

What is the best way to plant a seed?

SAND2018-11877C

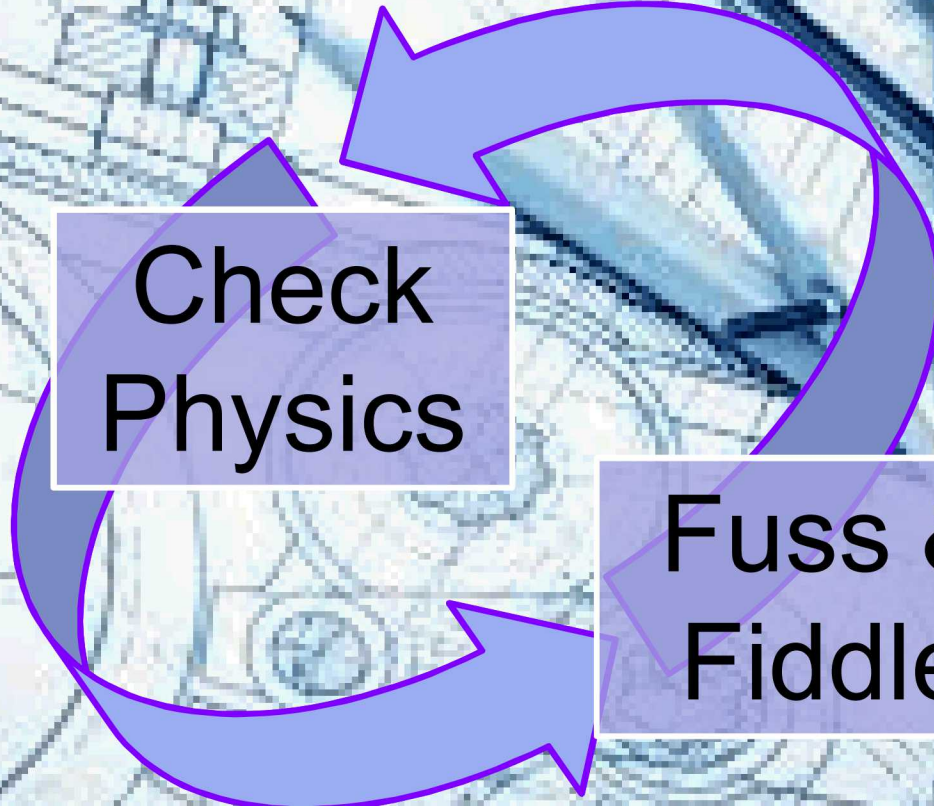


Engineering Design

Design
Guess

Check
Physics

Fuss &
Fiddle



Generative Design

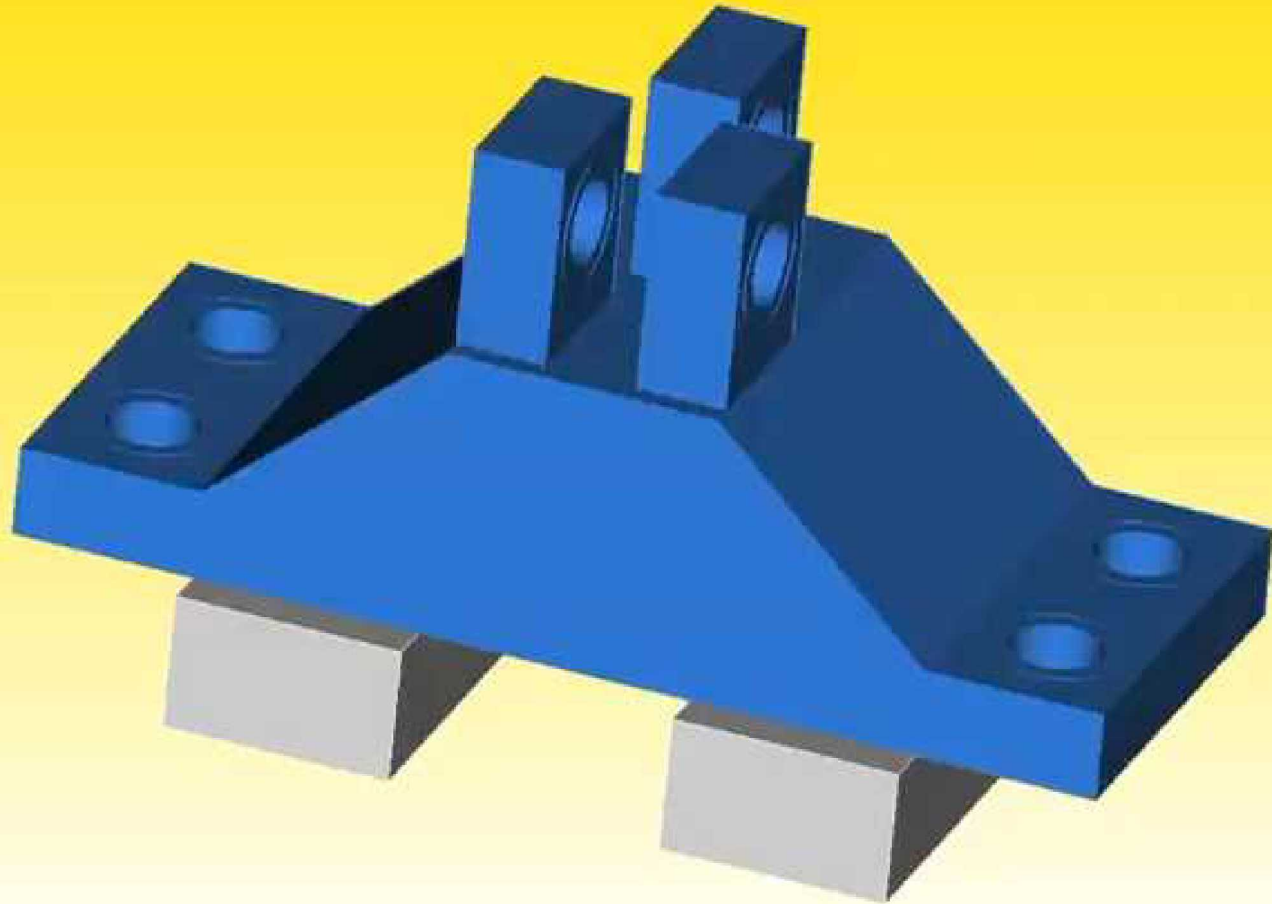
Physics'
Design

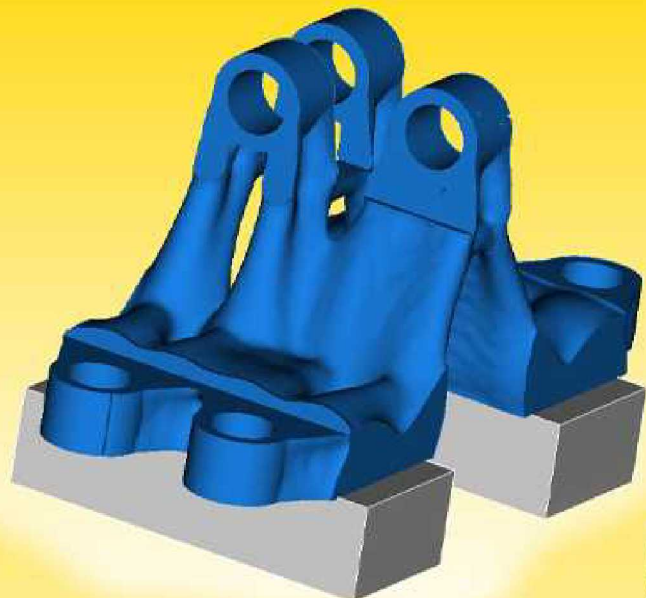
~~Check
Physics~~

~~Fuss &
Fiddle~~

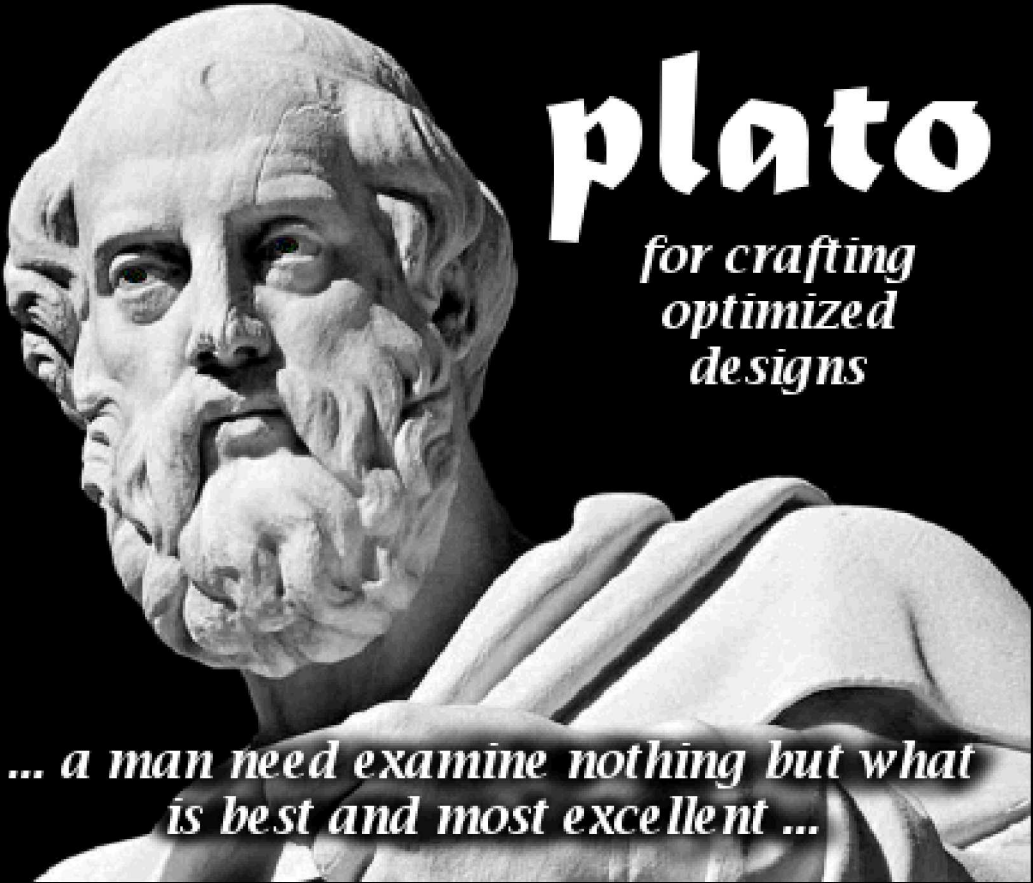


Here's How It Works





Design 1

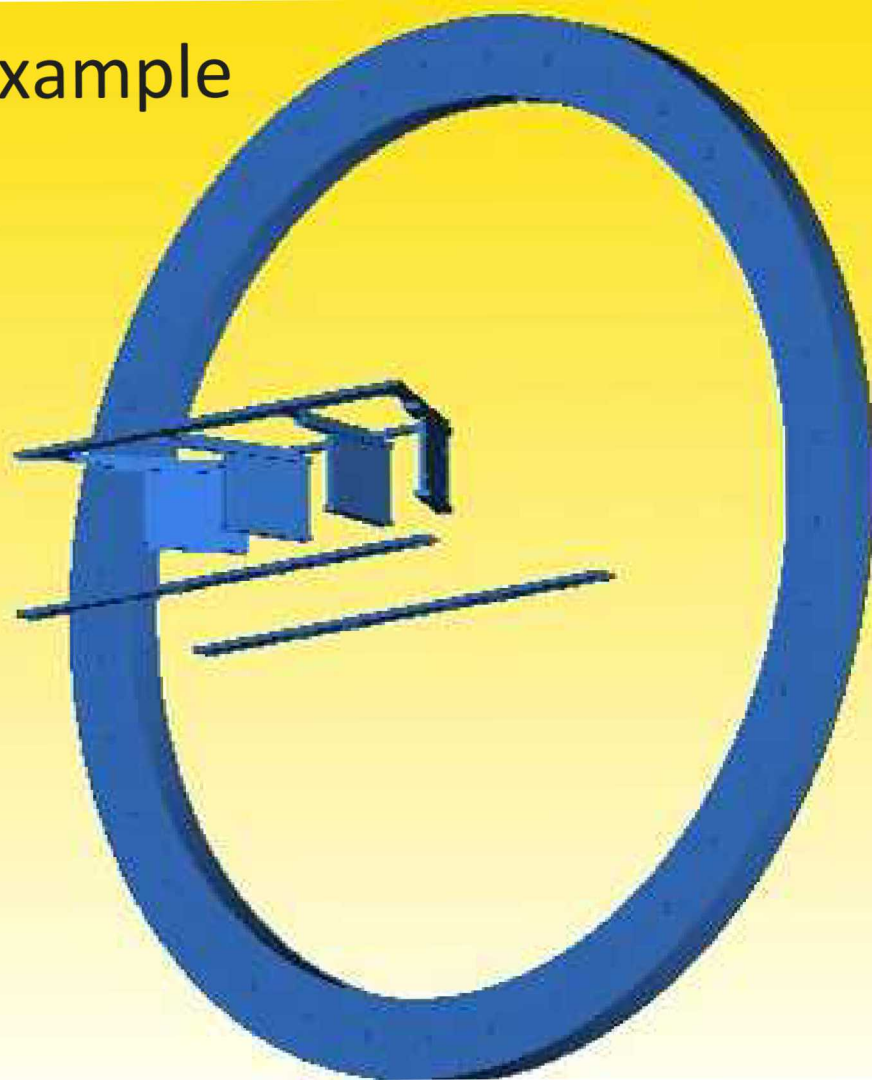


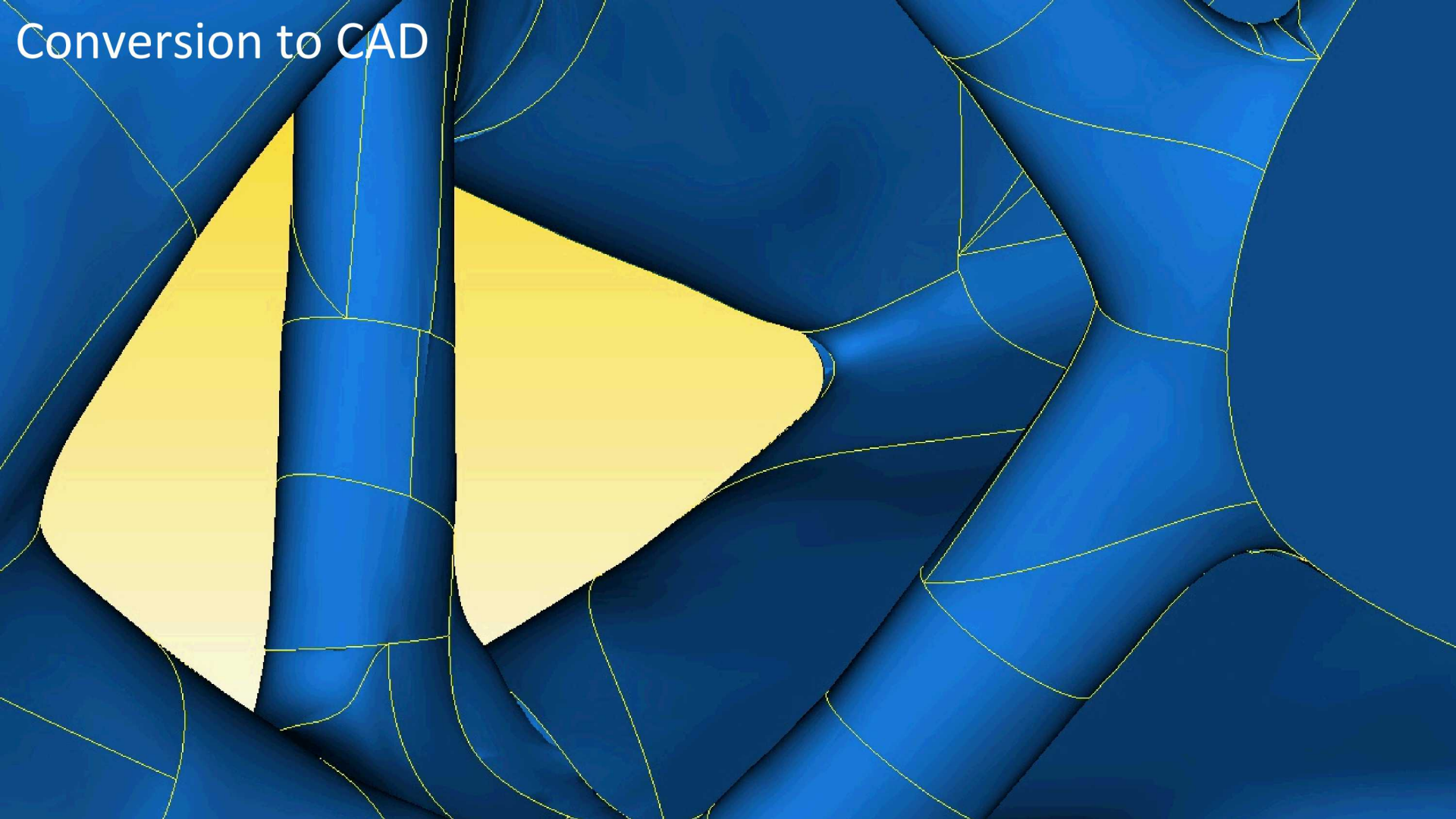
plato

*for crafting
optimized
designs*

*... a man need examine nothing but what
is best and most excellent ...*

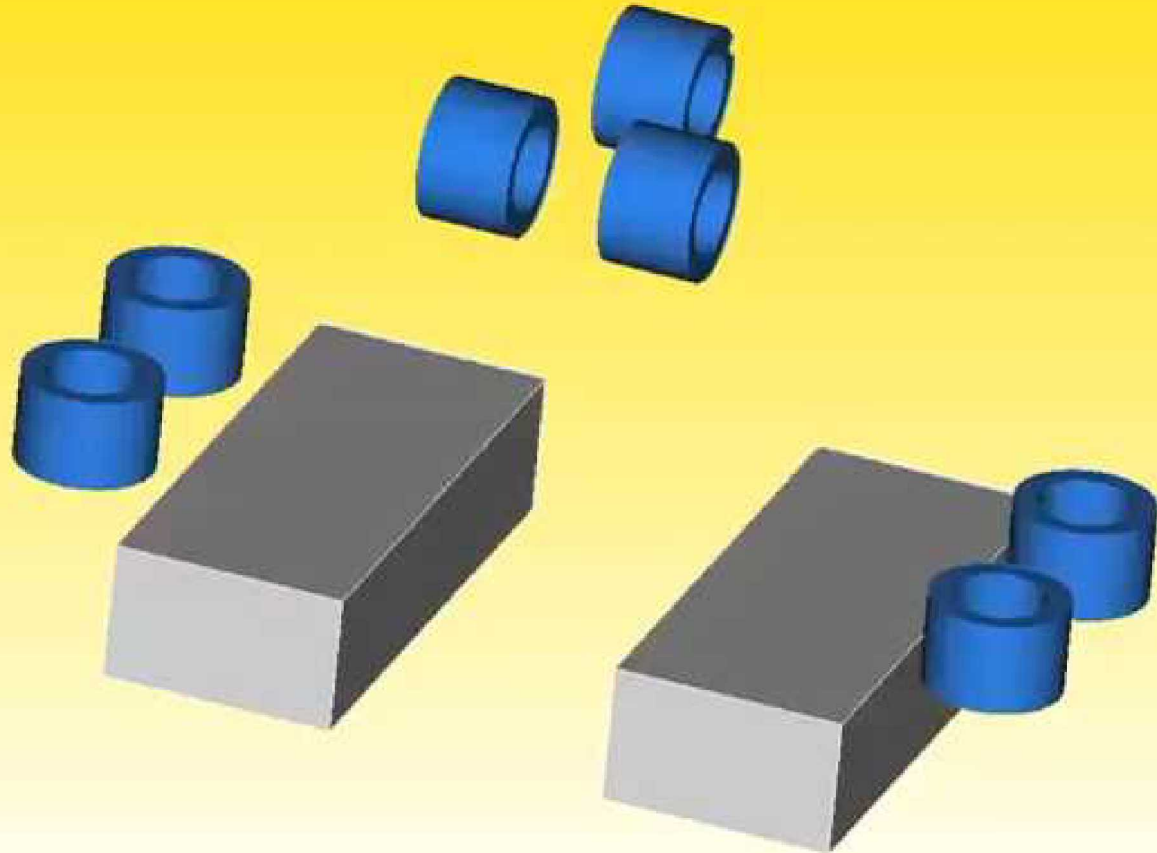
Fixture Mount Example



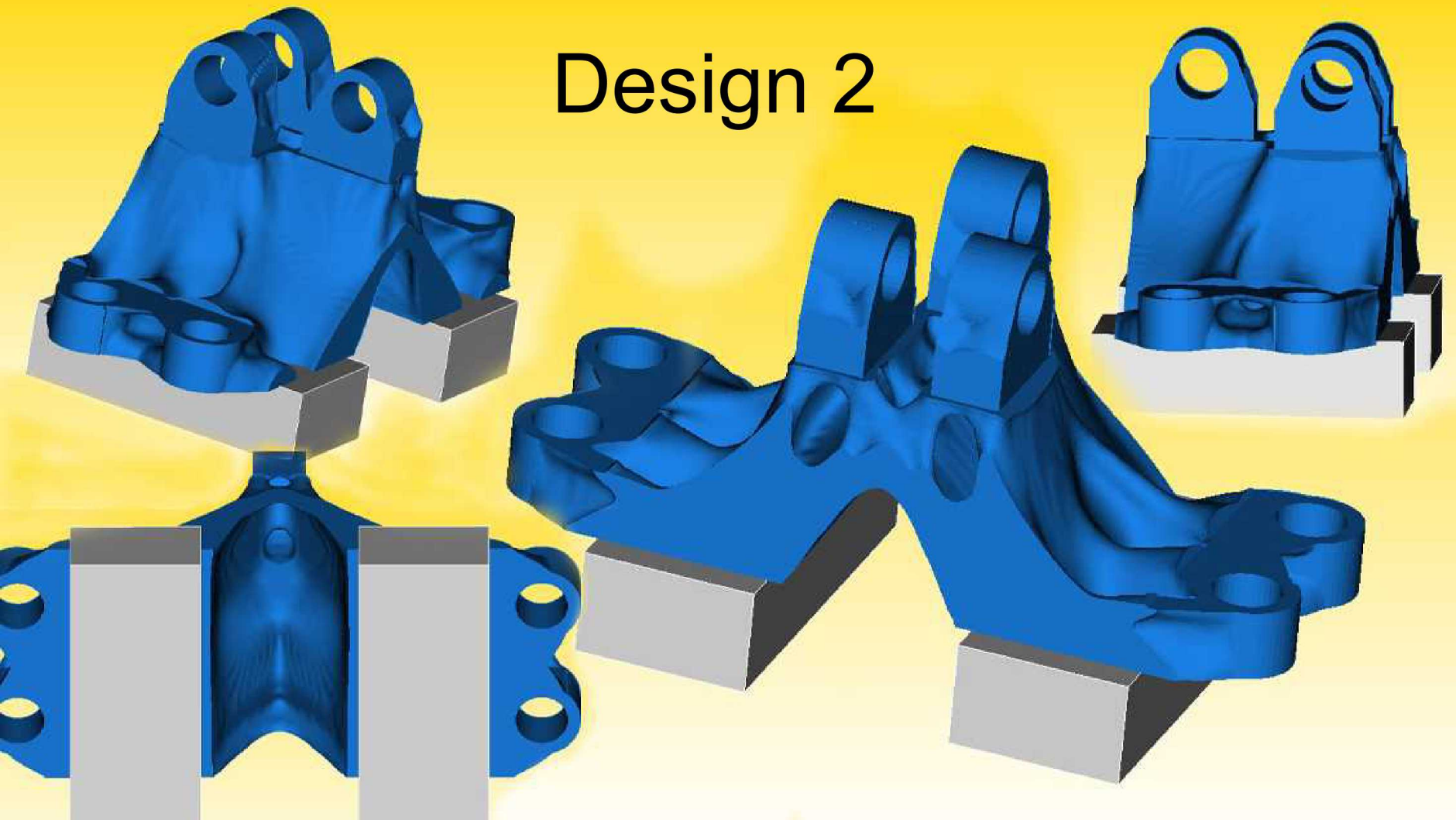


Conversion to CAD

Dealing With Uncertainty

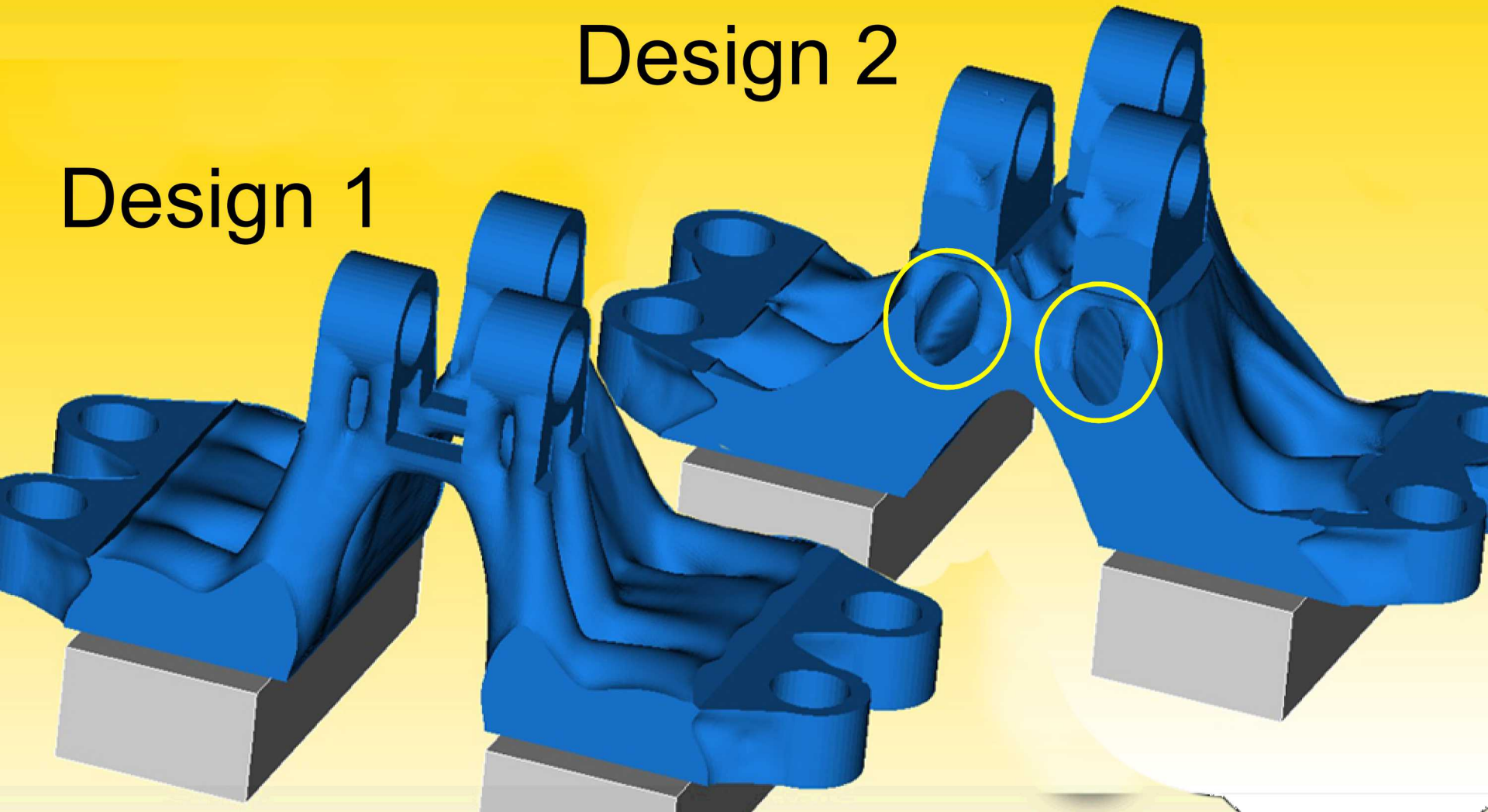


Design 2



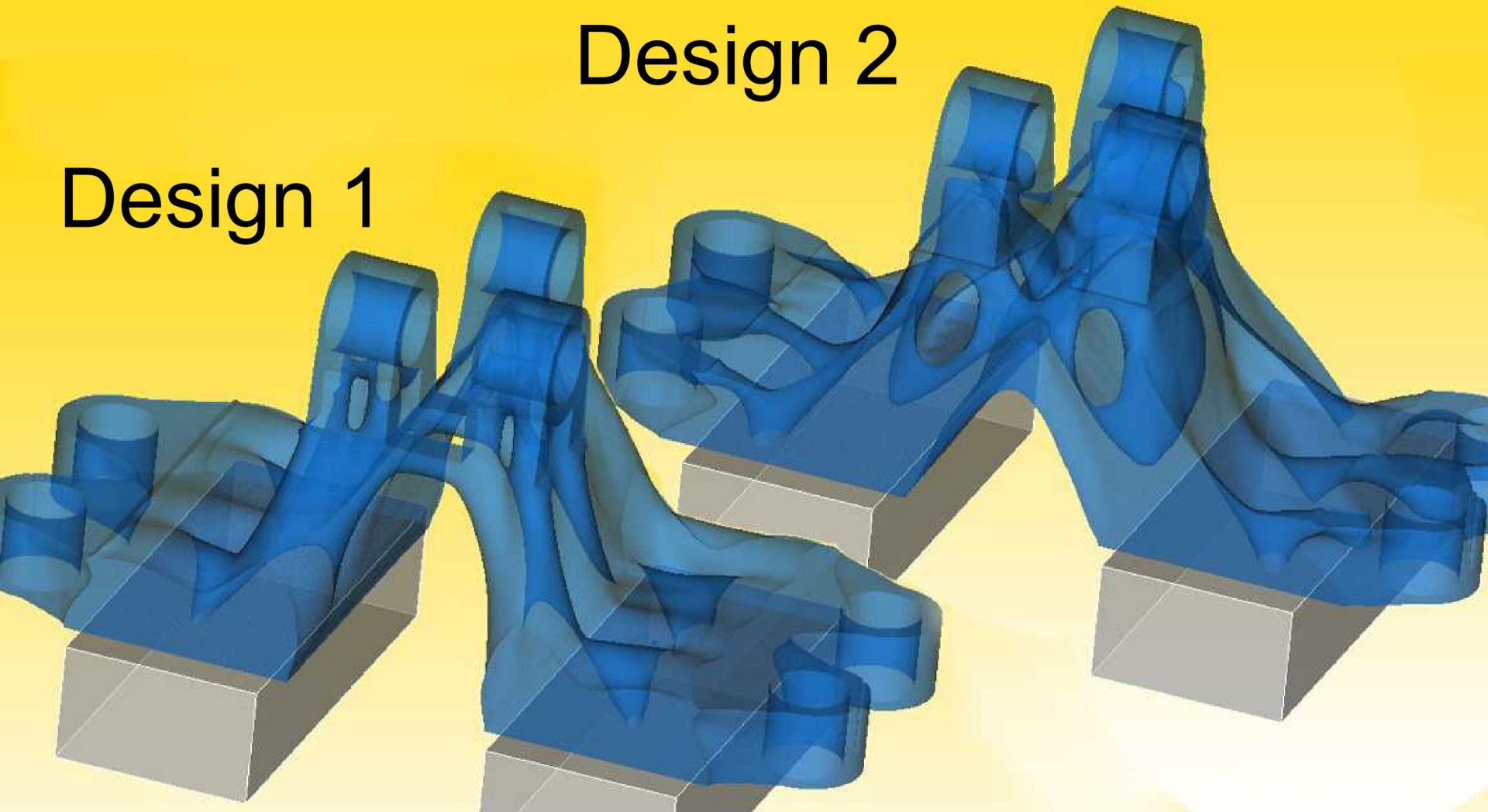
Design 2

Design 1



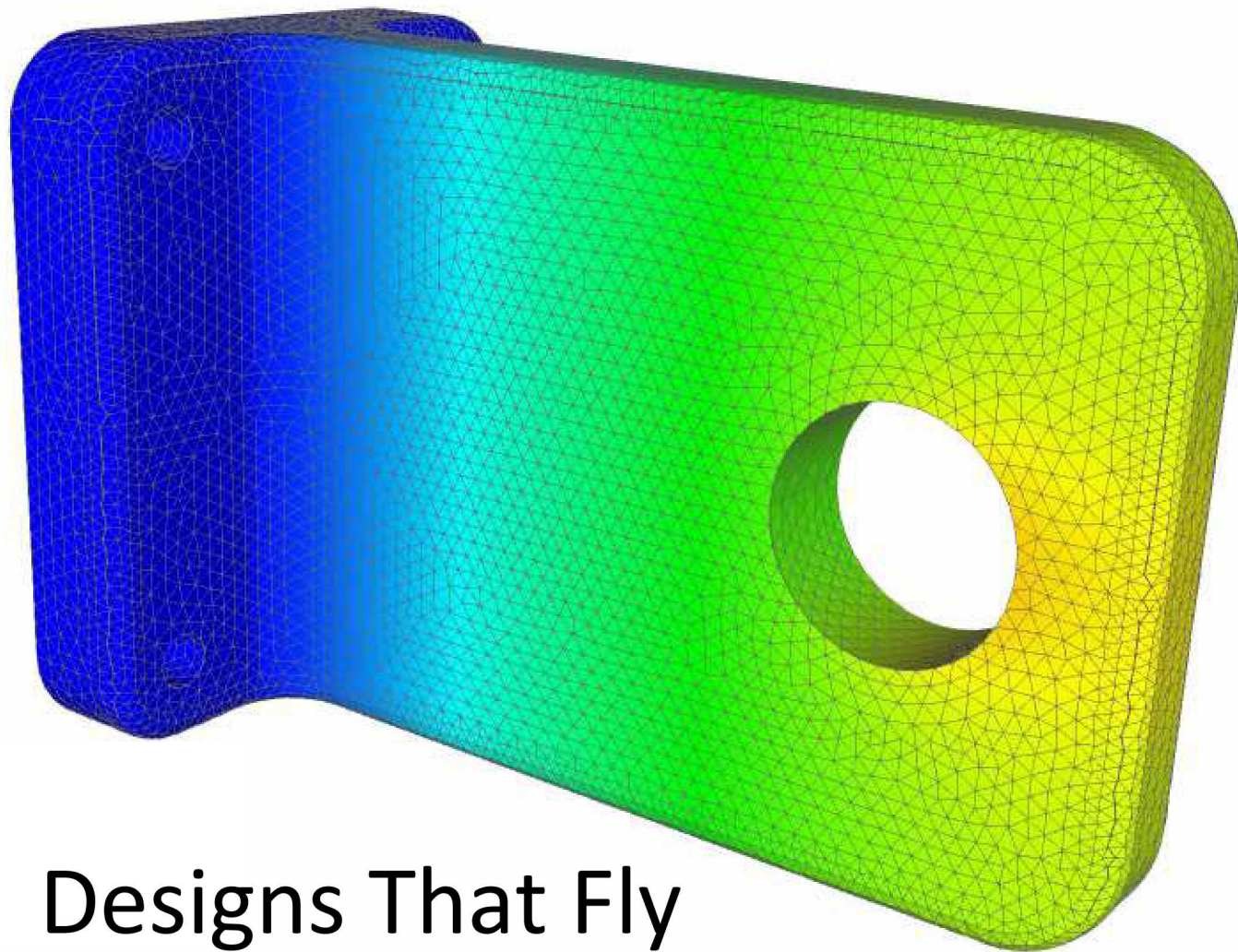
Design 2

Design 1



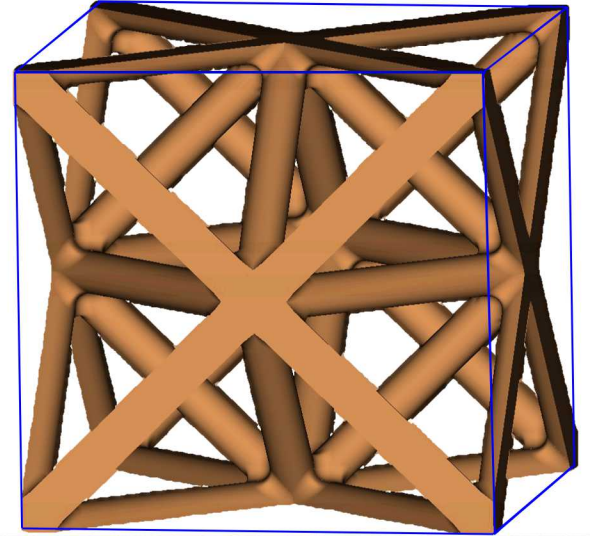
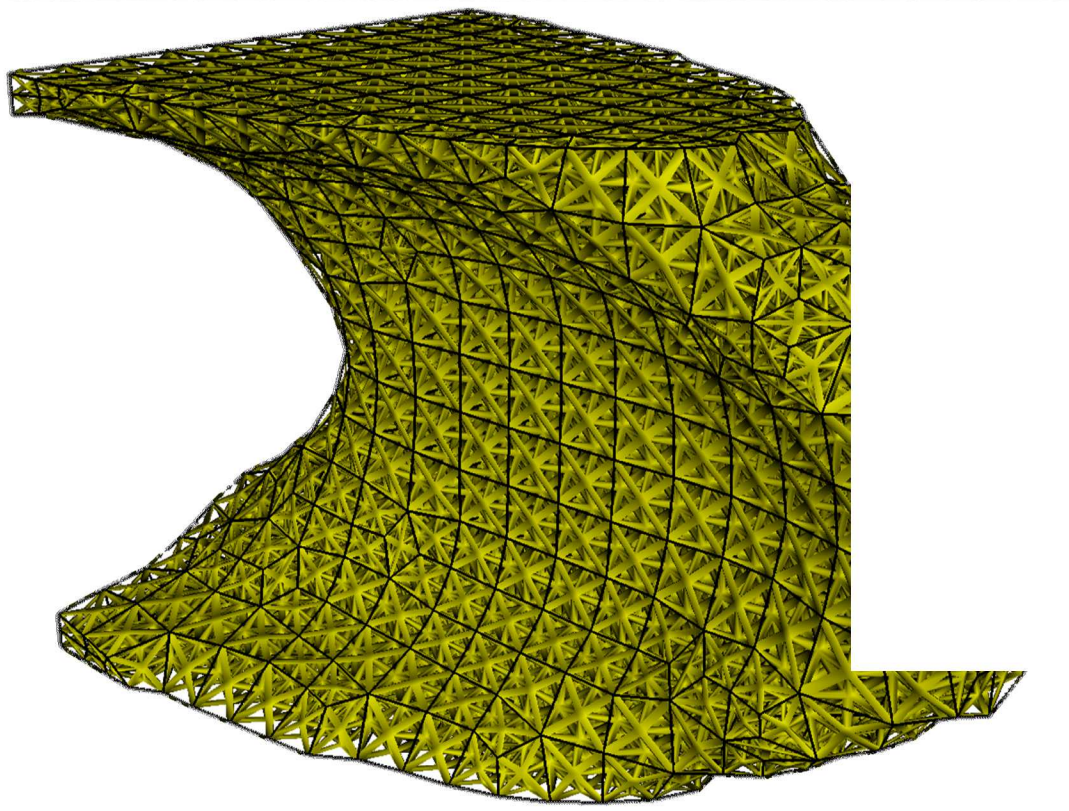




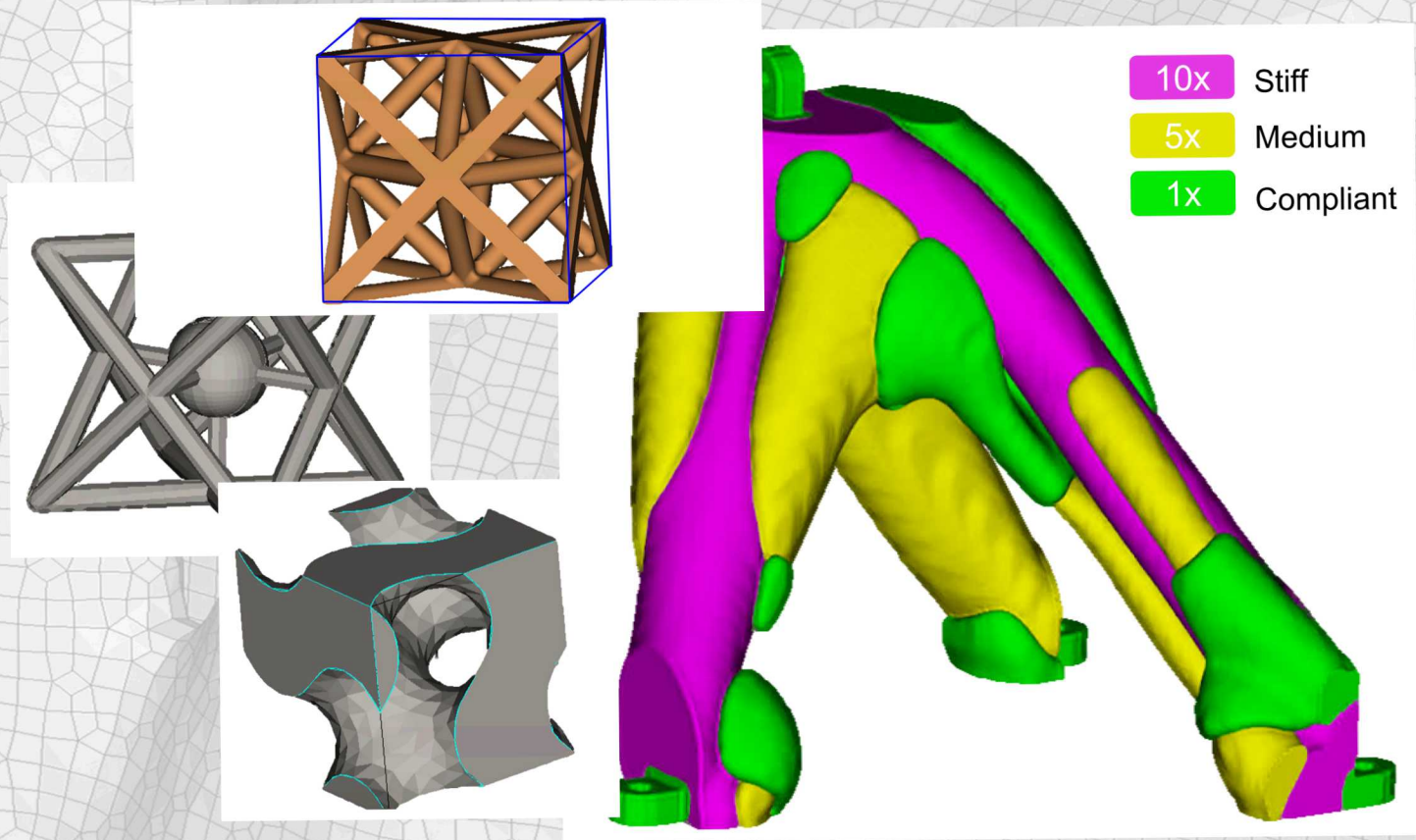


Designs That Fly

Design at the Meso Scale

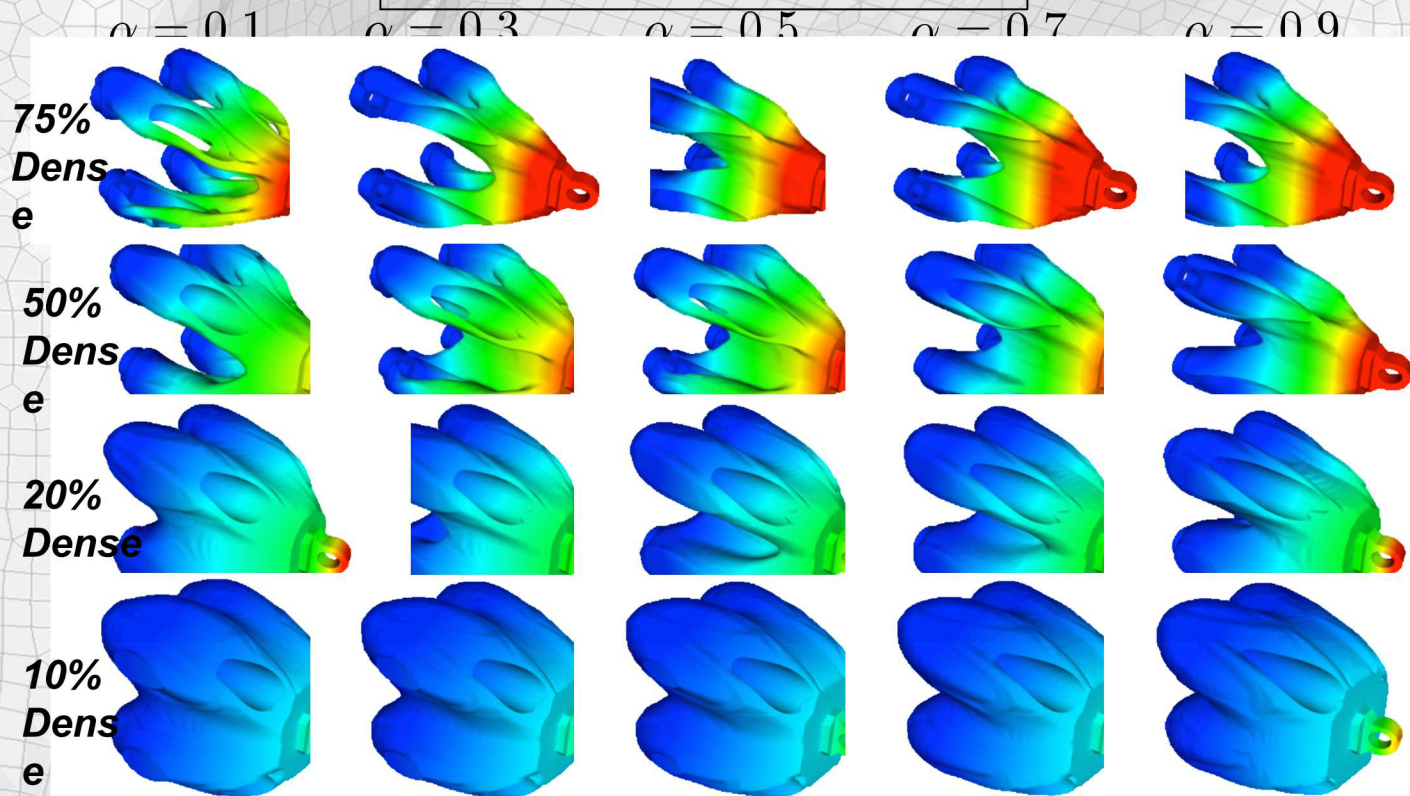


Multitple (Meso) Materials



Design Space Explosion

Min: $(1-\alpha) \cdot \text{compliance} + \alpha \cdot \text{thermal}$





Generative Design: A New Era

Let the Physics Win!