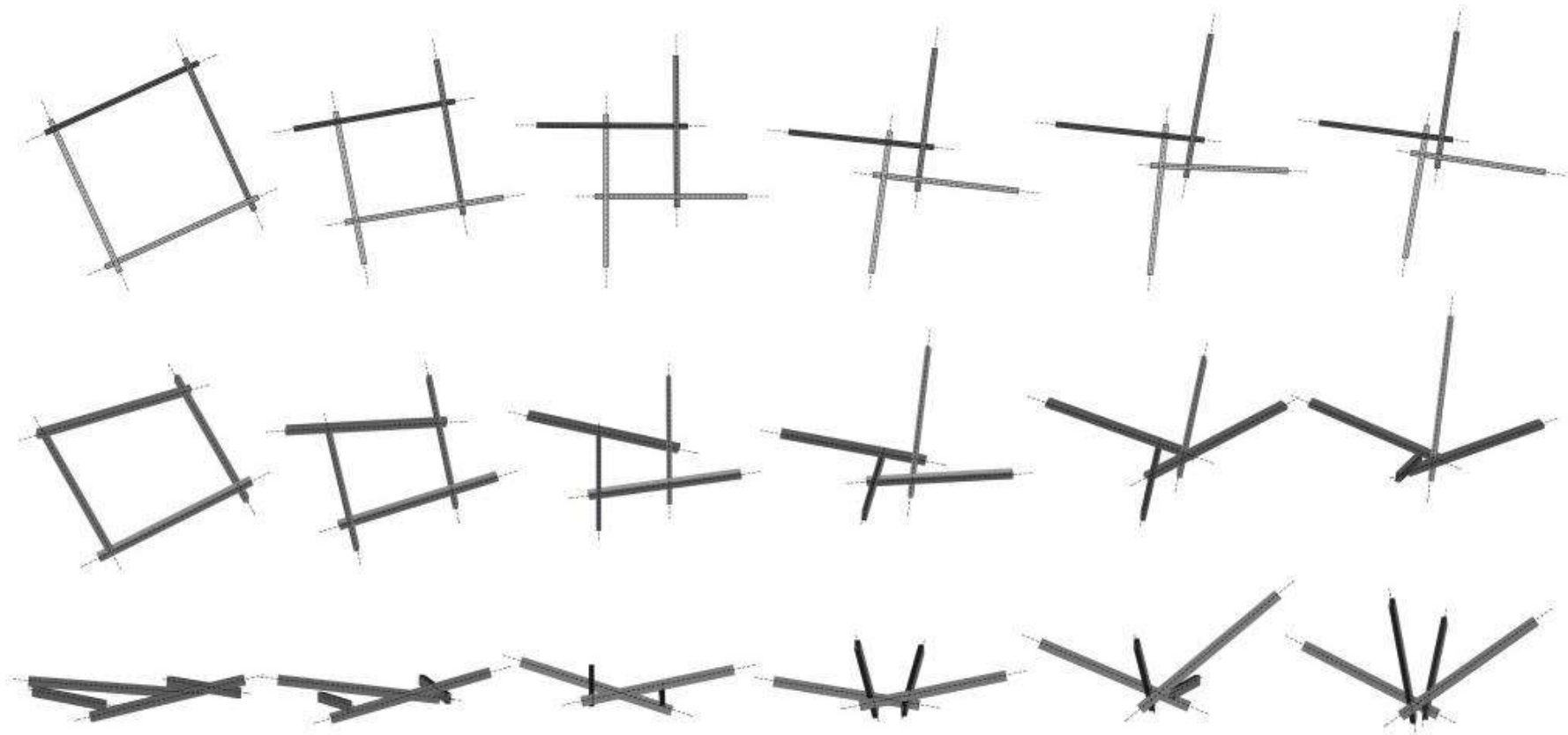


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y
x

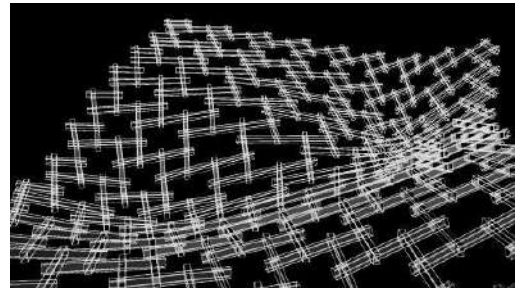
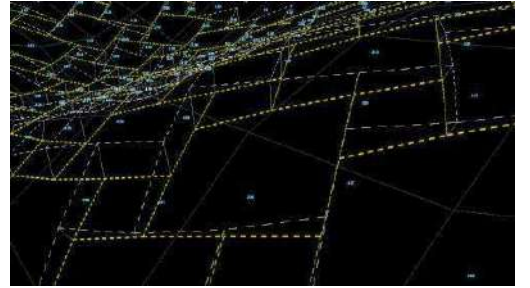
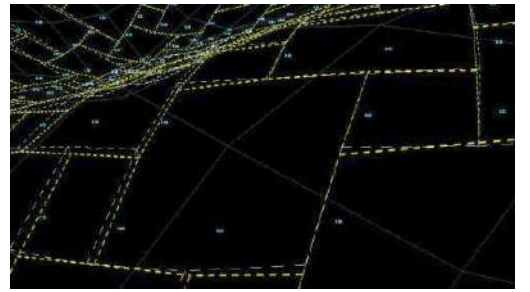
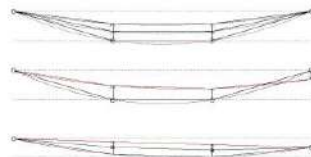
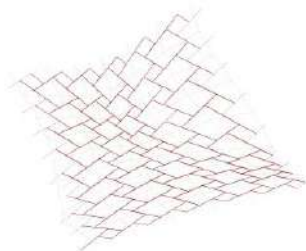
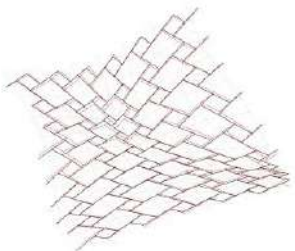
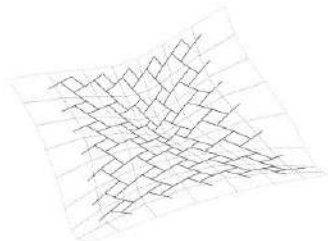
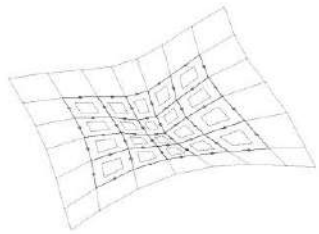
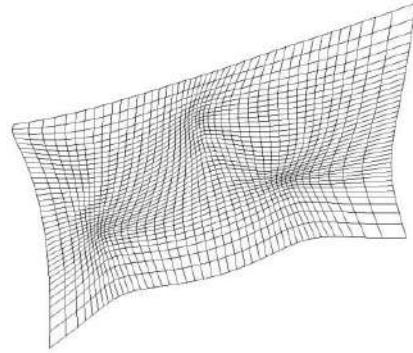
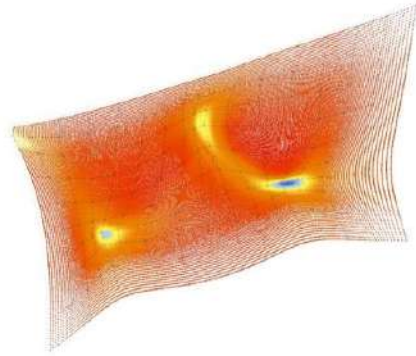
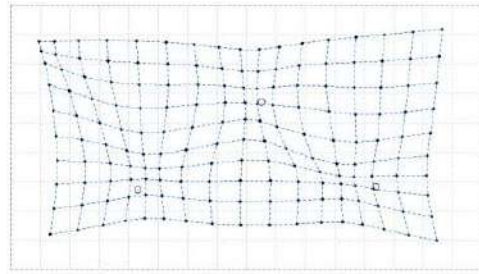
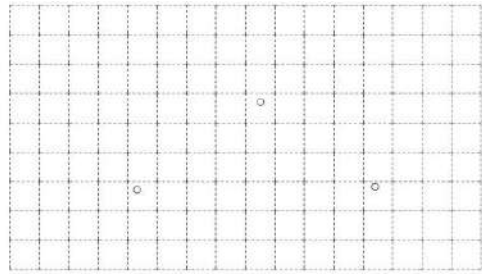
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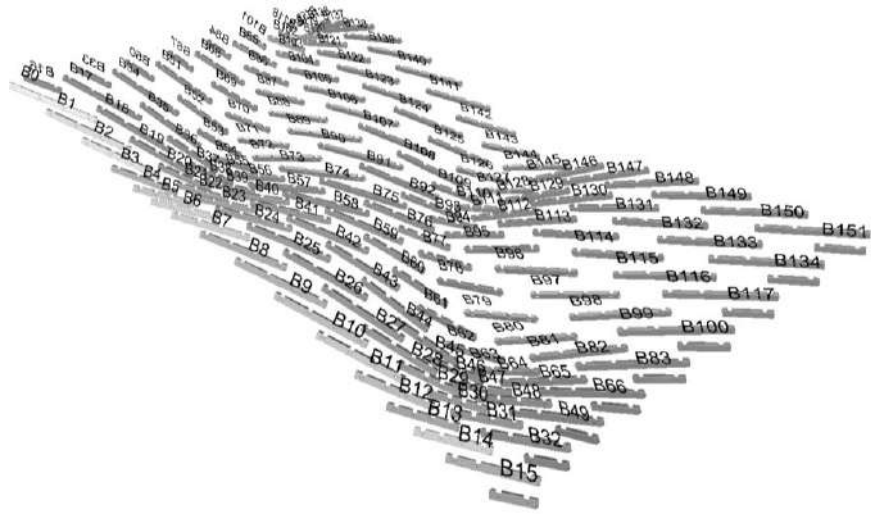
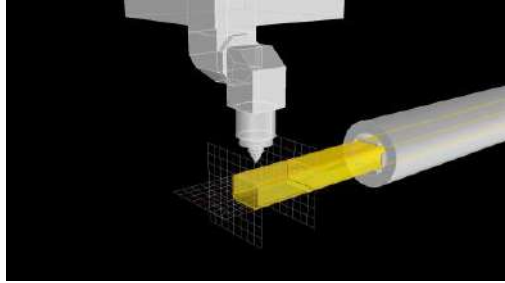
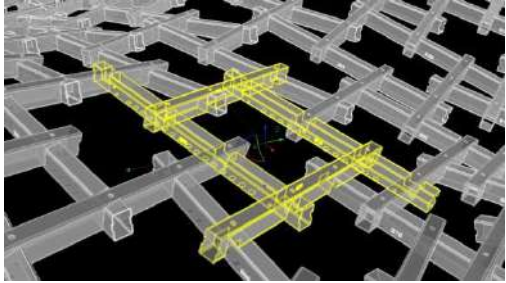
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RECIPROCAL STRUCTURES



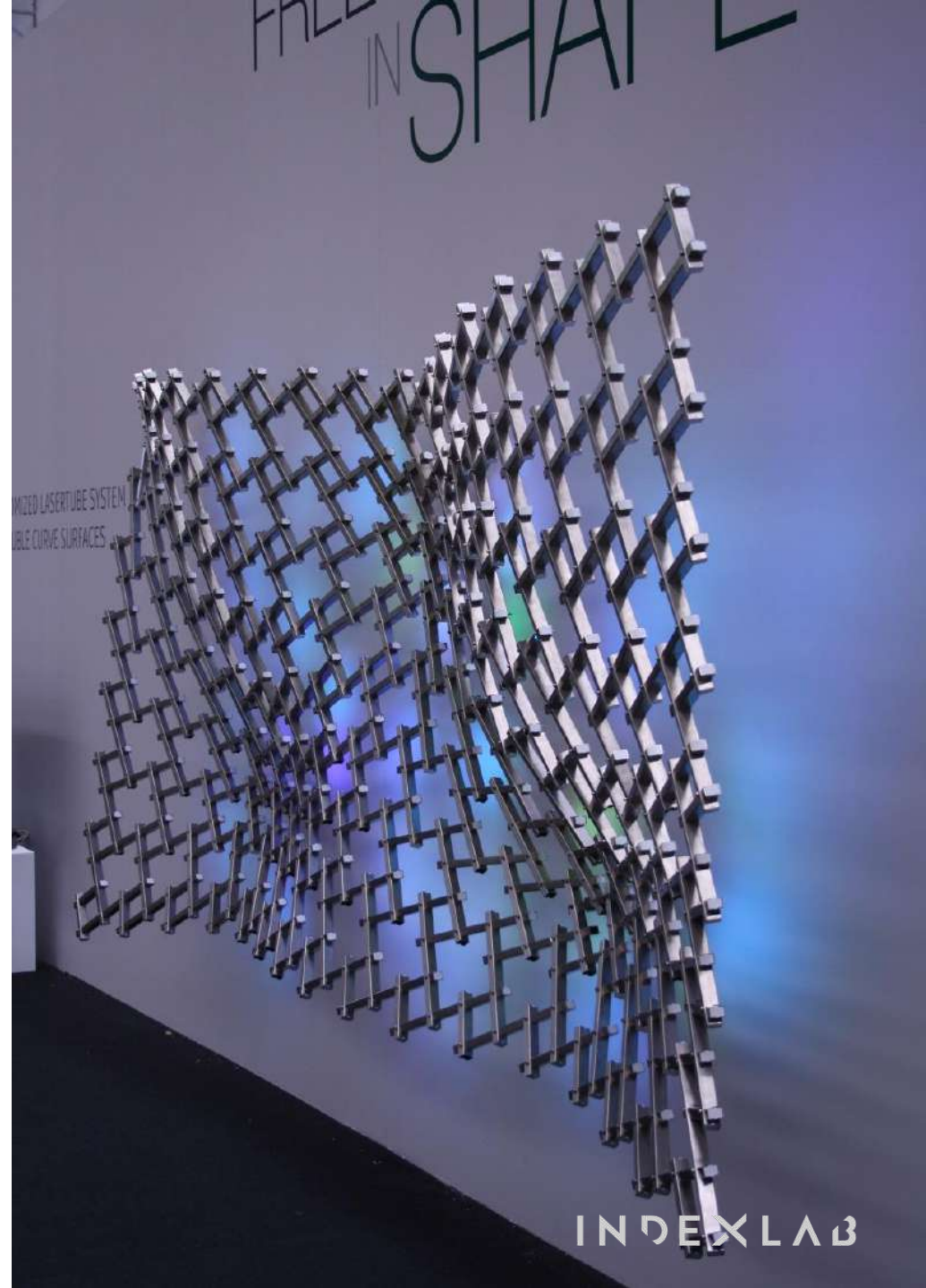
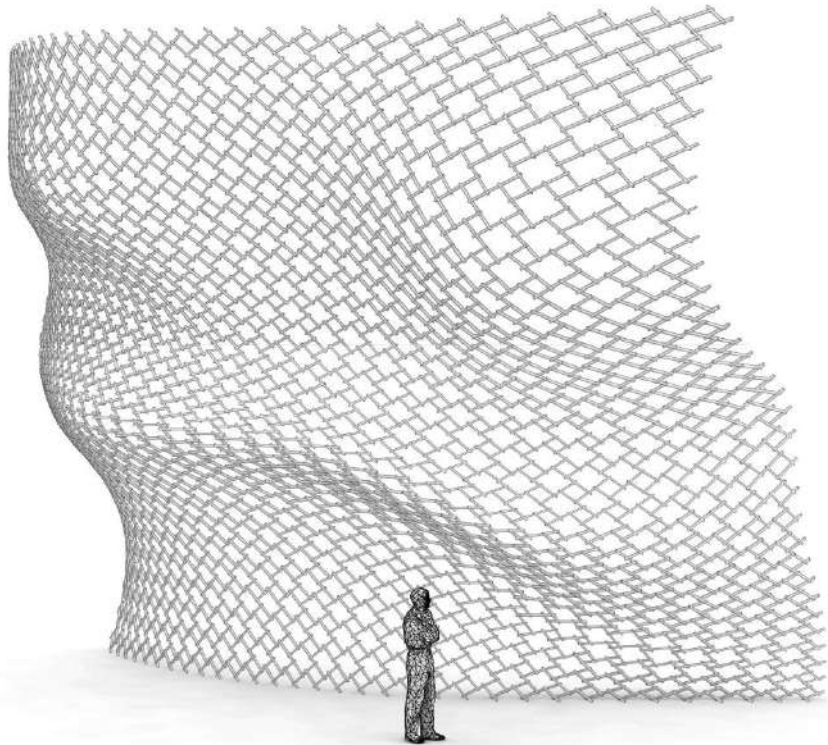
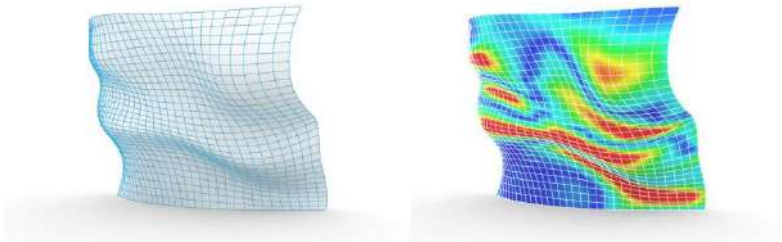
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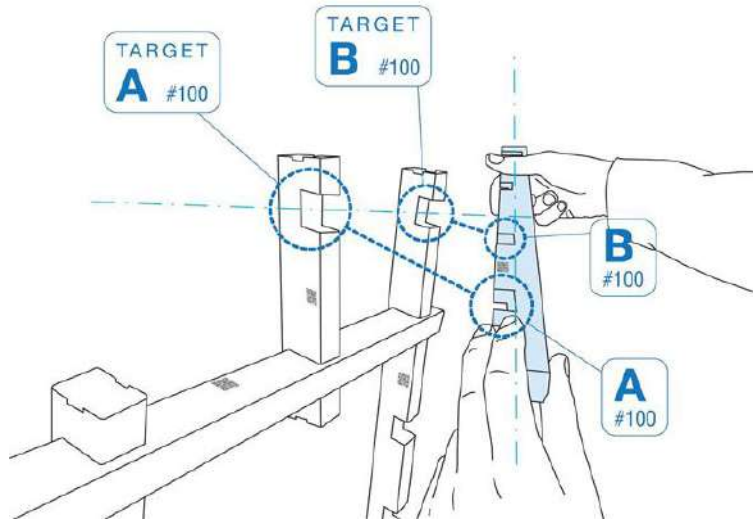
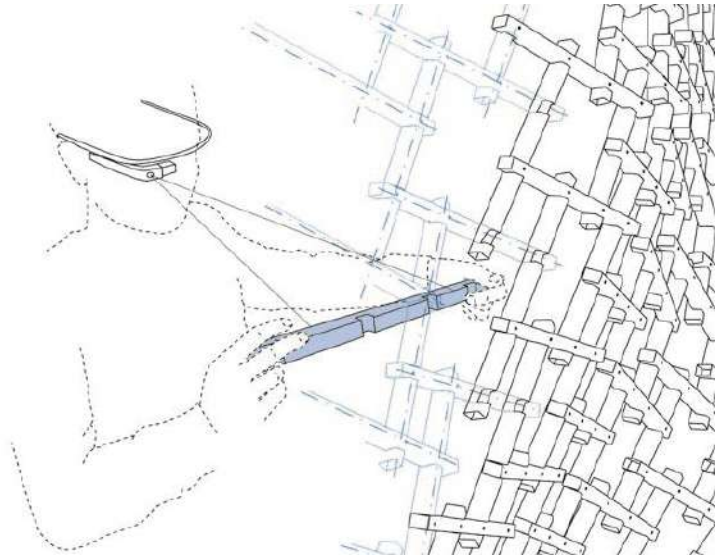
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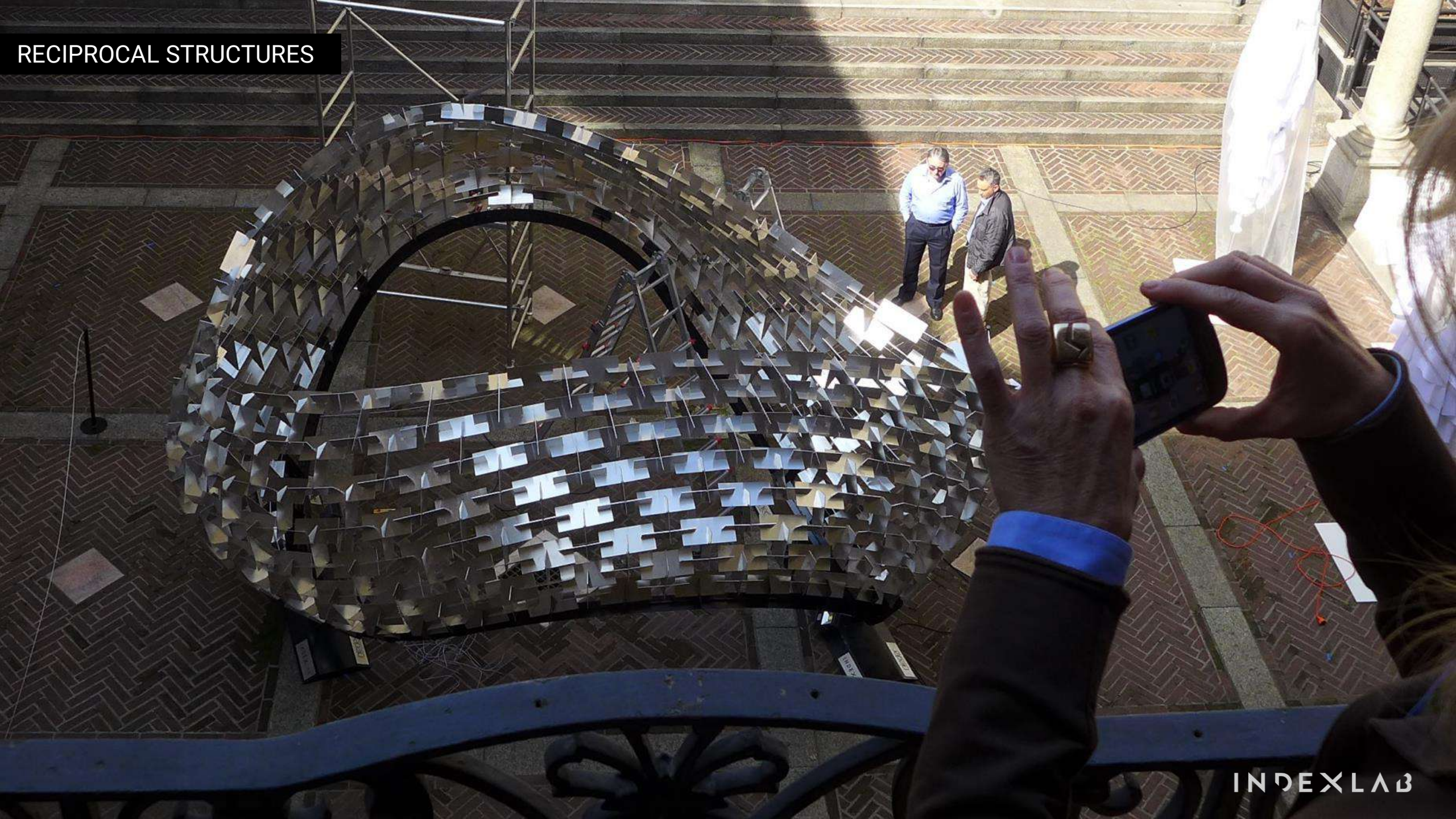
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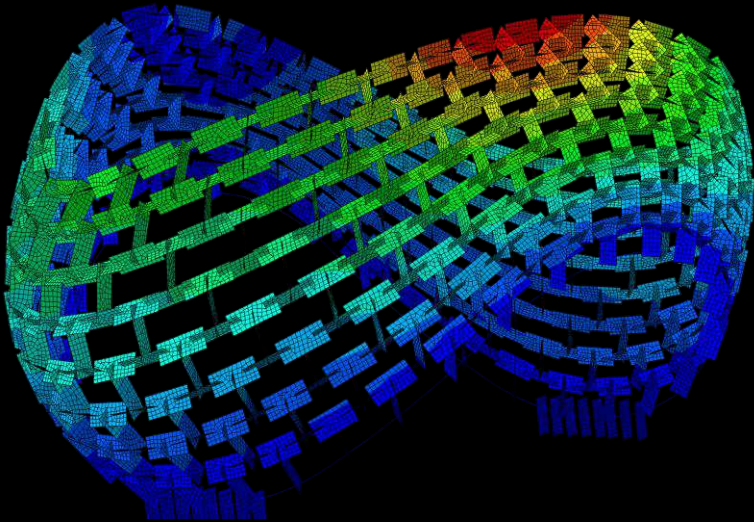
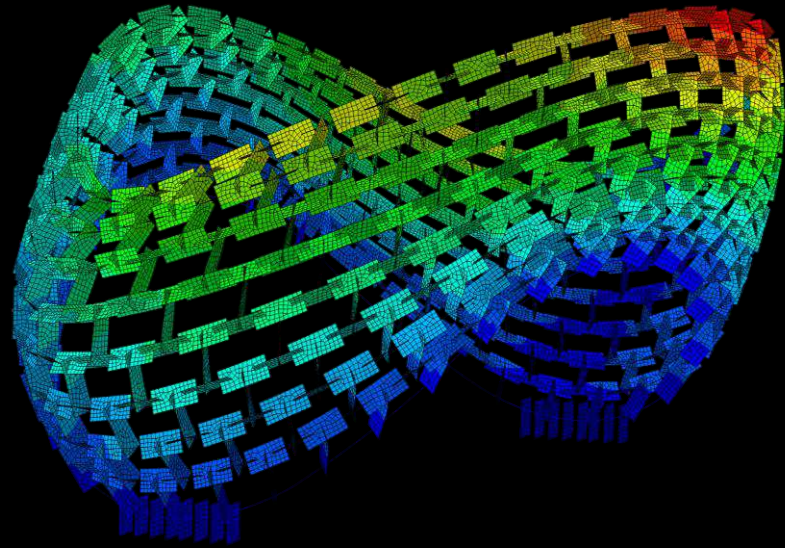
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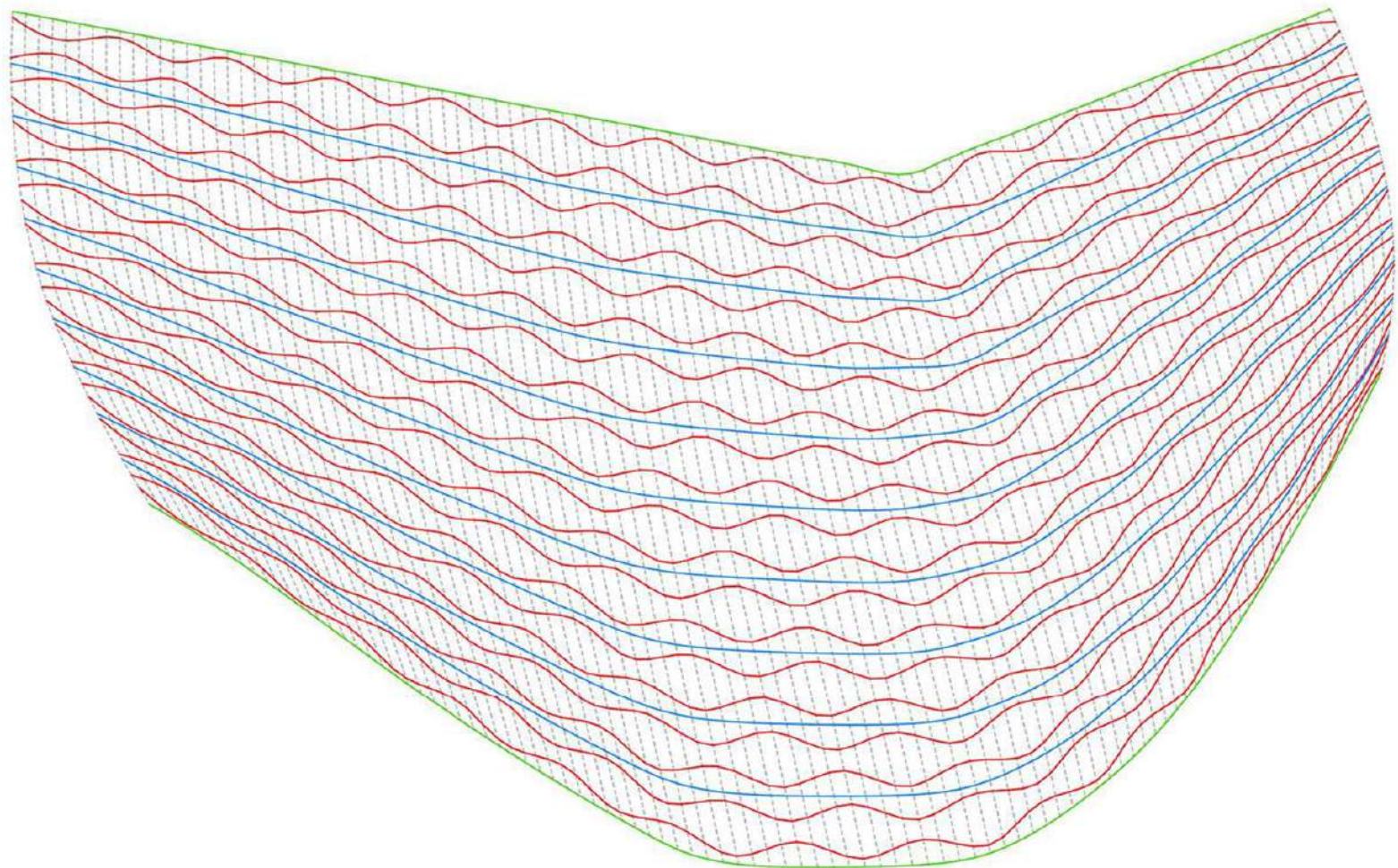
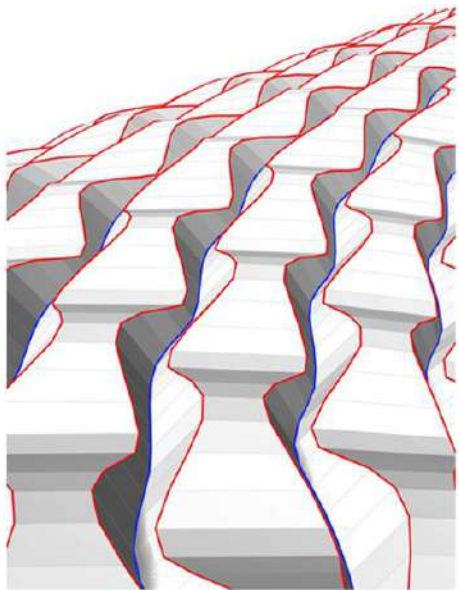


RECIPROCAL STRUCTURES



RECIPROCAL STRUCTURES

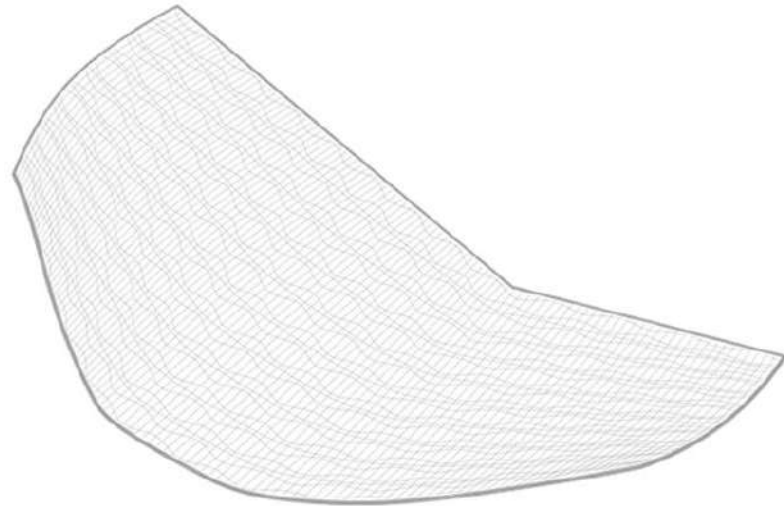




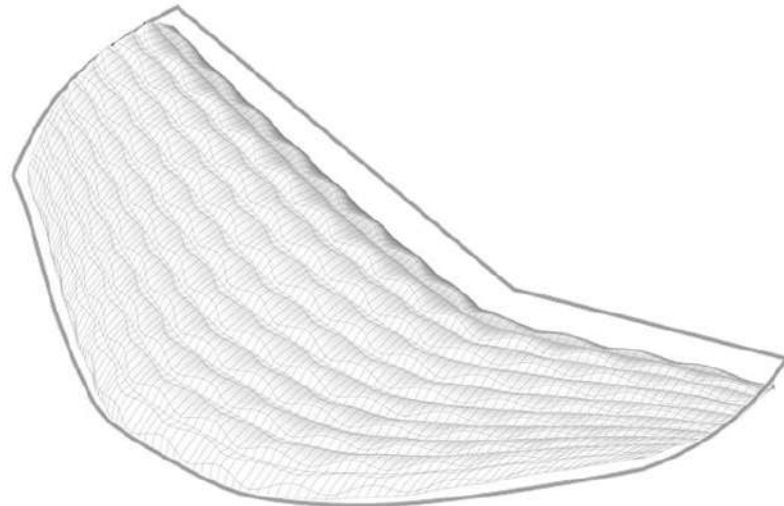
FOLDING LOGICS

- Edges
- Mountains
- Valleys
- Generatrixes

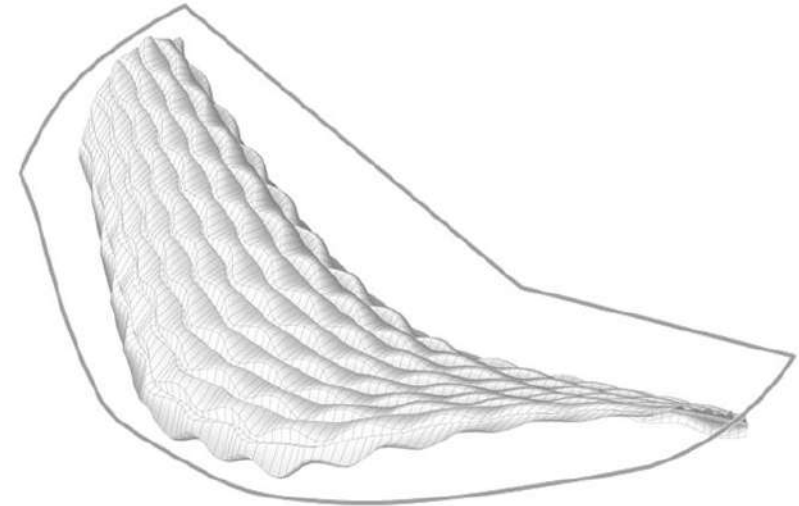
ADVANCED CLADDING SYSTEMS



UNFOLDED

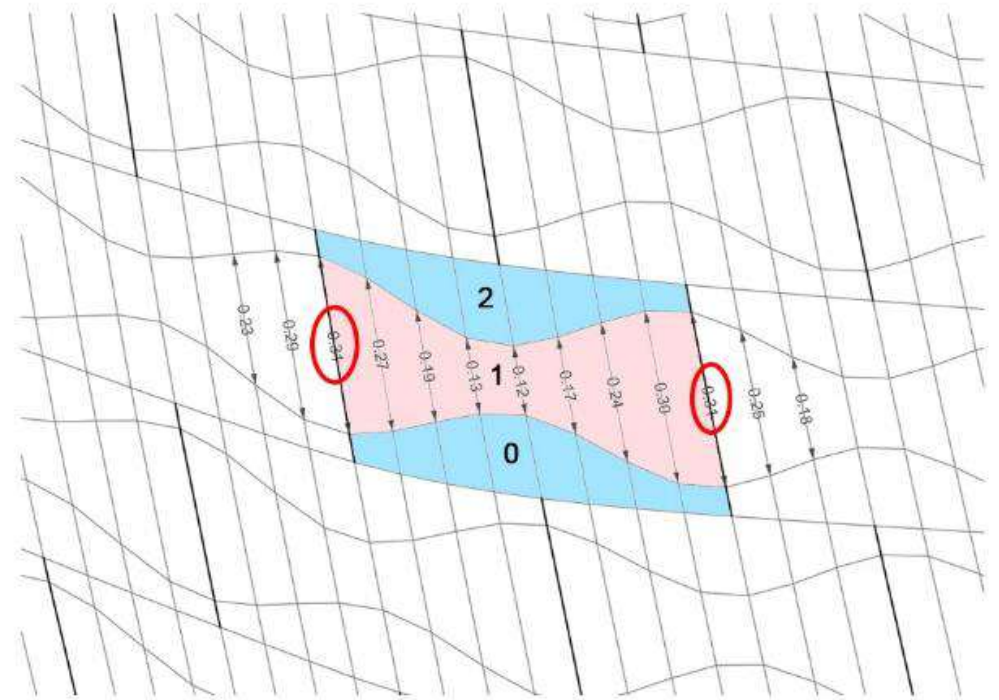
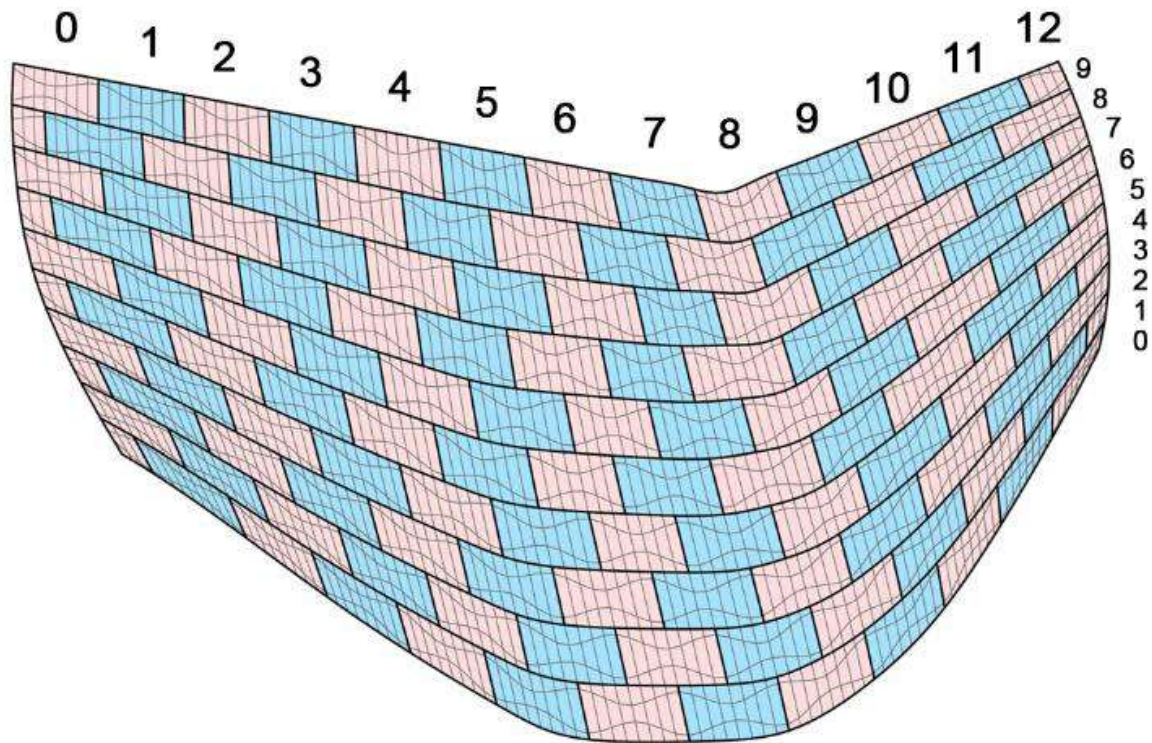


50% FOLDED



100% FOLDED

ADVANCED CLADDING SYSTEMS



ADVANCED CLADDING SYSTEMS



ADVANCED CLADDING SYSTEMS



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

What we do

We empower our customers to accelerate creative and technological innovation, pushing the boundaries of customization and data-driven performance. By advancing design and manufacturing processes, we help companies thrive in a rapidly changing world.

Our services



Research

Our mission is to invent and launch innovative construction systems. We tackle ideas that have the riskiness and ambition of early-stage research and approach them with the focus and speed of a start-up. Our goal is to develop these ideas and turn them into proven systems and technologies that make a real impact in the world. We work closely with industrial partners and forward-looking companies to explore the future of construction.



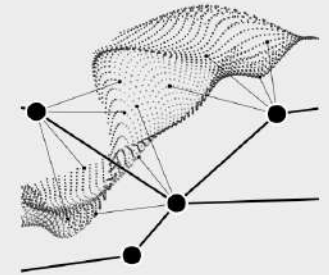
Consultancy

Our advanced design and manufacturing expertise provide our customers with a wide spectrum of services, ranging from computational design to digital and robotic fabrication, interaction and media design. Whether it is building a parametric model or developing a custom computational design workflow, our team is equipped to deliver advanced capabilities and strategic consultancy to support the most challenging projects.



Education

For the last decade, we have focused on broadening our understanding of trends and practice in architecture, design, and manufacturing. We believe in the dissemination of culture, where continuing education provides a common ground for growth. For this reason, we share our knowledge through academic courses and professional training workshops, as well as by participating in trade fairs and specialistic conferences.



Artworks

Our interest lies in the genesis of form and the overlap of science with art. As a cross-disciplinary research environment, we conceive, design and manufacture outstanding artworks that inspire wonder and engage viewers through interactive experiences. Whether it is an installation for special events or a piece of art for a museum, our team works tirelessly to deliver innovative designs that reflect the culture of the world around us.

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info@indexlab.it