

“A380 Cruciform Joint Optimization”

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Abstract:

AIRBUS has used OptiStruct since years to apply topology optimisation to major aircraft sub-components. Large communication was made about this topic. Less usual were presentations on the practice of 3D shape optimisation. AIRBUS are presenting here a study in this range whose objective was to improve the behaviour of the A380 Cruciform Joint by using HyperMesh and OptiStruct.

Thanks to its unique morphing capabilities HyperMesh allowed parameterising the complex geometry of this massive fitting, while respecting all design and manufacturing constraints. OptiStruct was then used to extract the optimum geometry with a drastic reduction of stress levels. The new design coming from this optimisation study has been implemented on the aircraft.

Keywords:

- Joint Optimization
- OptiStruct
- Aerospace
- Morphing
- HyperMesh