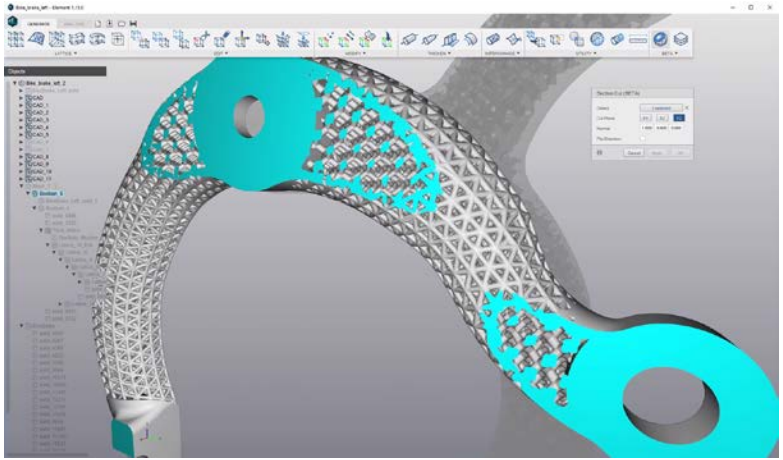
nTopology

Aerospace Applications for Additive Manufacturing

Introduction



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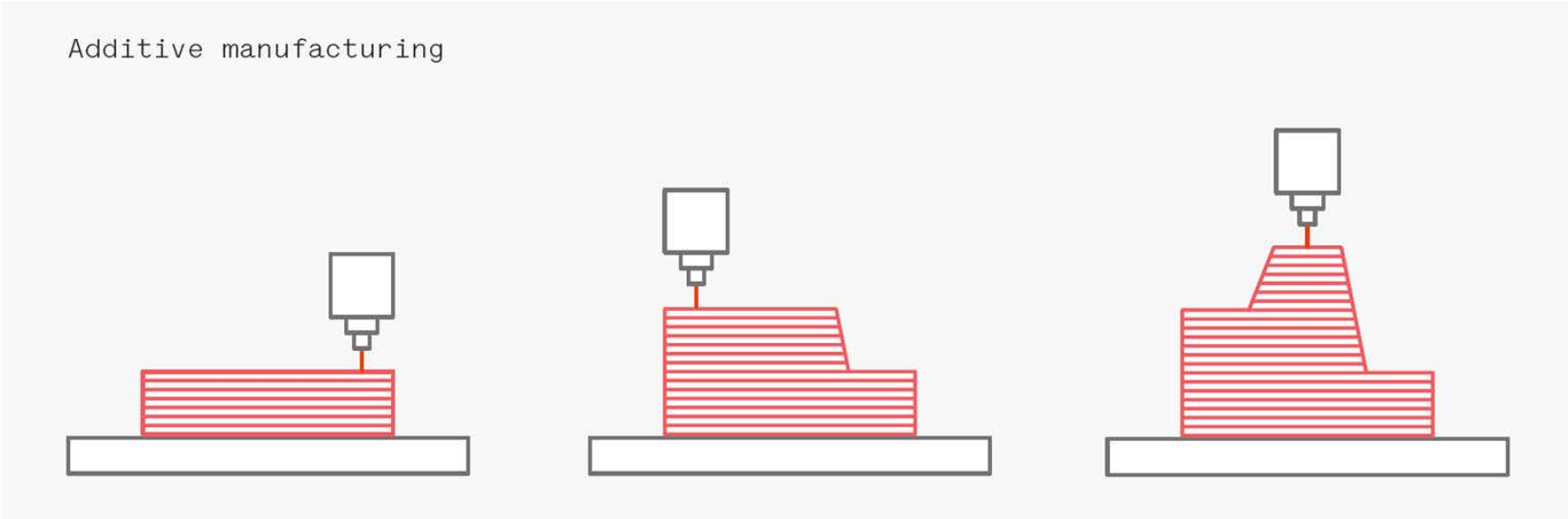
Spencer Wright - Partnerships @ nTopology



Source: 3D Hubs

State of the Industry

GE Additive

Next Generation

Why Aerospace?

Applications

GE Fuel Nozzle

Thales / 3D Systems Satellite Bracket

nTopology Pressure Vessel

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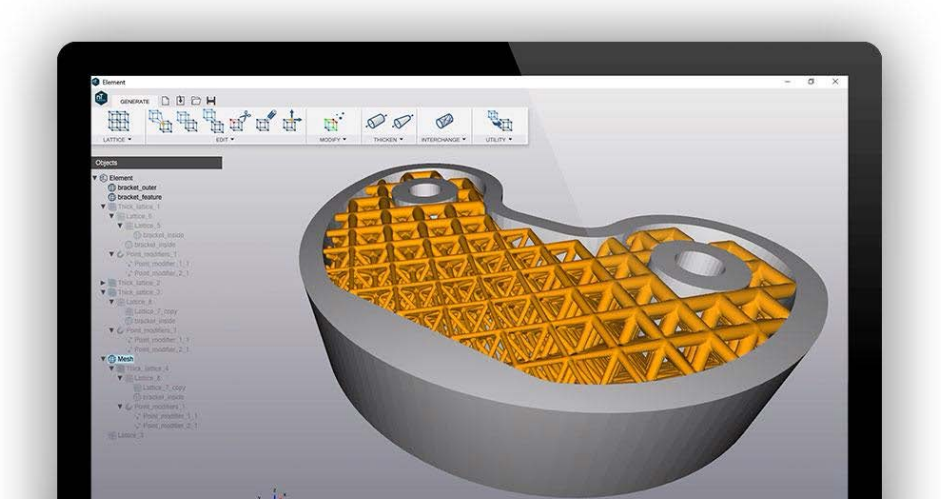
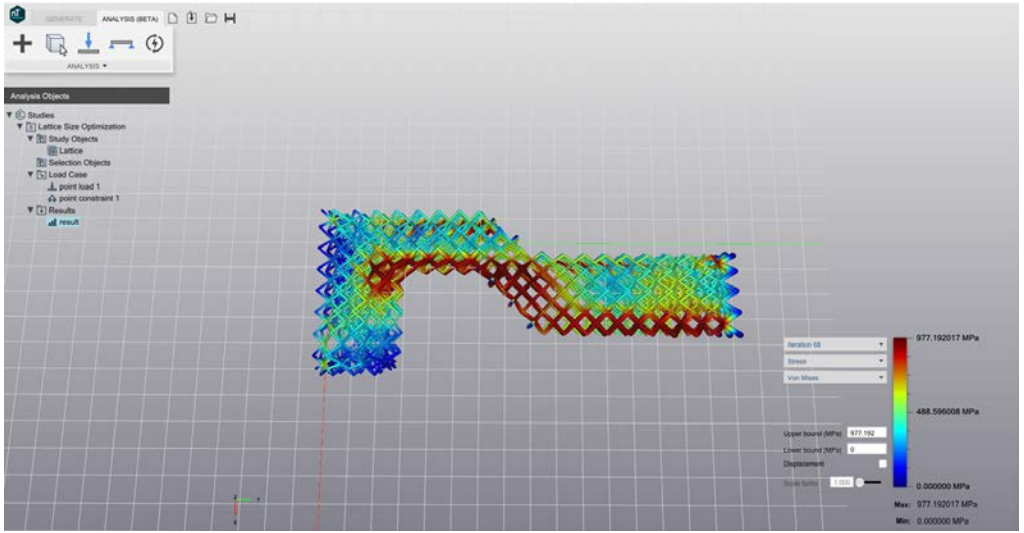
- Easily create lightweight structures such as lattices.
- Optimize designs with internal analysis tools and connections with commercial FEA solvers.
- Manufacturability checks built in.
- Parametric workflow to easily make changes throughout the design.



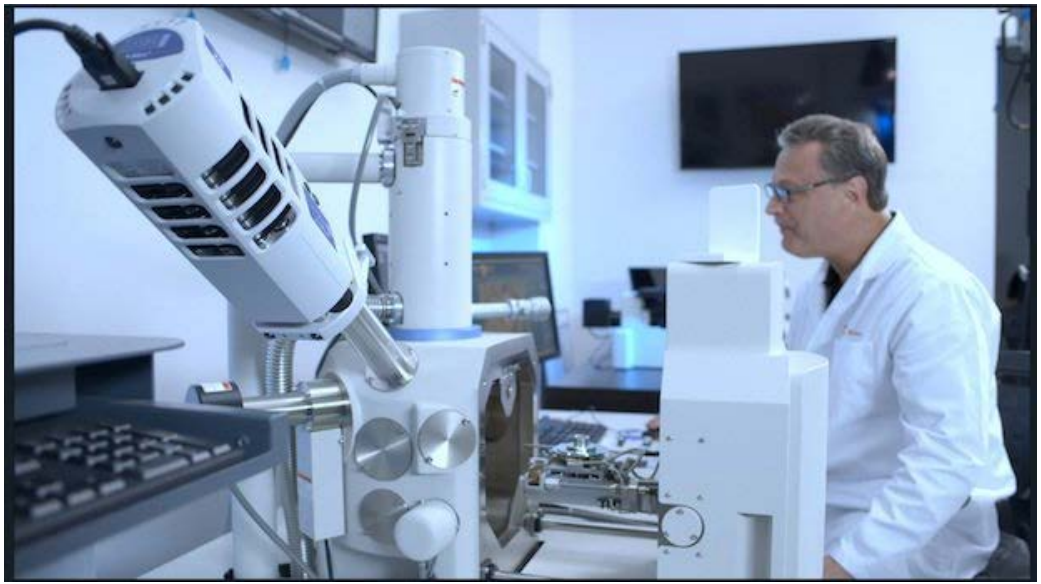
Analysis - Lattice Size Optimization Tool

Takes a pre-generated lattice and optimizes its beam or plate thickness based on the desired maximum allowable stress and or center of mass properties that the user specifies.

The stress optimization tool works by trying to bring all the internal stresses on lattice elements below the maximum allowed stress value and it does that by selectively thickening lattice elements until they reach their target stress value.



What’s next?



- Verification and validation.
- Industry collaboration and standards.
- Evolution of software that enables advanced manufacturing.

Thank you

Questions? Reach me at mike@ntopology.com