Aeroelastic Analysis and Optimization of a Highly Flexible Aircraft and Application at X-HALE-BR

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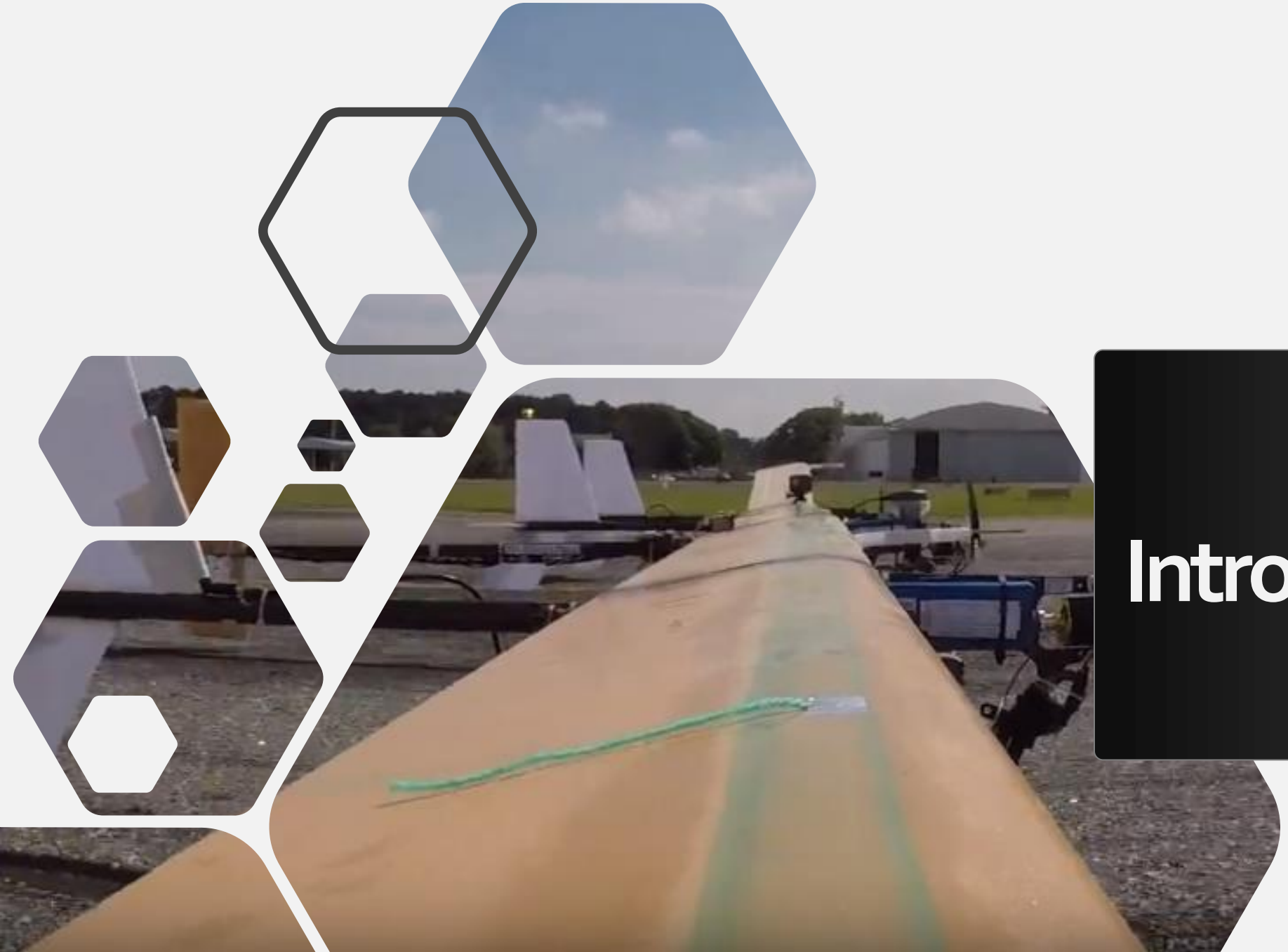

Introduction

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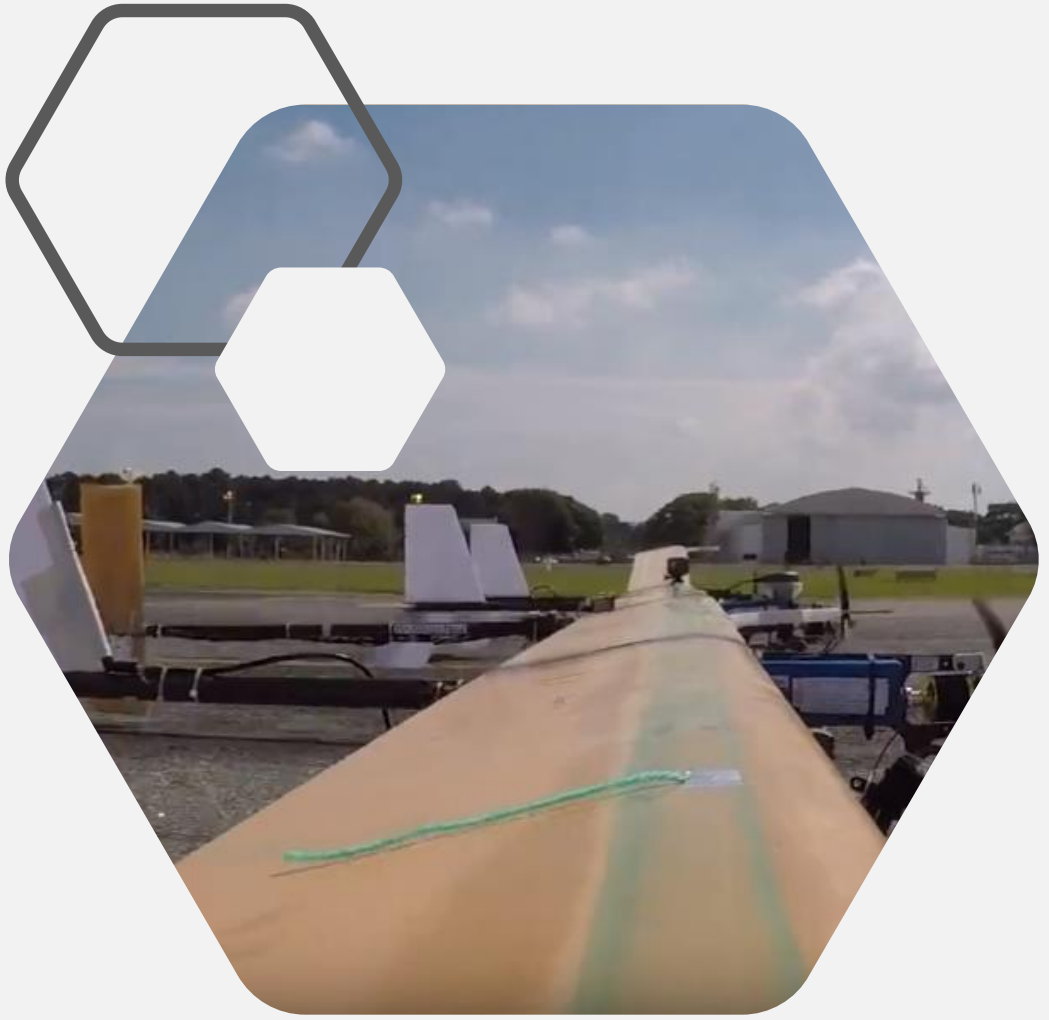
- First of all, the object of study is a Brazilian highly flexible aircraft, called X-HALE-BR
- To this work, an aeroelastic analysis was proposed for this type of aircraft, followed by a optimization of the model, achieving the improvement of the aeroelastic characteristics of the aircraft without compromising its flexibility



The Methodology

The Methodology: past works

In the literature, there is some modelling of this problem:

- Weihua Su, 2008 [1]
- Flavio Ribeiro, 2012 [2]
- Van Schoor, 1989 [3]

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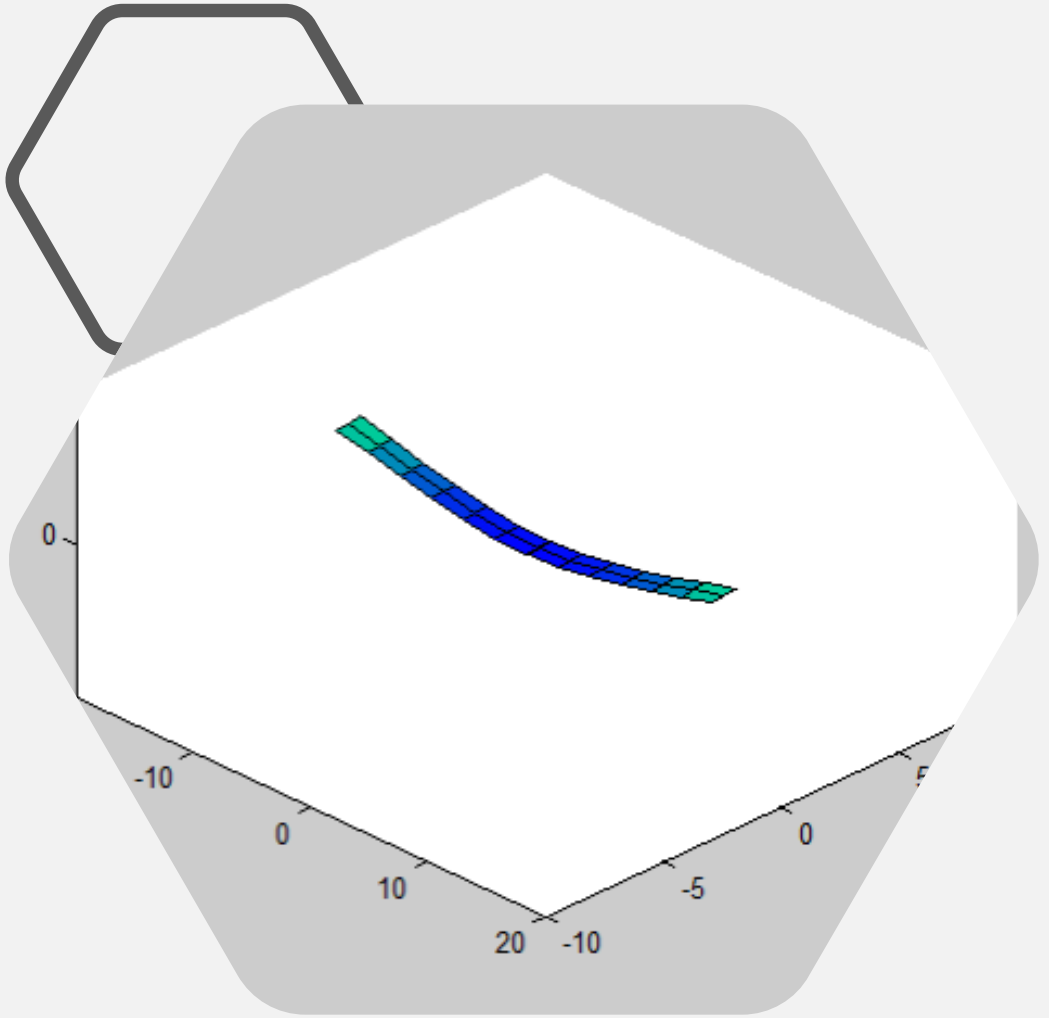
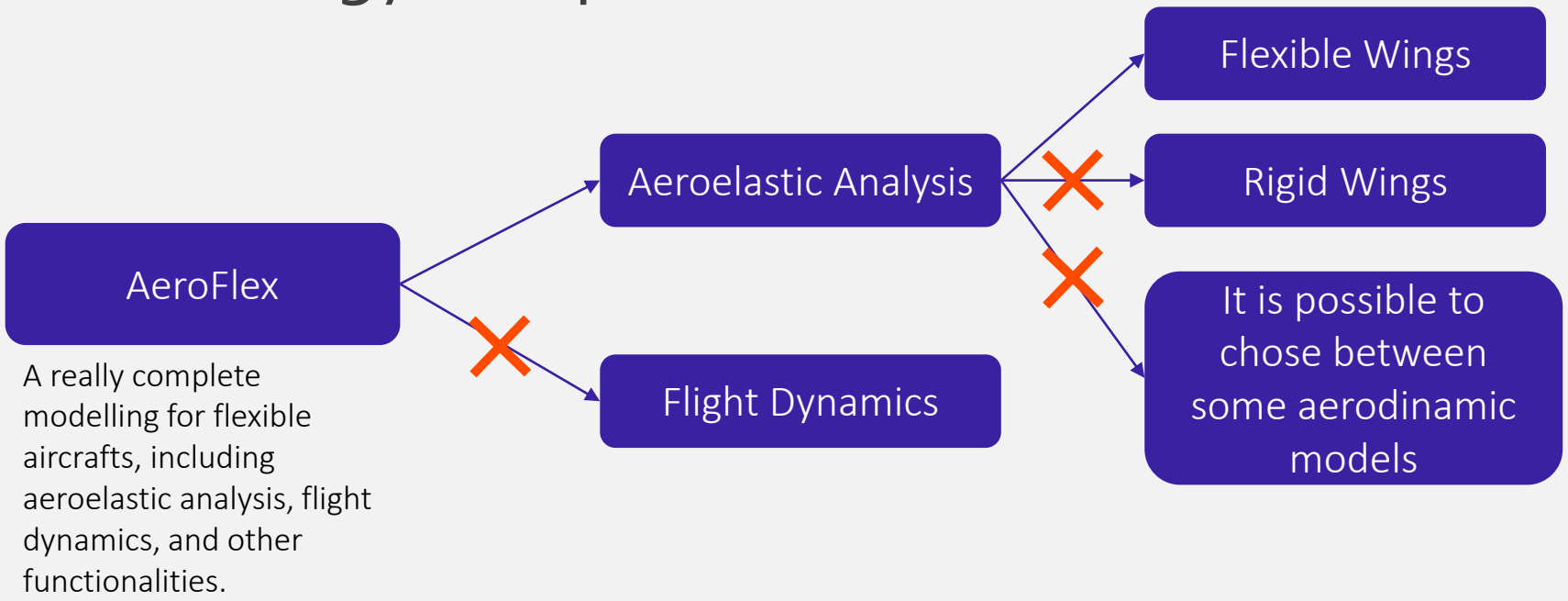
In the literature, there is some modelling of this problem:

- Weihua Su, 2008 [1]
- Flavio Ribeiro, 2012 [2] → AeroFlex Toolbox
- Van Schoor, 1989 [3]

- Originally made for the same aircraft in study.
- Come with a Matlab's Toolbox.
- Recent and updated work.
- The work may be done with contact with Flavio.
- It has really precise results in comparison with other works and experimental data.

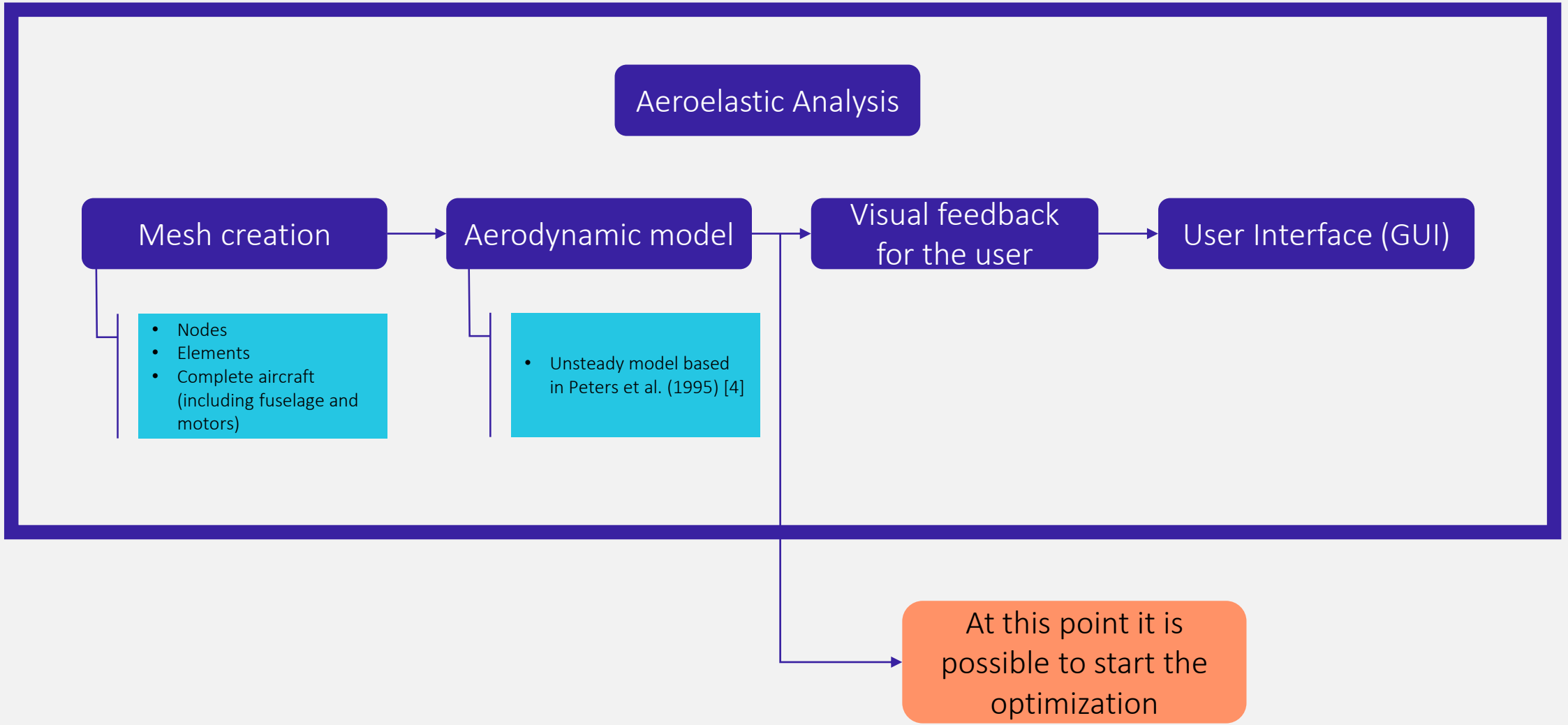


The Methodology: the present work

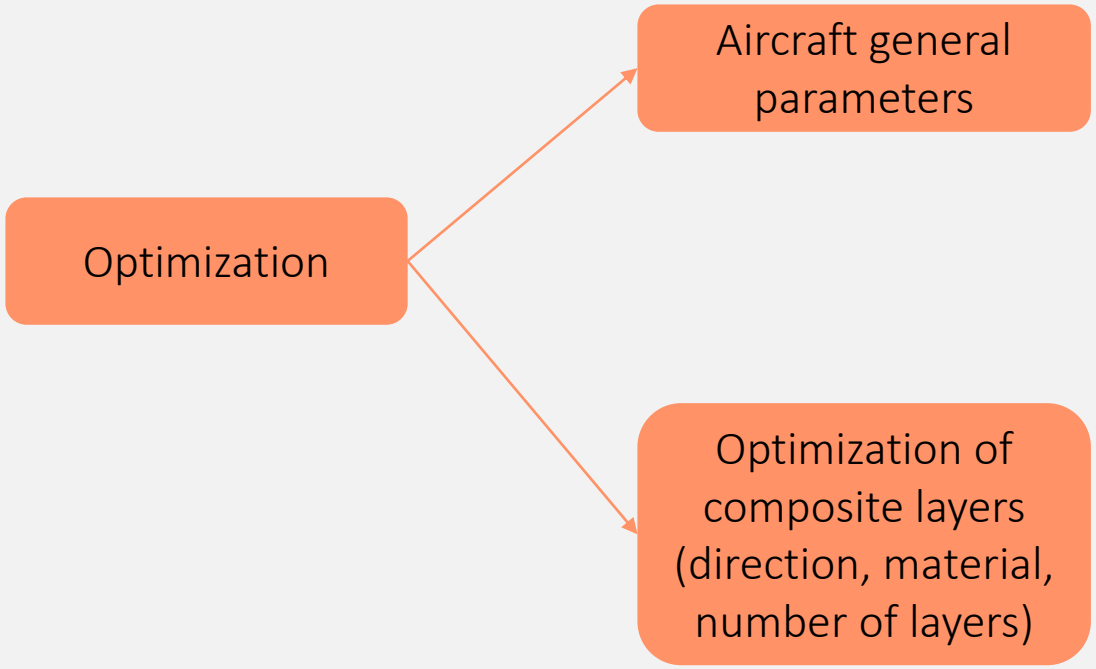


The aeroelastic model will be used with less options for the user, to simplify the initial work.

The Methodology: the present work



The Methodology: the future work



Bibliography

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4. Peters, D., Karunamoorthy, S. and Cao, W., 1995. “Finite state induced flow models. i: Two-dimensional thin airfoil”.Journal of Aircraft, Vol. 32, No. 2, pp. 313–322.

Thank You

Questions?