S.O.W. - UNIVERSITY PROJECT **BOMBARDIER**

PROJECT TITLE: BAG – Bombardier Algorithme Génétique

OBJECTIVE: Contribute to the development of an optimization tool.

DESCRIPTION: The Flight Simulation group has undertaken the automation of the aerodynamic parameter estimation to update simulation models from flight test data.
Amongst their many applications, the simulation models are used for the design of new aircraft. They are based on data collected in wind tunnel tests, from empirical estimation methods, from computational fluid dynamics and from flight test. The latter are essential for the final definition and validation of the aerodynamic models. Flight tests are the focus of a Strategic Technology and PDT initiative aimed at developing a method to update aerodynamic models from flight test data.
The intern will contribute to develop an optimization tool based on genetic algorithms together with other algorithms (Levenberg-Marquadt for example). The tool will be run in several computers connected by a common Ethernet network. This will allow solving the genetic algorithm faster. This set of tools shall be developed in VisualBasic.Net.

Work breakdown

Familiarization with development requirements	1 week
Coding	9 weeks
Checking	3 weeks
Validation	3 weeks

DELIVERABLES: Set of tools which can solve any non-linear and complex problem over a computer networking through process distribution.

SCHEDULE: May 2011

NO OF HOURS: 500 hours

SOFTWARE TRAINING NEEDS:
- Visual Basic.Net
- Microsoft Source Save OR any other revision control of files application

PRE-REQUISITE:
- Undergraduate computer science – 2nd or 3rd year completed
- The candidate shall have good programming skills.
- Functional OR Fluent English level

PROJECT RESPONSIBLE: Andrius Knystautas x59842 (back-up: José Roberto Barros)

DATE: Dec 16, 2010