



Research Consortium in Speckled Computing

Use of Specknet for enhancing design and performance of sails

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Possible use for Specknet

- Real time analysis of sails
- Crew monitoring
- Manufacturing of sails

Sailing



Dynamic Environment:

- **Wind**
- **Sea state**
- **Crew work**
- **Gear failure**

Getting performance from sails

Front of sail or 'luff'

Back of sail or 'leach'

Tell tails

Camber Line



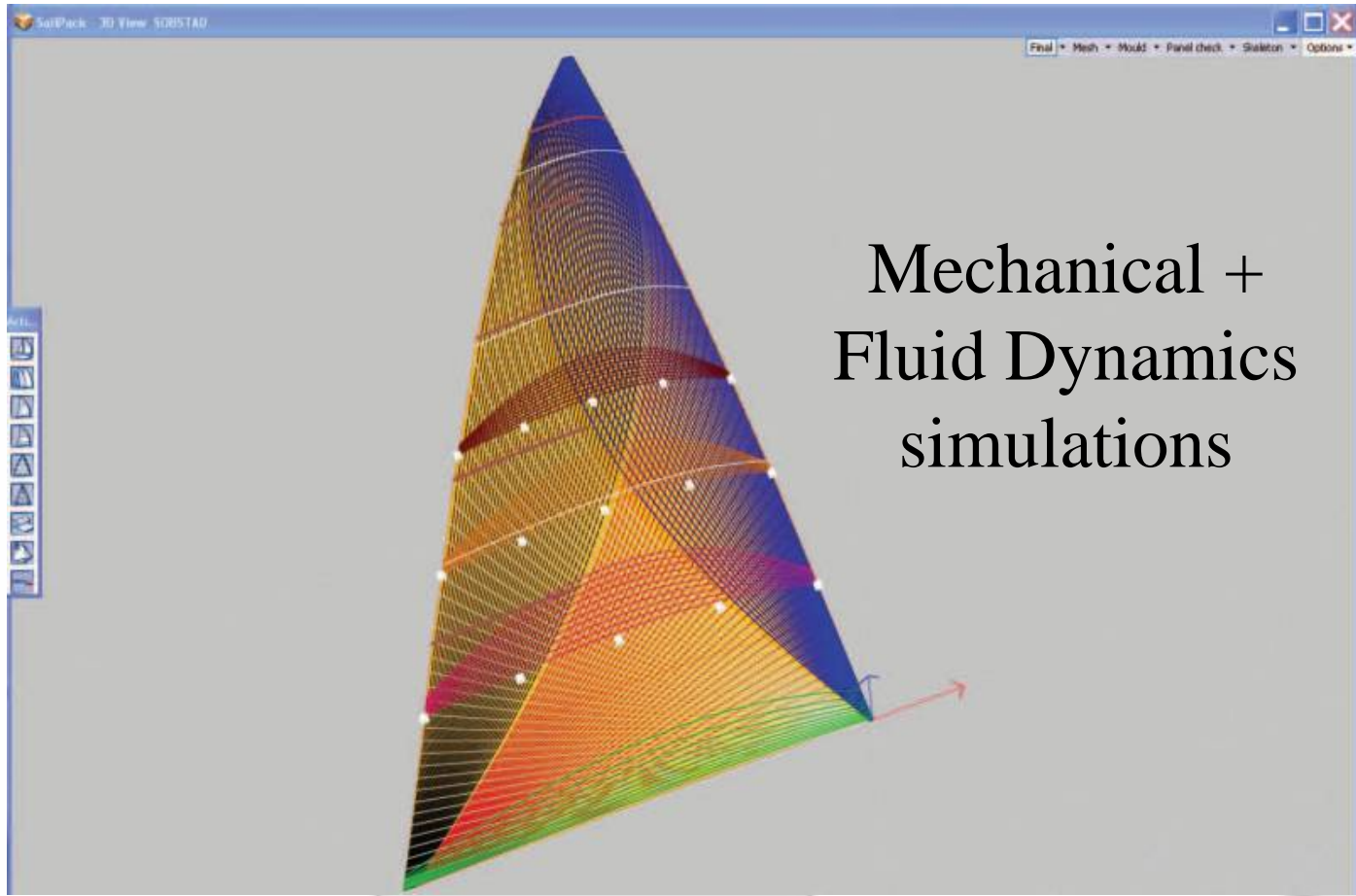
'Touch of the button' tuning from real time analysis – Pressure Sensors?

Go Racing!



- **Crew work is critical**
- **Sails are wrecked – expensive!**

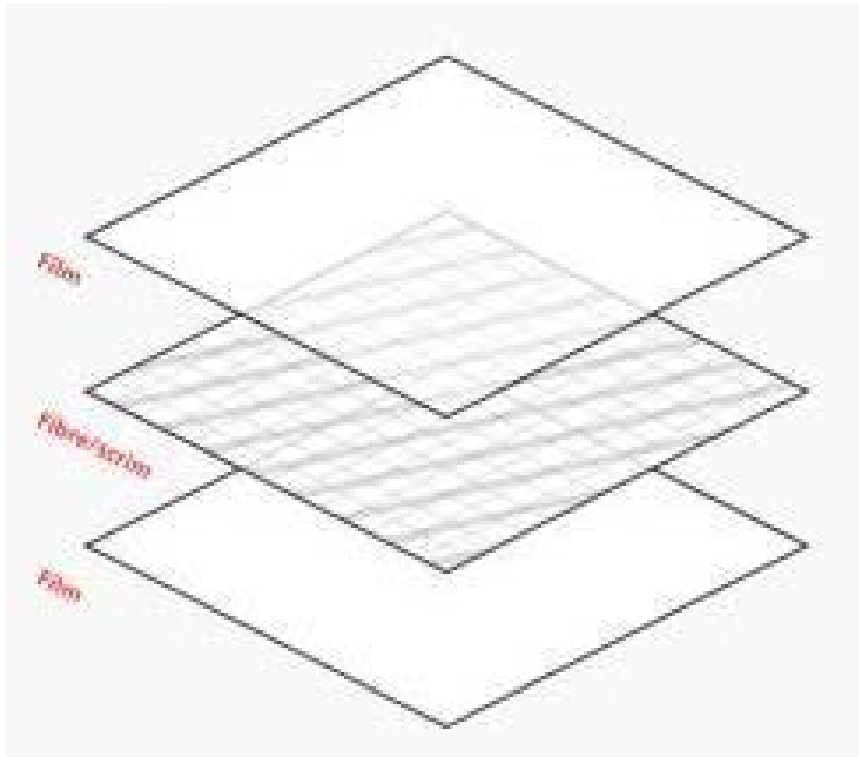
Manufacturing of Sails - Simulation



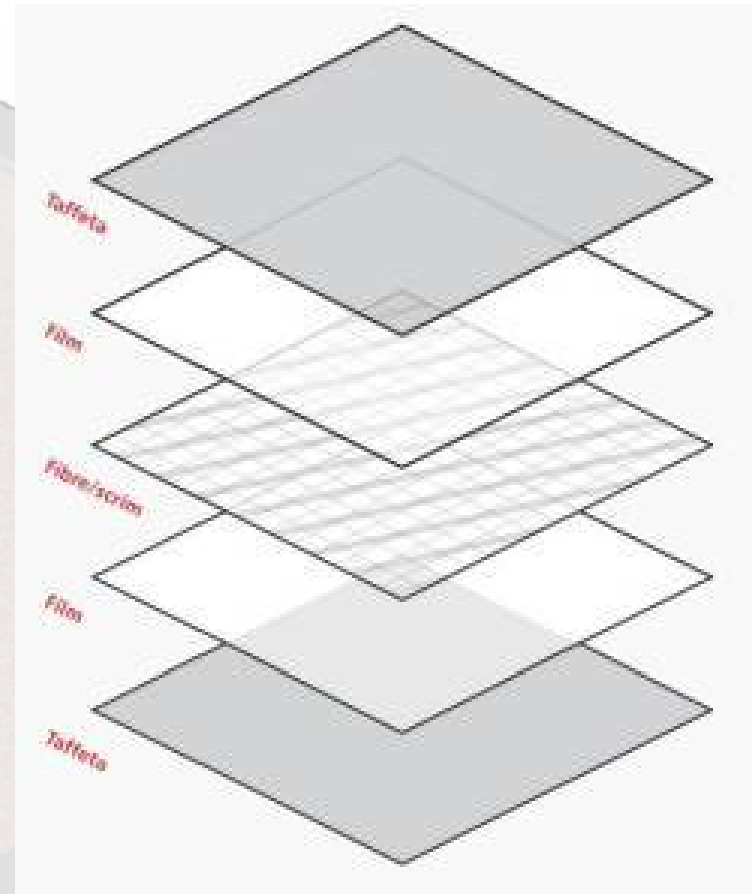
Mechanical +
Fluid Dynamics
simulations

Need for real time feedback to assist design for
better performance longer life

Manufacturing of Sails

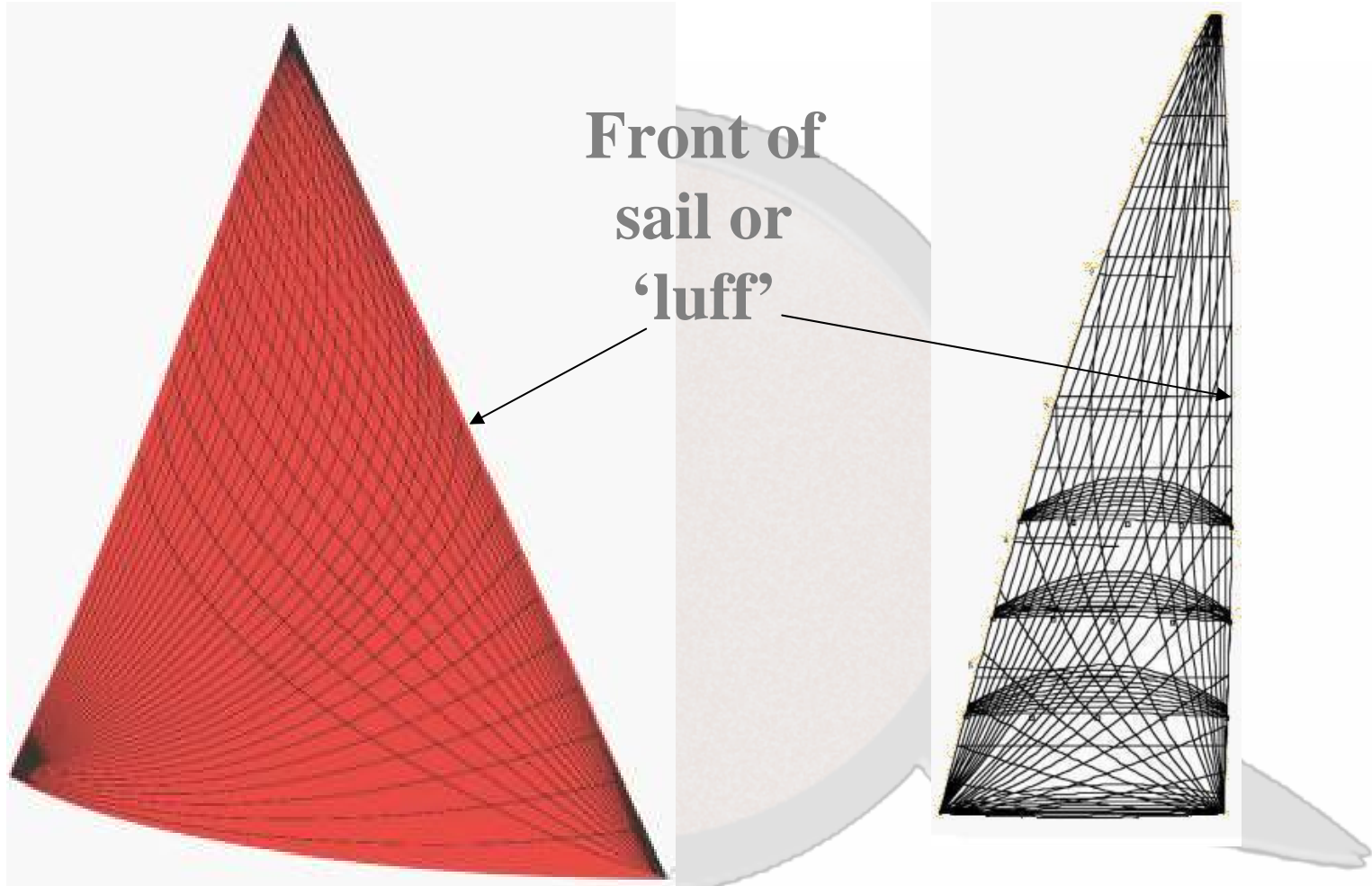


Racing sail



Durable/Heavy weather racing sail

Manufacturing of Sails - Design



One seasons racing and sails lose competitiveness due to delamination.

Sail testing – Current state of play

- Go sailing to check performance
- Two boat tuning
- Using cameras (on top of mast) plus instruments
- Stretch test - Mainly visual (i.e. cameras)
- Wind tunnel not an option

Detect mechanical failure



Early warning system

Conclusion

- Crew monitoring
- ‘Touch of the button’ tuning
- Composite analysis
 - Monitoring the pressure/delamination will allow feedback into the design cycle
- Other areas such as F1 cars + wind turbines in real time situations