

Internship tutors:
Patrice LABEDAN - Joel JEZEGOU

Internship with ISAE SUPAERO - Toulouse

Location: **ISAE SUPAERO - Toulouse**

Starting Date: between 01/03/2021 and 01/05/2021

Duration : 6 months

Title : Modification of PEGASE flight simulator for DEP airplane

ISAE-SUPAERO is an institute dedicated to aerospace engineering higher education and research. ISAE-SUPAERO develops a research focused on the future needs of aerospace or high-tech industries.

The ISAE-SUPAERO Department of Aerospace vehicles design and control (DCAS) supports activities related to the design and development of aerospace systems. The DCAS researchers belong to three research groups:

- Aerospace vehicle design
- Decision and Control
- Neuro-ergonomics and human factors

The research groups collaborate on the following topics:

- Design and operation of safer aircraft
- Integrated multidisciplinary design of aircraft
- Advanced space concept.

The internship is related to the multidisciplinary design of innovative CS-23 aircraft architectures, as part of research chair ISAAR (Innovative Solutions for Aircraft Architectures & Regulation). The intern will be integrated in the Aircraft Design research team of DCAS Department.

PEGASE is a 3-axis-motion flight simulator operated in DCAS department for human factors and flight dynamics experiments. The purpose of the internship is to modify this simulator to integrate the Distributed Electric Propulsion (DEP) airplane configuration.

The objectives of the internship are :

- To understand the current implementation of flight dynamics, propulsion and source of energy models in PEGASE, and related controls/indicators in the flight deck;
- To propose a strategy to modify those models to integrate a conventional small airplane (TBM 900) and a DEP airplane, using JSBSim library as a flight dynamics model; a generic methodology applicable to integrate other category of airplane will be proposed;
- To implement and test modifications of the models in the development simulator and then in the real simulator;
- To explore and specify flight deck indicators that may be relevant for DEP airplane configuration.



ISAE-SUPAERO PEGASE
Flight Simulator

REQUIRED SKILLS

Skills: Aircraft performance, Flight dynamics, Propulsion

IT skills: Strong interest in programming, C++, Python, JSBSim

Soft skills : autonomy, curiosity, innovation, proactive

APPLICATION FOR INTERNSHIP

To apply : CV and motivation letter to be send by email to Joël JEZEGOU (joel.jezegou@isae-superaero.fr) and Patrice LABEDAN (patrice.labedan@isae-superaero.fr)

For further information: please contact the above mentioned contacts.