RESEARCH THESIS

Internal Wing Design

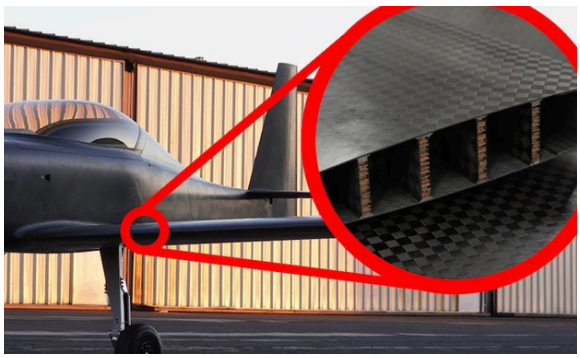
We optimize our wings internal structure with FEM to reduce the weight of our car as much as possible. The objective is to develop new internal designs with the help of FEM with better mechanical properties. Those are then to be evaluated across multiple domains like manufacturability, cost, aerodynamic performance.

The FEM simulation would preferably be done in Hypermesh. Working with CFRP and its extremely anistropic properties makes this particularly challenging.

A closer look should be taken into advanced/alternative designs and manufacturing methods. Some examples of both: Inner bagging, intensifiers, CFRP-Ribs, lost cores, alternatives/enhancements to the existing spars and ribs concept.

Also possible: alternative fibers, forged carbon structural parts.

The most promising internal designs are to be manufactured iteratively to examine closer and evaluate manufacturing process.



https://i.ytimg.com/vi/BIZArkn8nho/maxresdefault.jpg

Tasks:

- CAD Design & FEM Simulations
- Evaluate designs
- Manufacture most promising designs

Requirements:

- Creativity
- FEM experience
- CAD basics
- CFRP experience
- Become team member