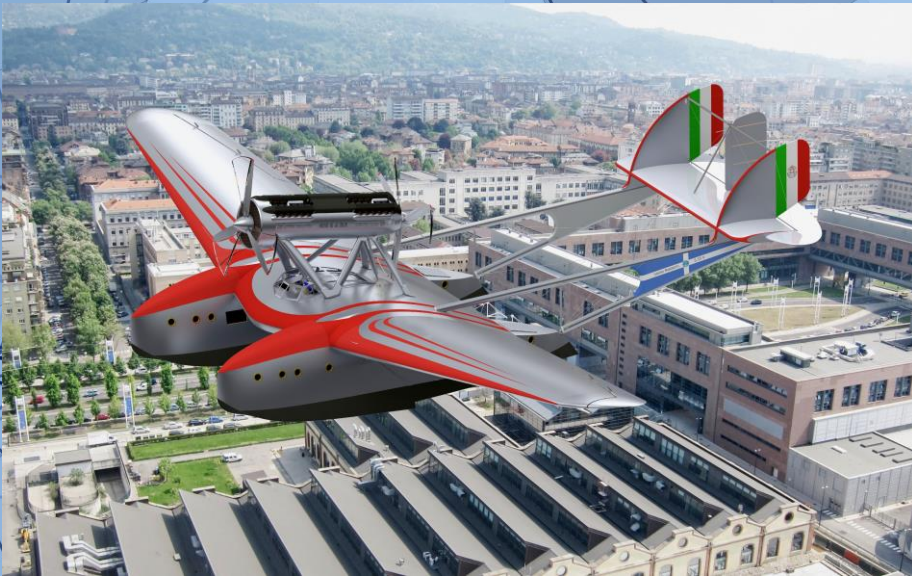


MSc Thesis Proposal:

*LPBF process simulation and
experimental tests applied to
aerospace case-studies.*

Aerospace Engineering

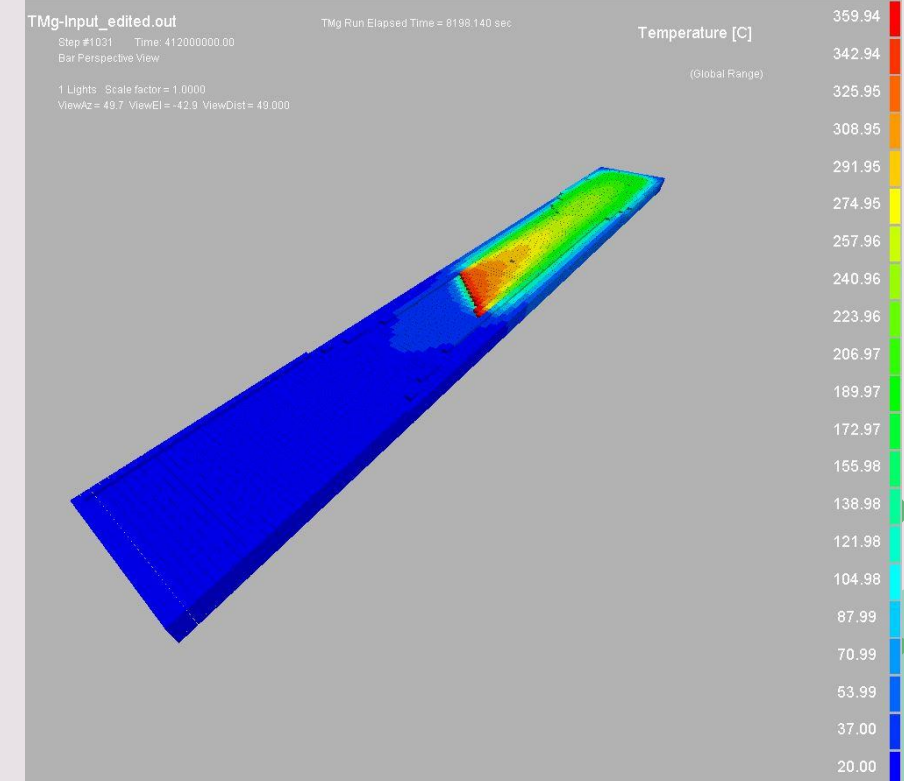
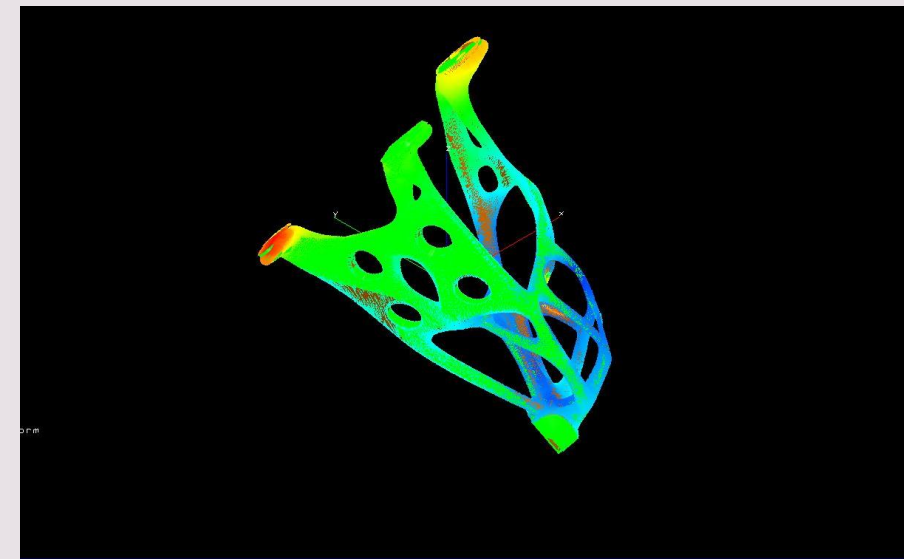
In collaboration with ITACAE Srl and Team S55



Additive Manufacturing simulation

An extensive simulation phase is required and includes:

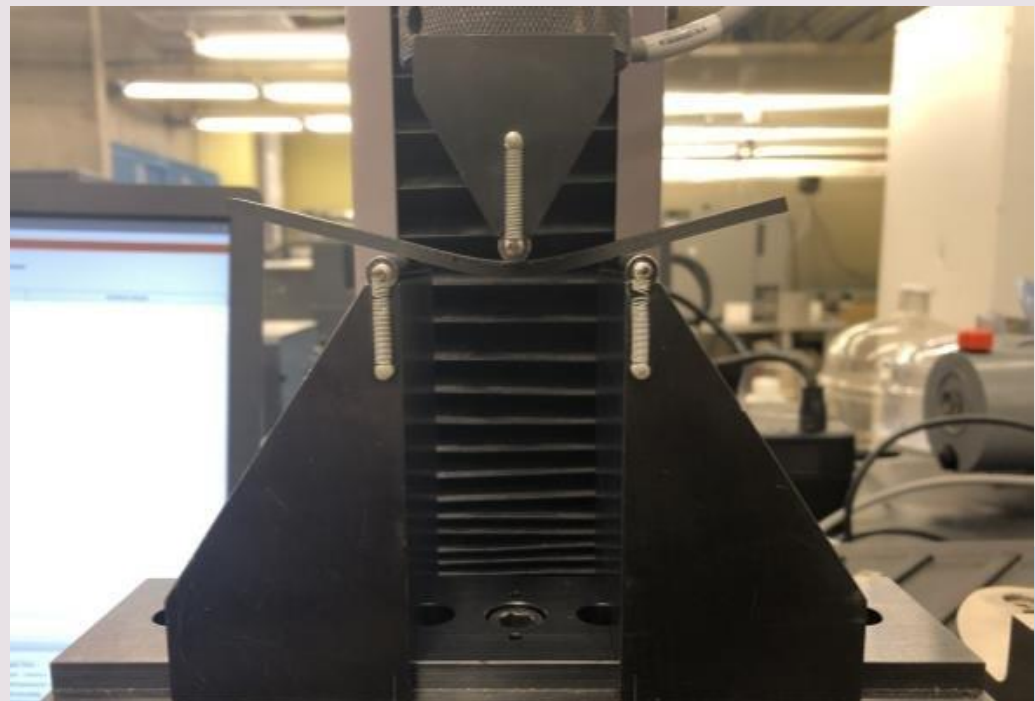
- Macro-scale process simulation with AMTOP by ITACAe for the optimization of orientation, prediction of distortions and process time and costs;
- Full-scale process simulation with GENOA by ALPHASTAR for the prediction of temperature, voids and stress distribution, mechanical properties of the 3d-printed part;
- Mechanical test simulations.



Production and quality assesment

The production and experimental test phase includes:

- Components production with LPBF technology, AlSi10Mg material;
- X-Ray Tomography for defects, porosity and deformation analysis;
- Experimental mechanical tests.





Model validation

This phase includes:

- Methodology for numerical-experimental comparison;
- Validation of numerical models.

