OPTIMAL SAIL SHAPE APP

by ONE OCEAN / Mirko Solutions / Incidences Sails

LiDAR Sail Shape Mesurement

Remi Aubrun from Incidences Sails has decided to team up with One Ocean to create the AI SailShape App, a tool that transforms how skippers read, understand, and optimise their sails.

Using five LiDAR sensors, the app captures the real-time geometry of every sail on board. Incidences delivers the ideal Flying Shape for each sail and each wind strength.
The goal? Instantly compare the perfect shape with the actual shape, 24/7.

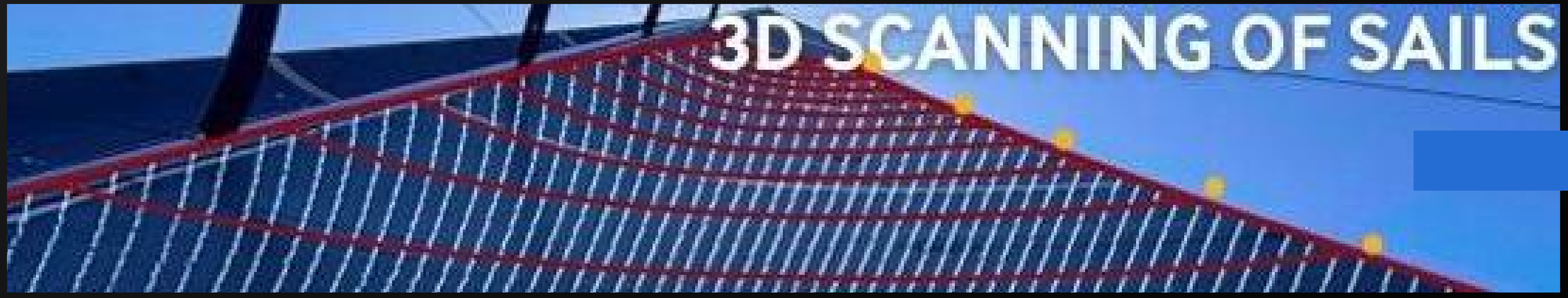
To mesure the sailshapes 4 LiDAR Sensors are going to be used -
Red: (Port/Starboard) for Gennakers and Spinnaker
Green: for J1 and J2
Orange: for the Mainsail

LiDAR Sail Shape - Technical Challenges & Solutions

A. Turning LiDAR images into usable 3D models
Building a processing pipeline that converts point clouds into clean, fluid, screen-friendly 3D renderings.

B. Overlaying the optimal shape with real-time data
A streamlined interface using:
- 5–6 reference profiles per sail - for the ease of reading the output (orange reference points)
- Instant comparison of depth, chamber, twist with the optimum "flying shape"

→ Clear, readable, reliable — even at night, even under pressure.



LiDAR Sail Shape Downwind Sails

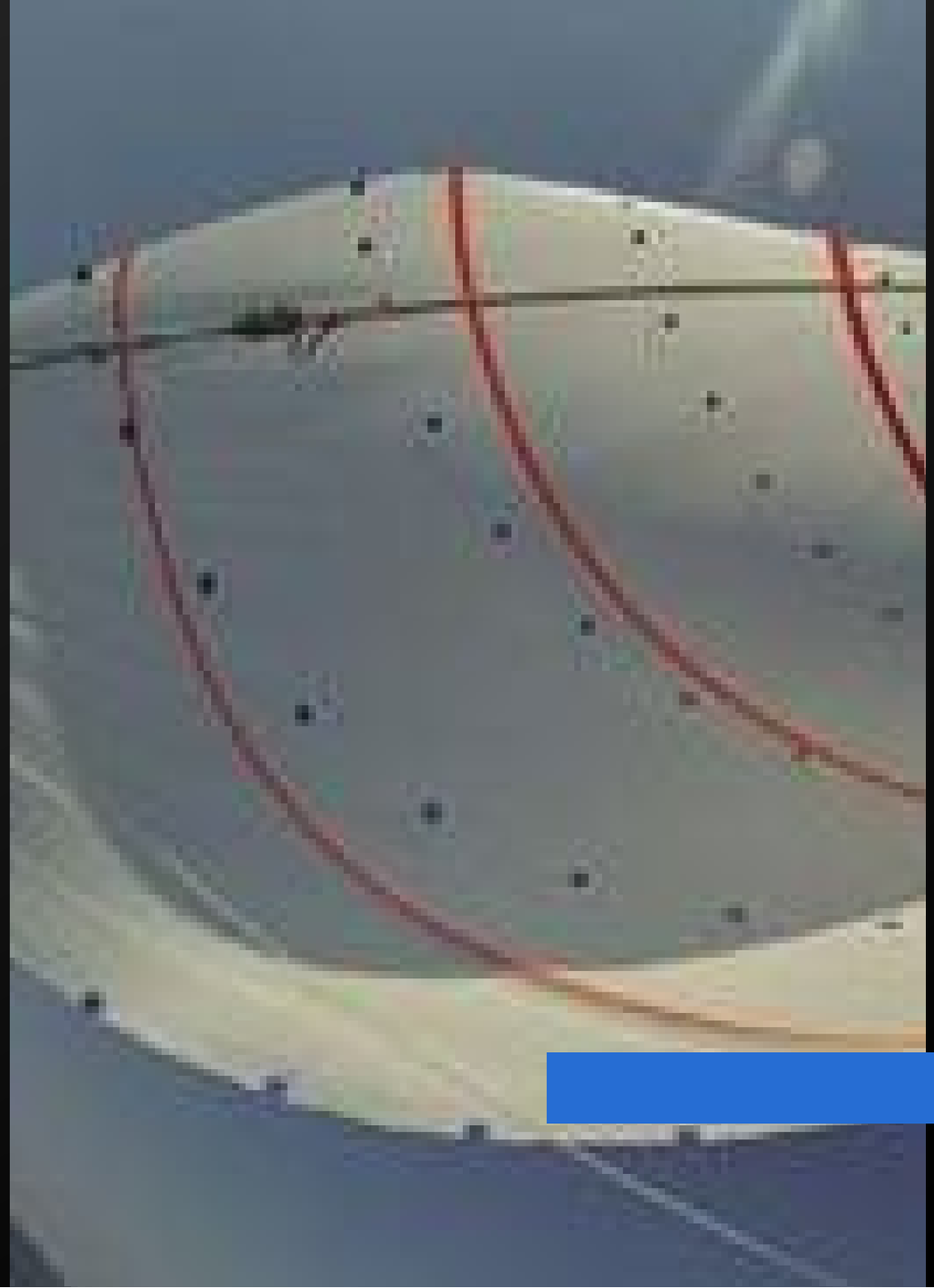
Measuring downwind sails (spis) despite big movements
Need to find a damping method that filters out parasitic motion and extracts only meaningful structural data.

The tech we had to crack

1. Turning LiDAR points into a smooth 3D model
No more messy clouds — just a clean, intuitive visualisation.

2. Overlaying the Ideal & Real Shapes
We boil everything down to 5–6 highly readable profiles → ideal for onboard use.

3. Calming down the spinnakers
They flap, they move … so we need to built a smart damping system to isolate the real structural information.



THANK YOU

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