Robotics Studio

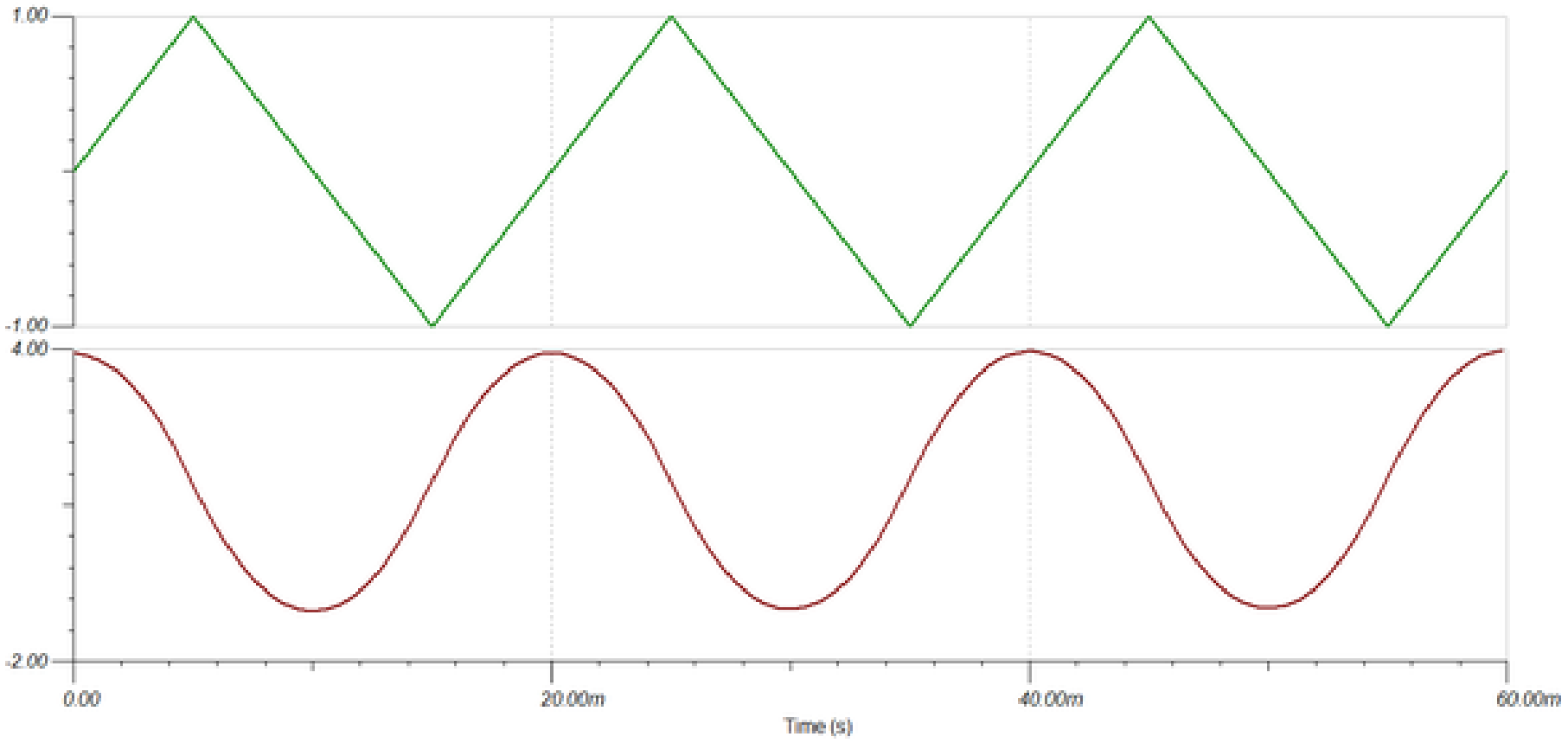
Step #5: Assembled Robot

Requirements

- Goal: Print and assemble entire robot
- Assemble the robot using all components,
  - bolts, screws cables, and mounts as described in your updated CAD
- Run preliminary walking code on Laptop or Raspberry Pi
- Show photos and videos of robot moving
- Adjust design
  - Accessibility, range

Locomotion

Avoid abrupt velocity changes



Strategies for gait optimization

- Hand coding trial and error, e.g.
  - $\theta_i(t)=a_i+b_i*\sin(\omega t+\phi_i)$ (ω uniform for all legs)
- Machine learning (in simulation)
  - Create a model of robot (e.g. in Bullet or Gazebo)
  - Represent $\theta_i(t)=f(\theta_i(t-1)$, *sensors*) as a neural network
  - Use Reinforcement Learning or Evolution to optimize network
- Machine learning (in physical reality)
  - Expensive and slow, but possible

Feet


36 PCS
X-PROTECTOR
X-PROTECTOR®
X-PROTECTOR®

Chair Socks

Feet

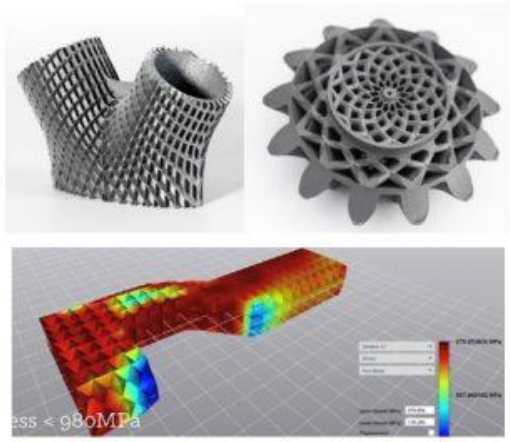
Body & Skin

Get creative with lattices

nTopology

FRUSTUM

PARAMATTERS
MAKING YOUR IDEAS MATTER



Element Pro

- Surface Topology
- Lattice Structures
- Customizable design workflow

2015

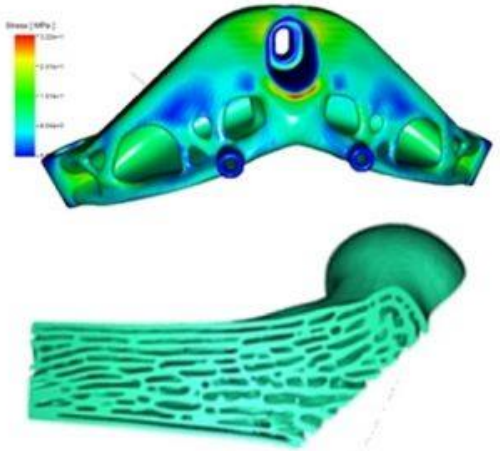
$7.6M Raised

Generate Web

- Surface Topology
- Lattice Structures
- Manufacturing constraint options

2014

$10M Raised

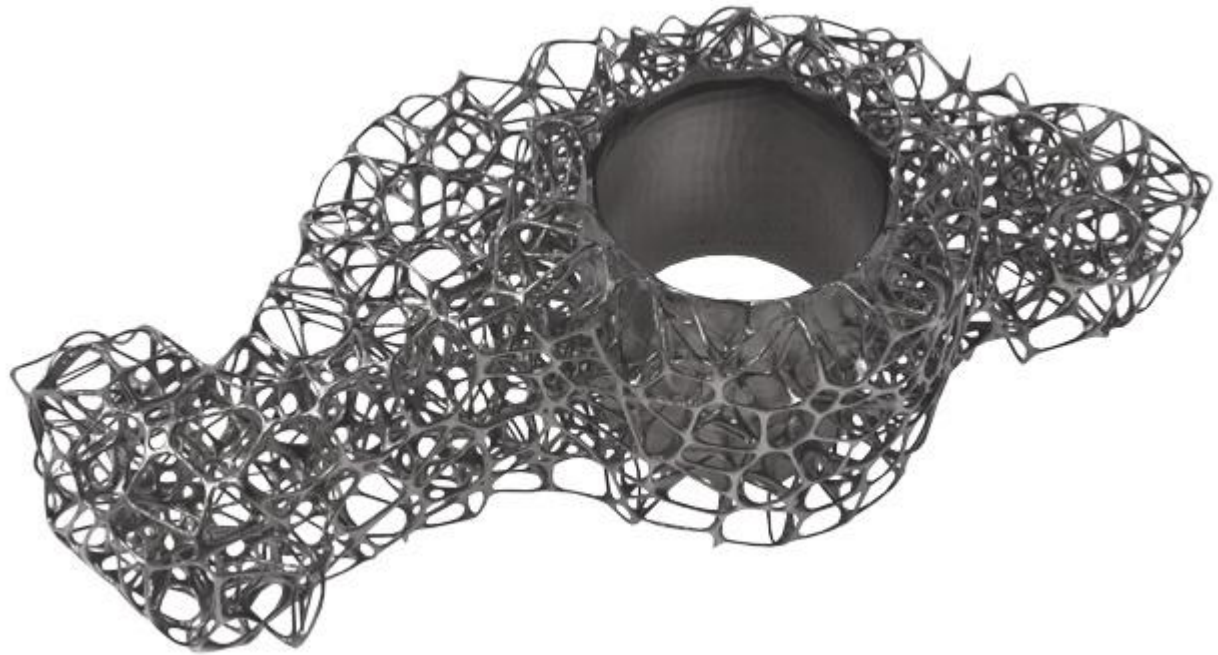


CogniCAD

- Surface Topology
- Metamaterials
- Mesostructures
- Multimaterials

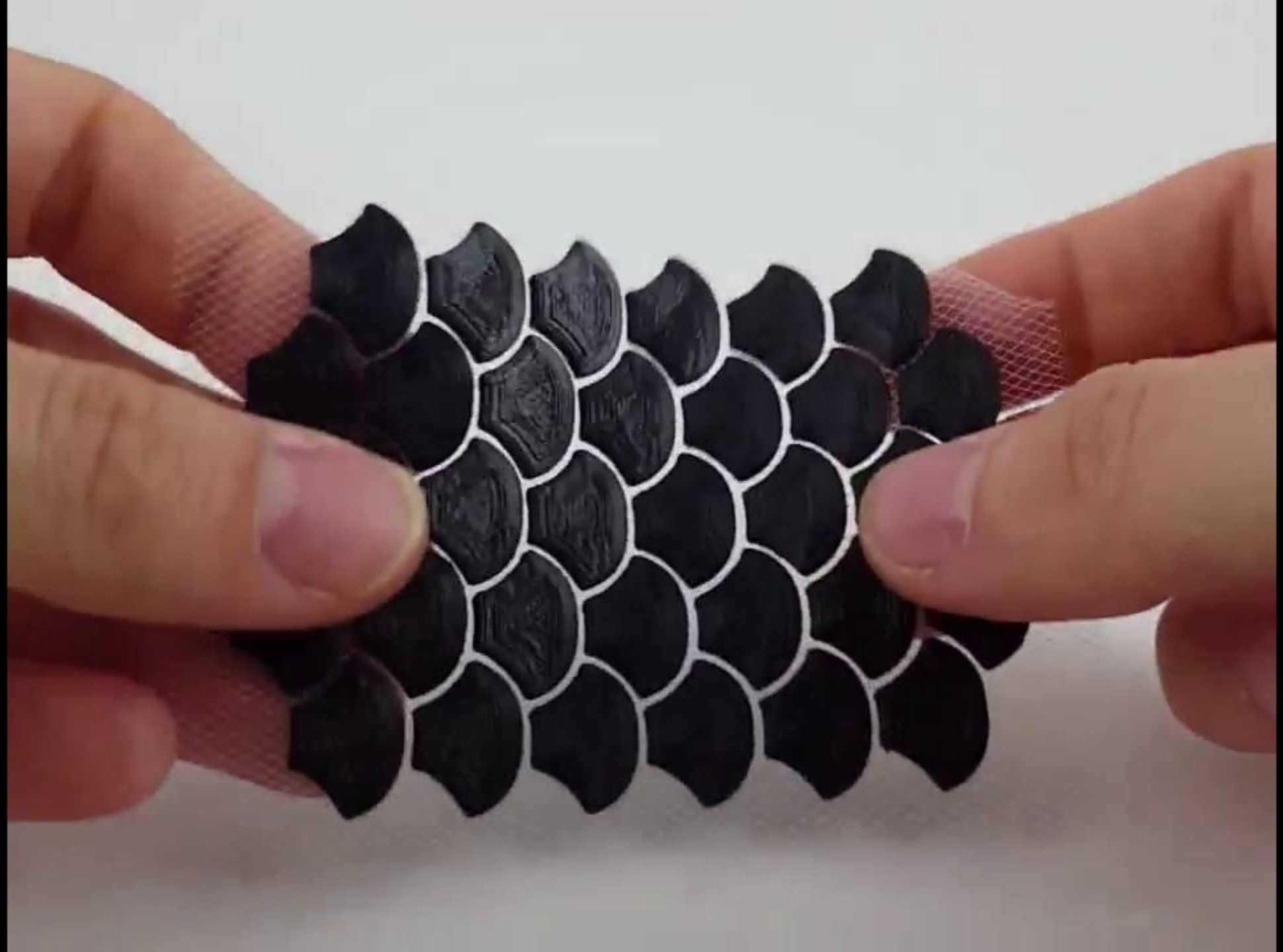
2017

$0.5M Raised



https://ntopology.box.com/v/nTopShareFolder114

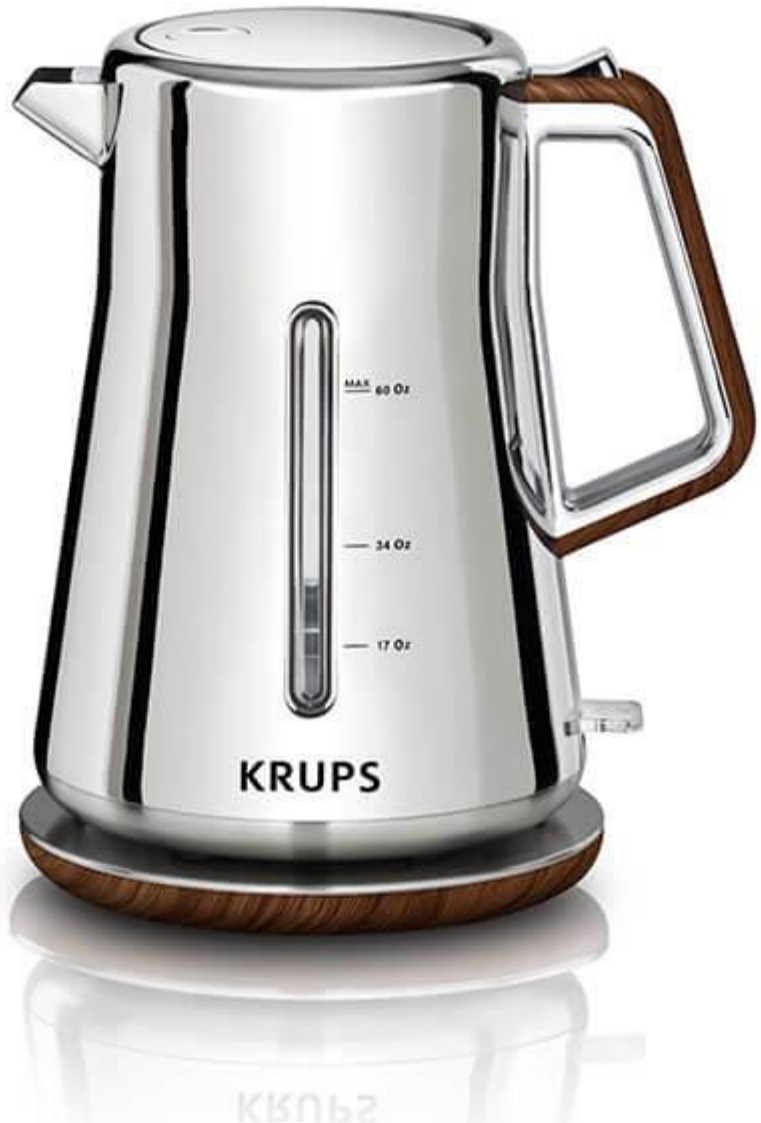

Casetudude




3D Printing On Fabric

Photography

Glamour shots


MAX 60 Oz
34 Oz
17 Oz
KRUPS

DOBOT

Fake
No shadows