



EUROGRAPHICS2017

The 38th annual conference of the
EUROPEAN ASSOCIATION FOR COMPUTER GRAPHICS

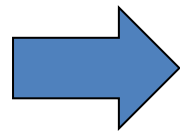
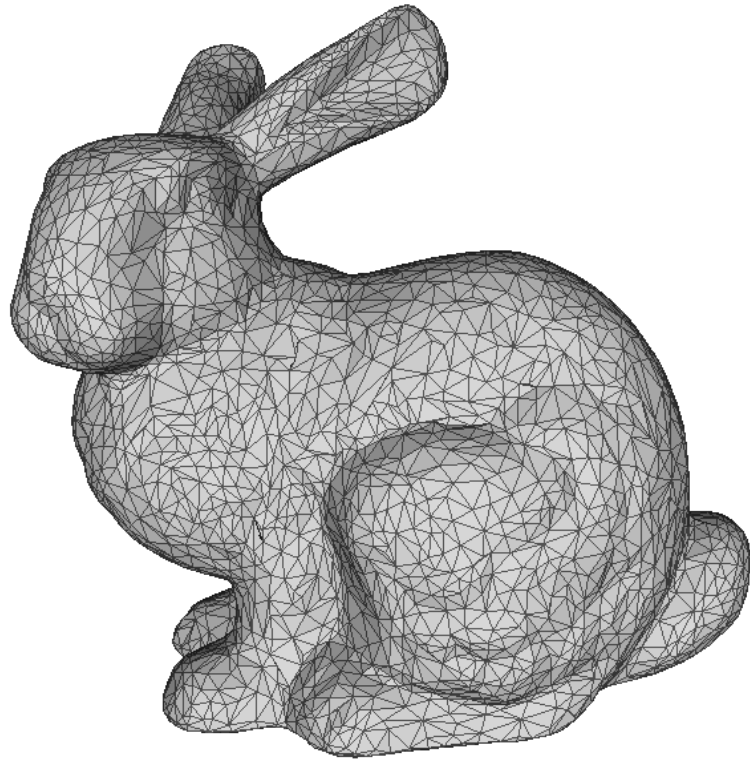
Topology Optimization for Computational Fabrication

Jun Wu, Niels Aage, Sylvain Lefebvre, Charlie Wang

<https://topopt.weblog.tudelft.nl/>



Computational Fabrication: Digital Model -> Physical Model

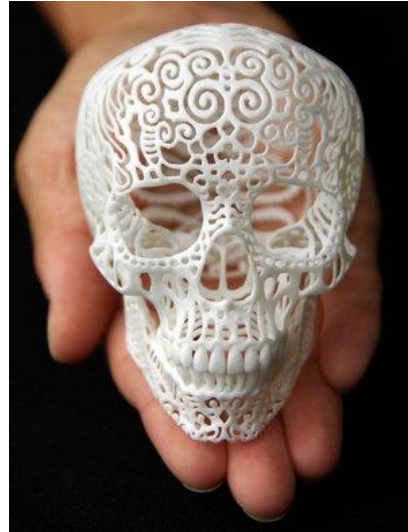


Additive Manufacturing (3D Printing)

- “Geometric complexity is (almost) free”



TU Delft & MX3D, 2015



Joshua Harker



Scott Summit

How do we design for additive manufacturing?

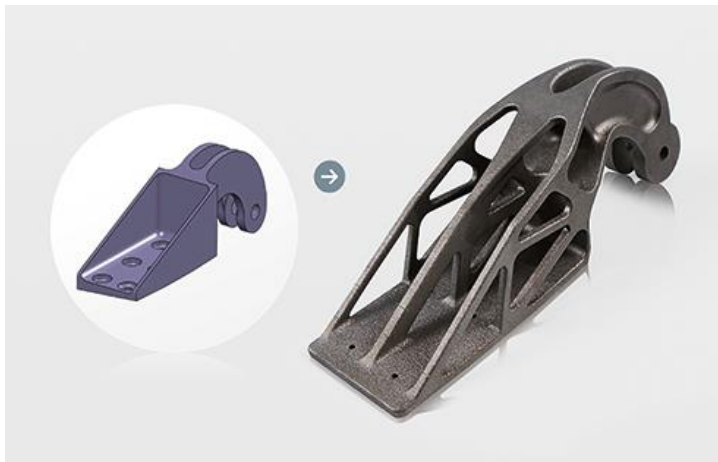
Topology Optimization

Topology Optimization: Application

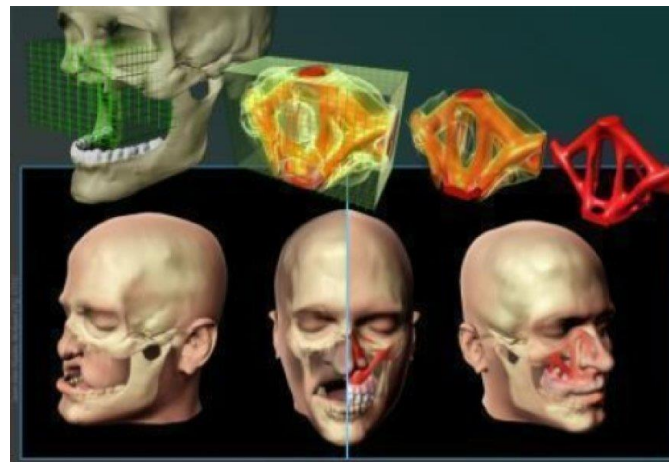
- Lightweight: Engineering
- Customization: Medicine
- Organic appearance: Art & Architecture
- ...



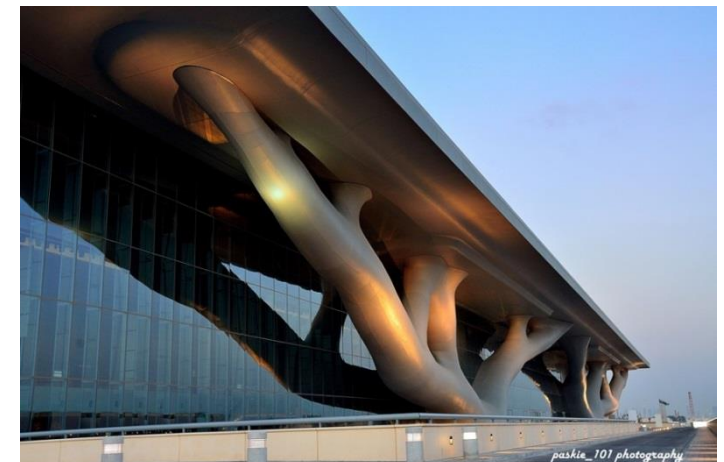
Bone Chair
by Joris Laarman



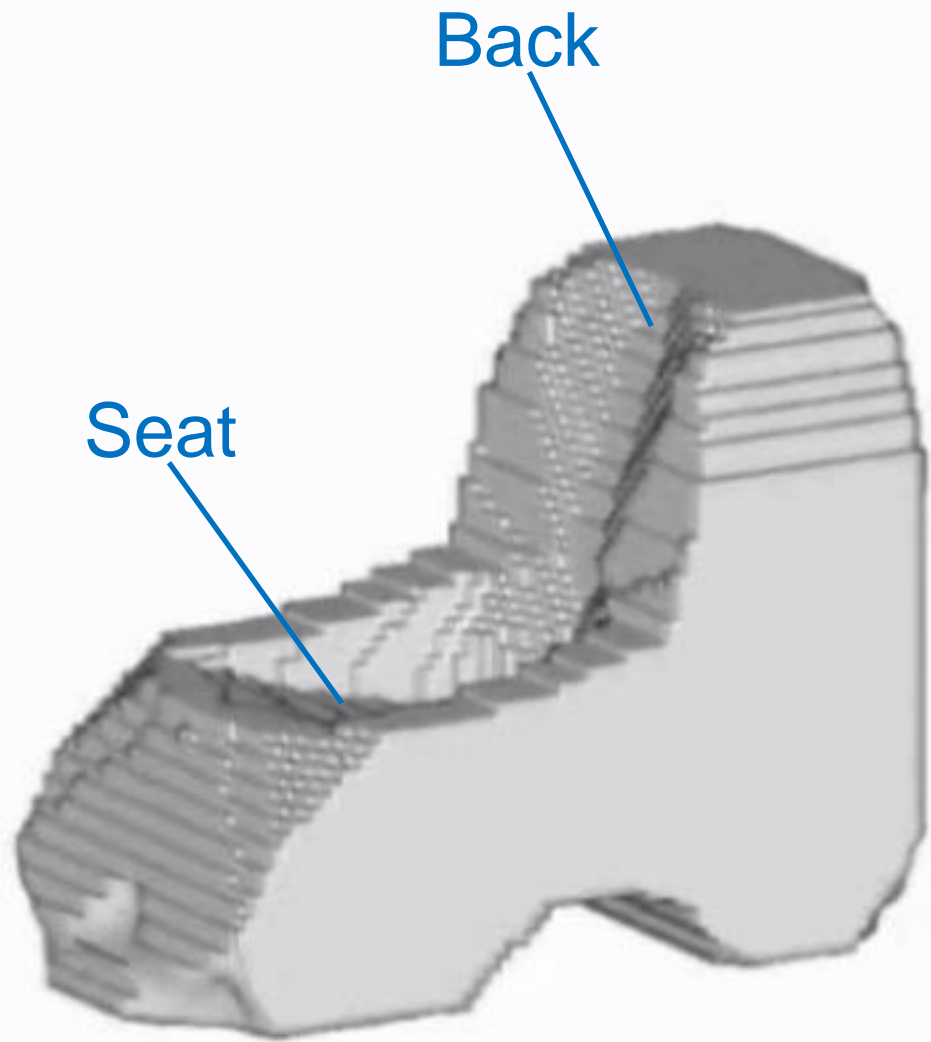
Airbus & EOS, 2014



Reconstructive surgery
Glaucio H. Paulino @ UIUC



Qatar national convention



Optimization of Bone Chair
by Lothar Harzheim & Opel GmbH

Topology Optimization

- Lightweight
- Customization
- Organic shape



Additive Manufacturing

- Geometric complexity
- Customization

Schedule

- Fundamentals of
 - Advanced Manufacturing (Charlie Wang)
 - Topology Optimization (Niels Aage)
- Coffee break, and Exhibition of 3D prints
- Controllable Topology Optimization for
 - Geometric Features (Jun Wu)
 - Appearance and Structure Synthesis (Sylvain Lefebvre)

Course Notes

- <https://topopt.weblog.tudelft.nl/>

