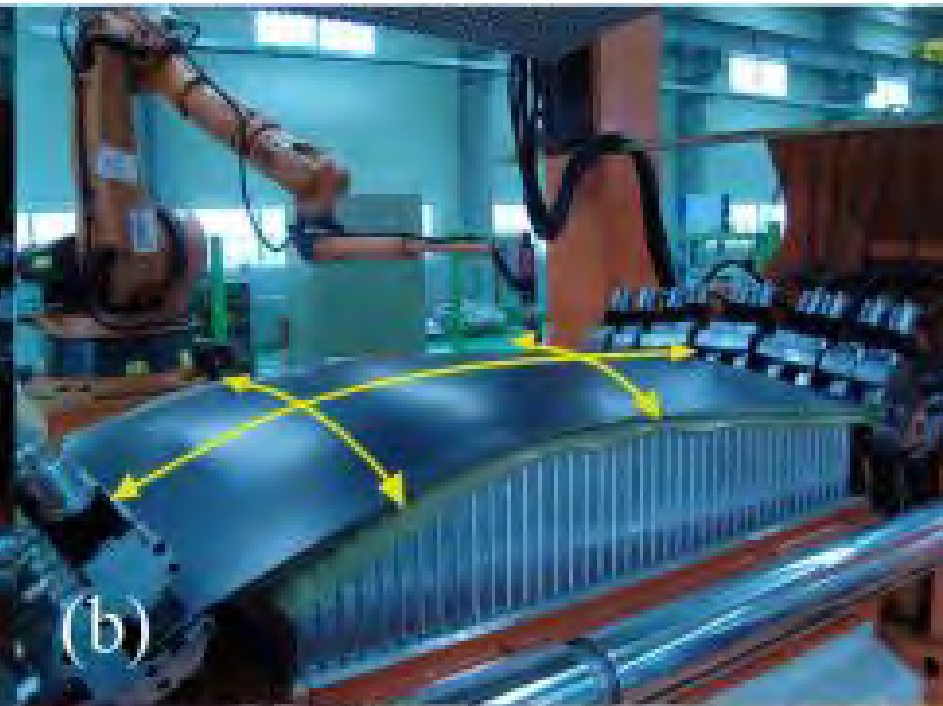




Seúl, Corea del Sur

<http://www.designboom.com/architecture/zaha-hadid-seoul-dongdaemun-design-plaza-park-03-24-2014/>



A close-up photograph of Charles Hull, an elderly man with glasses and a mustache, wearing a light blue shirt. He is holding a transparent, 3D printed gear-like object in his right hand. The background is dark and out of focus.

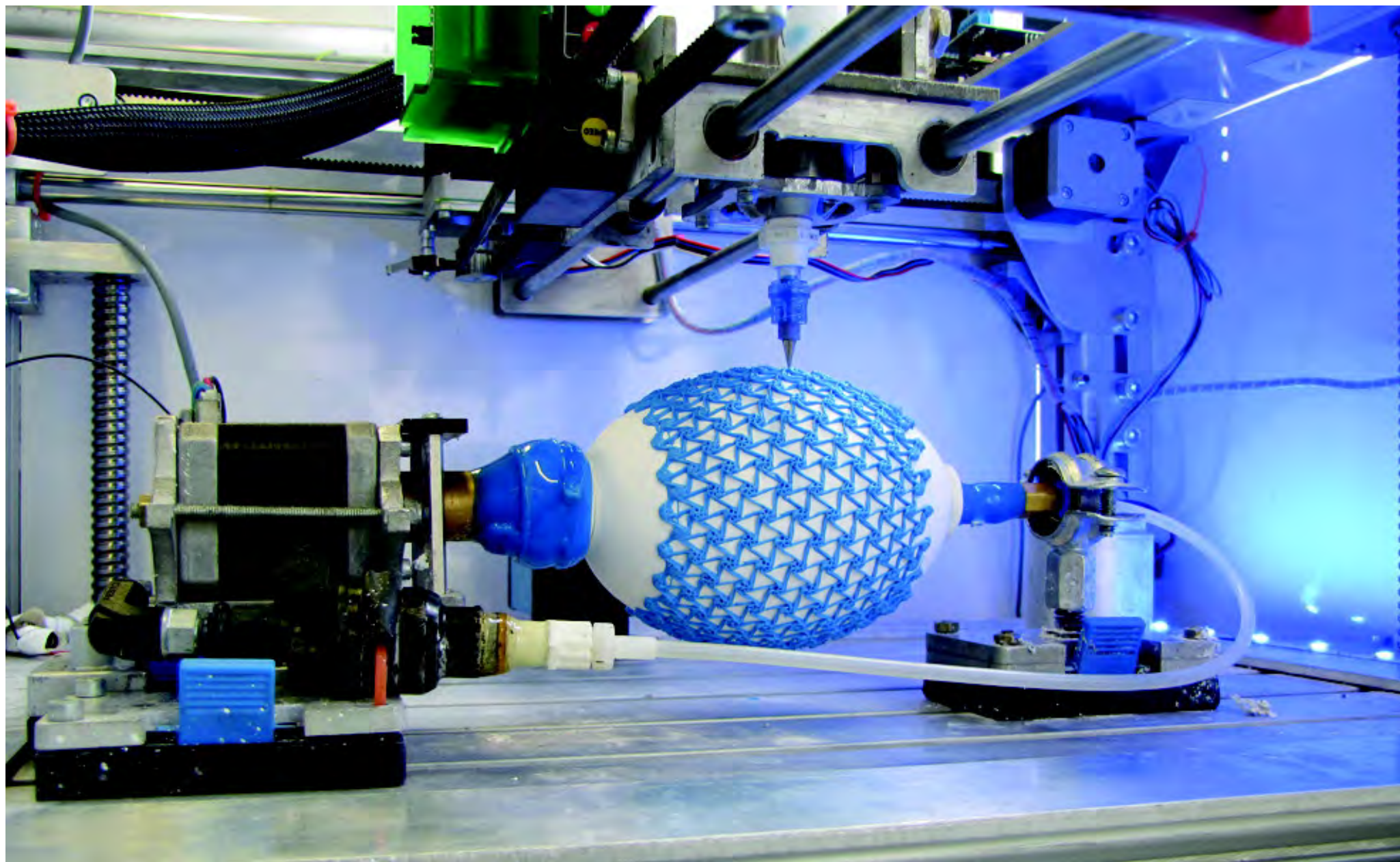
**Charles Hull**

**1983**

*FFF Material de  
soporte*

*FCM Resina  
Dimensiones Costos.*

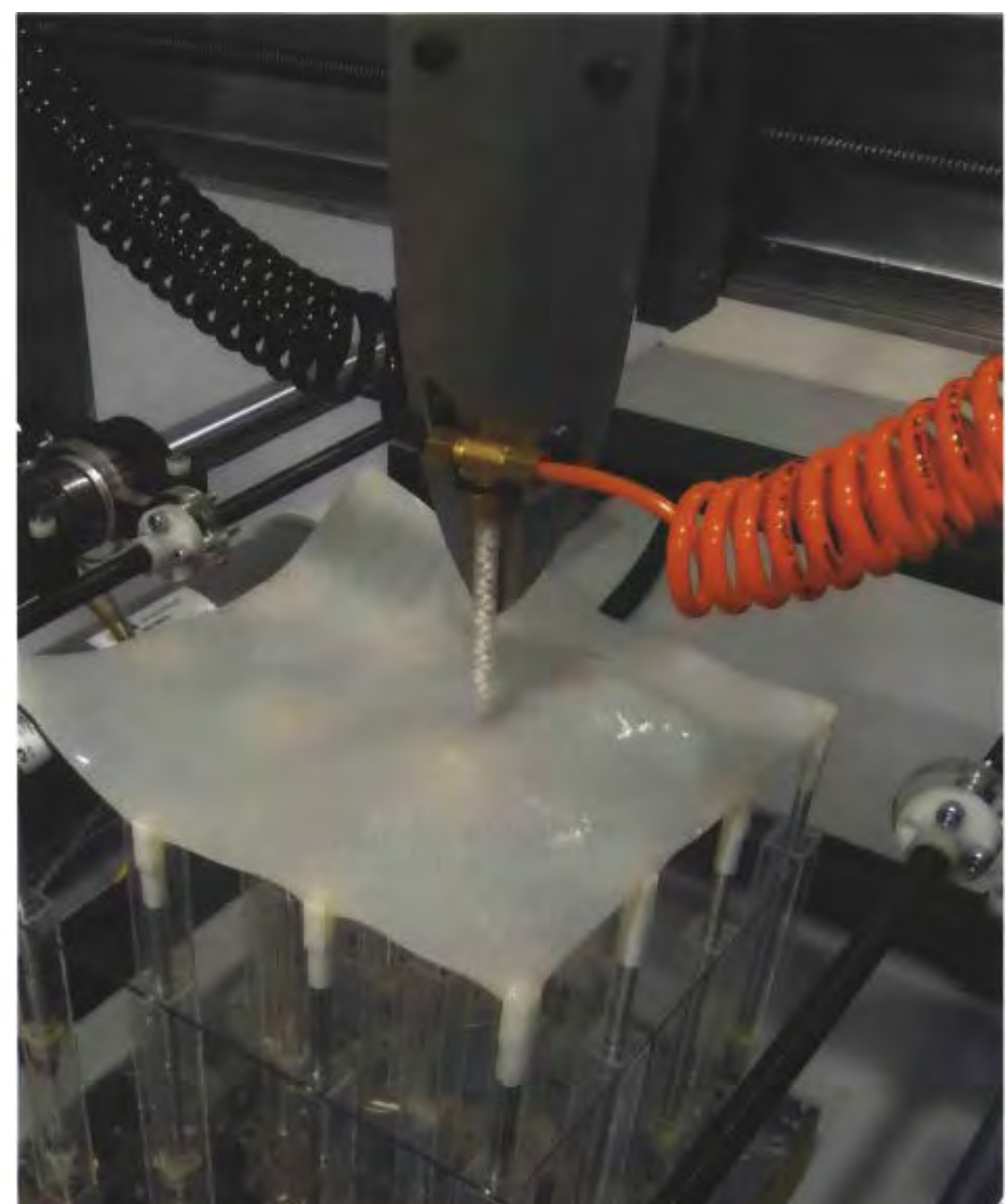
<https://www.epo.org/learning-events/european-inventor/finalists/2014/hull.html>



<http://www.fergalculter.eu/>  
**3D Printing on Inflated Substrates and Dielectric Elastomer Artificial Muscles.**



Alexandros Tsamis with Stelios Dritsas  
Digital Graft. Mold is device. 2004



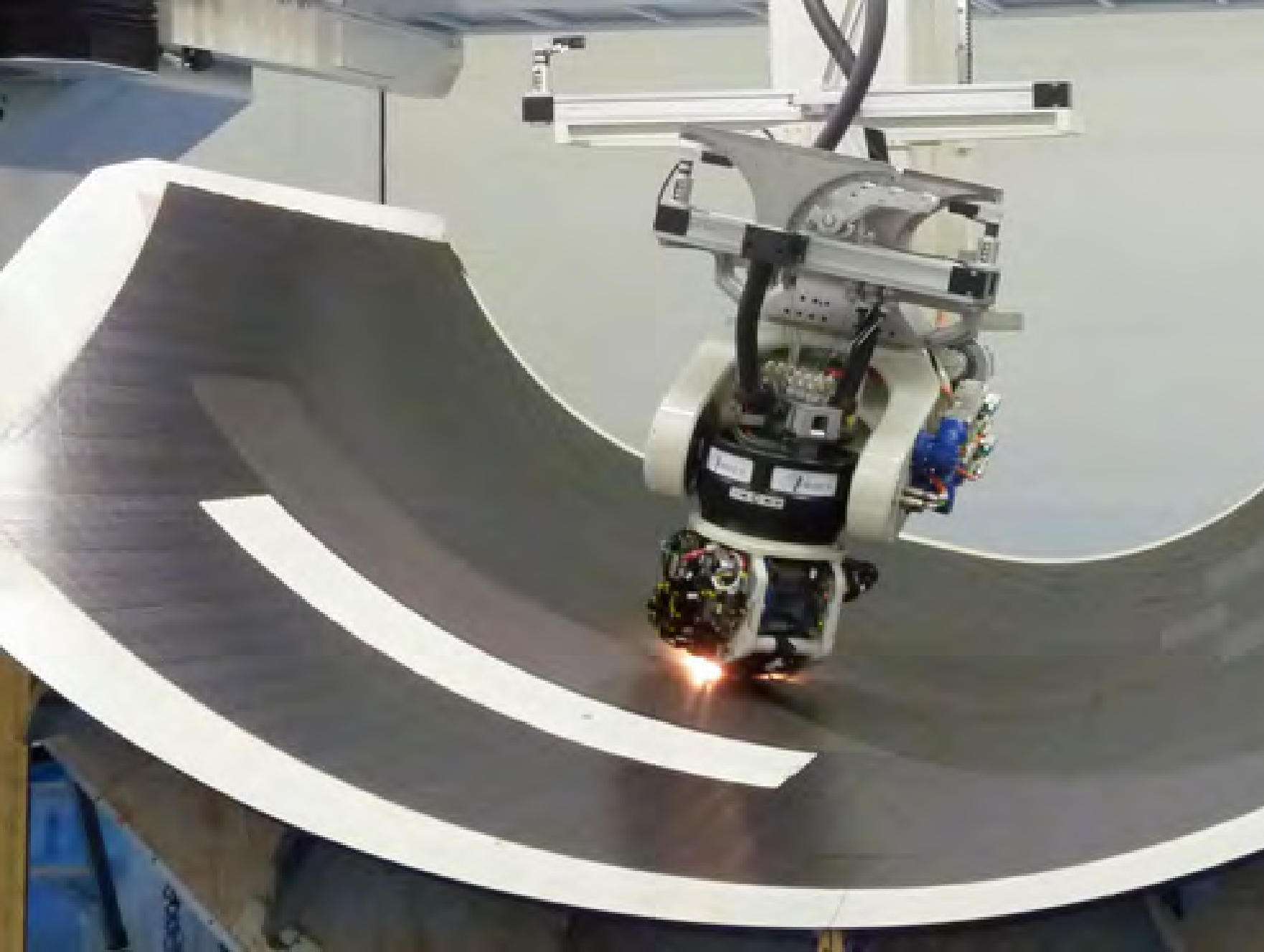
**Alexandros Tsamis, SOFTWARE TECTONICS,**  
Imagen Cast\_i printing Head, 2012



ARCHITECTURE



Free-form facades & interior panels. Courtesy of [ADADA](#)



**(AFP) Fabricando parte de un fuselaje de avión que requieren de gran precisión y características específicas. Siempre con la necesidad de un soporte o matriz, “fuselaje de avión”**

**TORRESFIBERLAYU**  
diseñada y desarrollada por  
Mtorres.

**Table 1. Worldwide Tape Layer Systems**

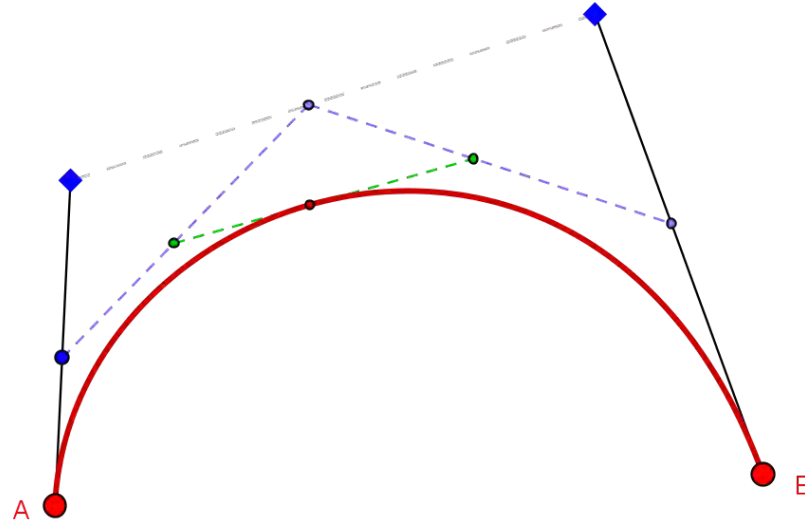
<b><u>NORTH AMERICA:</u></b>		
Boeing	Seattle, Tulsa, St Louis	21
Textron Aerostructures	Nashville, TN	2
NASA	Huntsville, AL	1
Vought Aircraft	Dallas, TX	1
Cincinnati Machine	Cincinnati, OH	1
Bell Helicopter	Ft Worth, TX	3
<b><u>EUROPE AND ASIA:</u></b>		
Dassault Aviation	Biarritz, France	2
Alenia	Foggia, Italy	2
CASA	Madrid, Spain	4
SABCA	Netherlands	1
Nurtano	Indonesia	1
Kawasaki	Japan	1
Fuji Heavy Industries	Japan	1
British Aerospace	United Kingdom	1
DaimlerChrysler Airbus	Stade, Germany	2
Torres	Spain	1



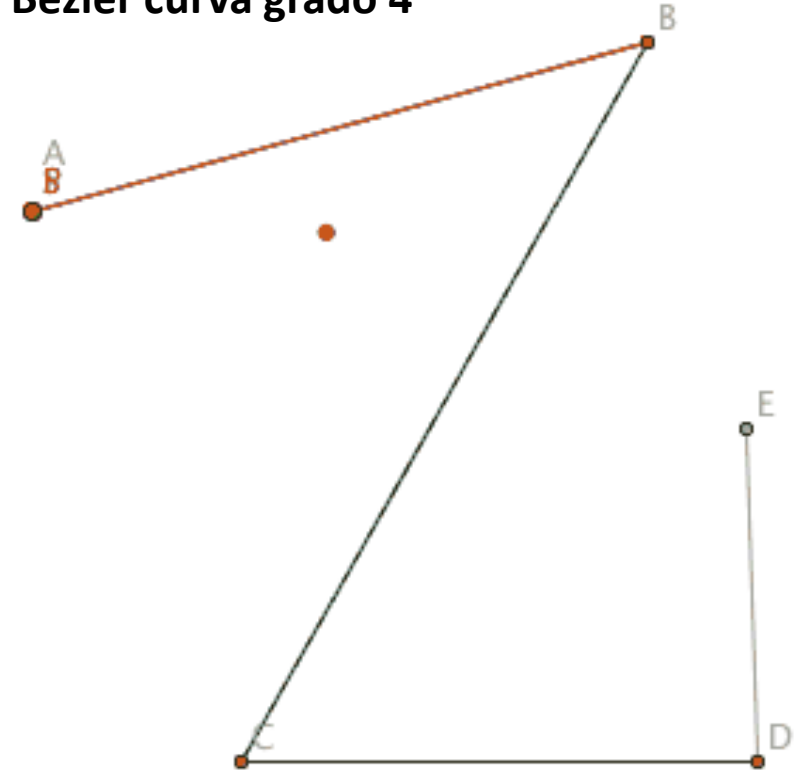
# CURVAS DE BEZIER

Menor cantidad de puntos.

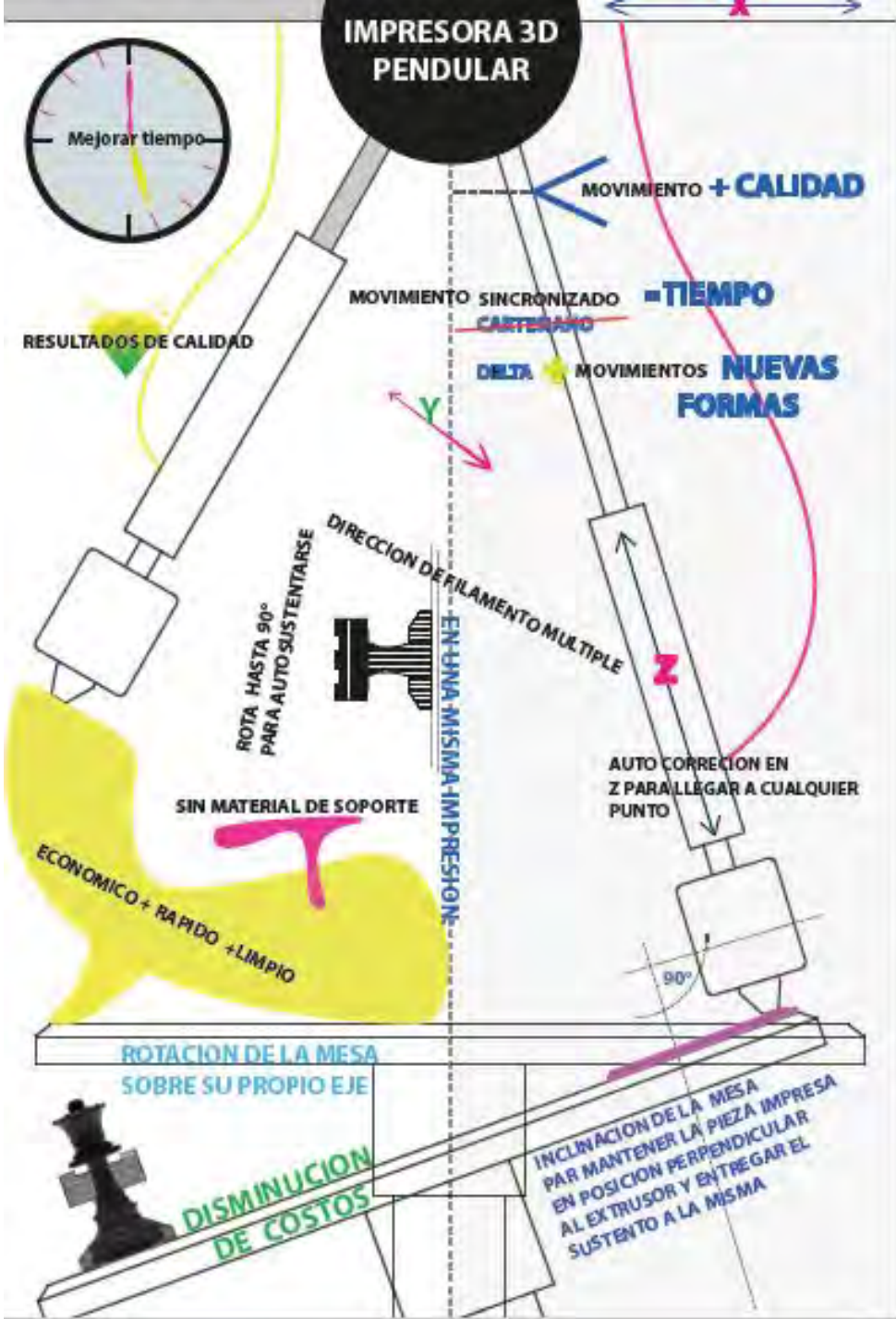
Deformación por puntos de control y nodos o puntos de anclaje.



“Algoritmo de de Casteljaou”  
Bézier curva grado 4



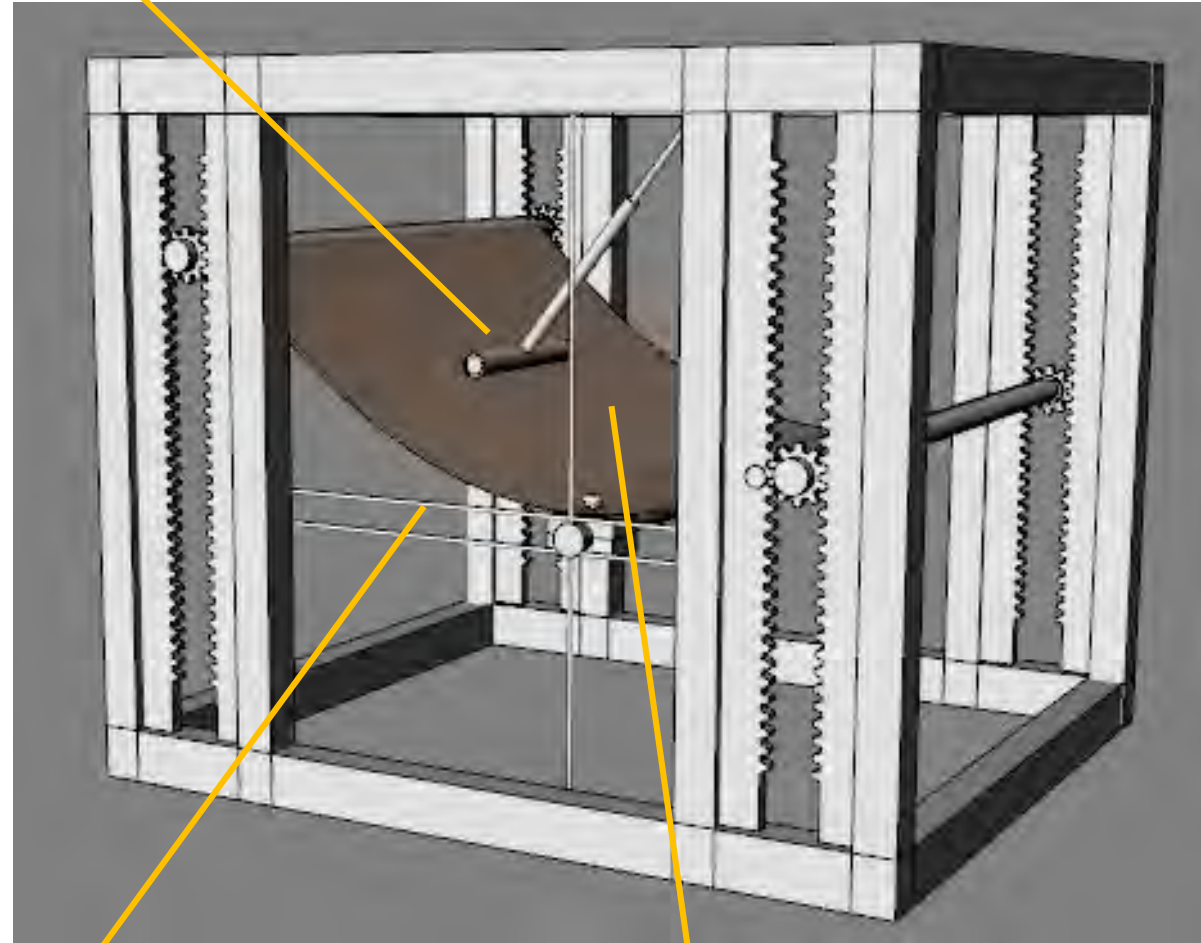
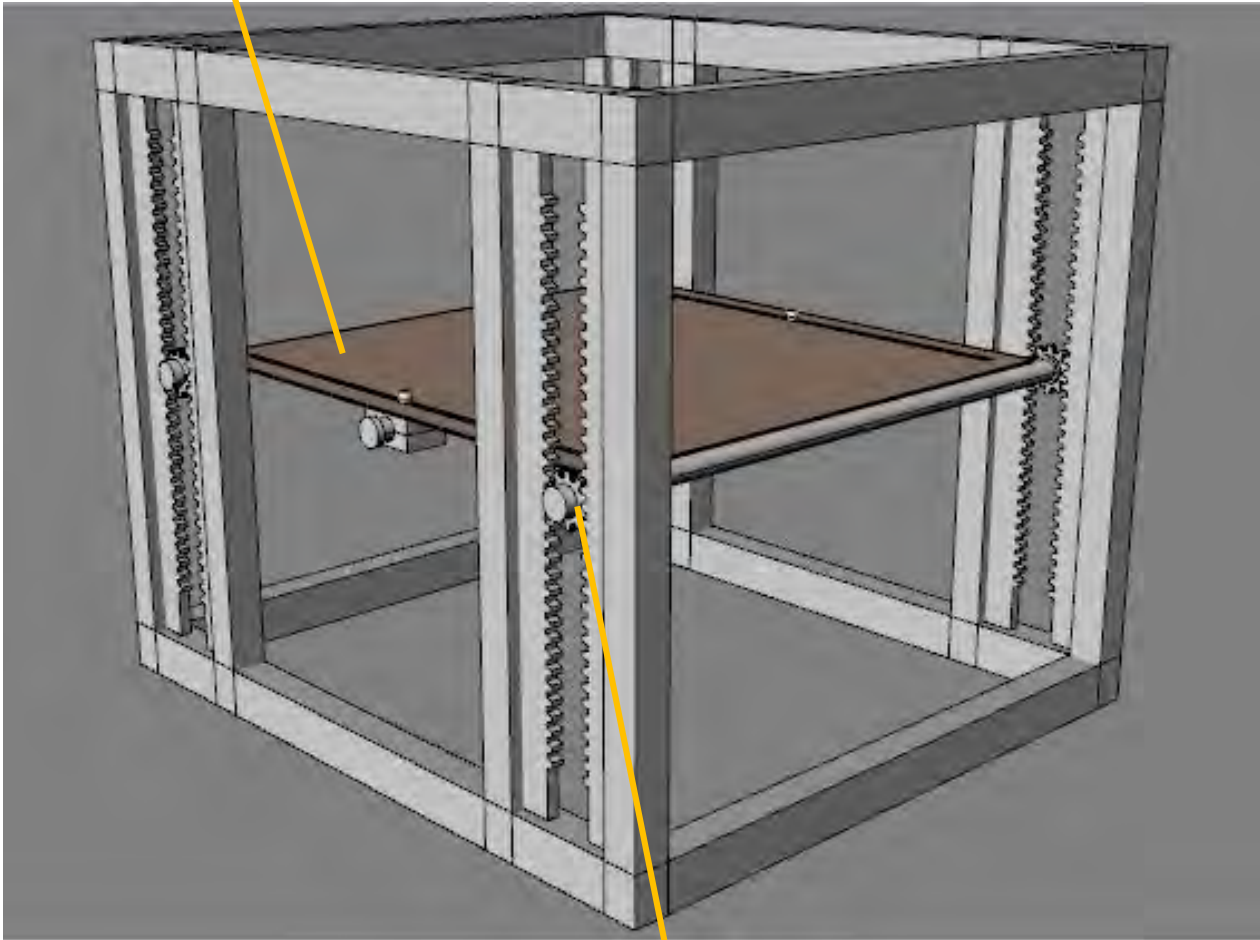
# PROPUESTA



- Generar superficies cóncavas o convexas.
- Con material fibroso tipo carbon, vidrio o algodón.
- Fabricar de manera controlada superficies curvas.

**Mesa formada por material  
fibroso , Carbono , vidrio ,  
algodón.**

**Rodillo deposita resina y  
controla el espesor**



**Rodillos fijos ejes z  
alimentan de material**

**Ejes para desplazamiento  
De rodillo libre**

**Mesa con curvatura  
controlada, Bézier**