Danilo Rodrigues Fontana

+49 163 1574 773
danilofontanaa@gmail.com
danilofontanaa

Professional Profile

I am an Aeronautical Engineer with a Master's degree in Stability and Control with 10 years of hands-on experience in two different FBW aircraft programs from the development to the certification phase. I worked in several aspects of the integration of large and complex systems such as fly-by-wire, control laws, ARP-4754A, and DO-178C processes, model-based design for safety-critical systems, validation and verification (V&V), HW/SW in the loop testing in different environments from desktop to test benches, and fully integrated rigs to provide safety of flight (SOF).

Experience

2021–Current **Systems Development Engineer**, *AES*.

I apply model-based design and simulation for the definition and evaluation of different aerospace systems.

- Leading development of systems requirements including system performance, system interfaces, architecture, and algorithms
- Strong background and experience in application of classical control theory to aircraft or other complex dynamic systems
- Development of algorithms, models, and simulation for aircraft control systems

2019–2021 **Flight Control Laws Engineer, MRJ90**, *MITAC*.

I was responsible for the system requirements management, V&V planning and execution of the Flight Control Laws team and the design of safety-critical monitors for the Flight Controls System team.

Main achievements:

- Requirements validation for the MRJ90 control laws
- Preparation of requirement-based tests for system level verification in the Iron Bird.
- Development of several solutions to show compliance with IPs/CRIs.

2015–2019 **Flight Control Laws Engineer, 190/195 E2**, *Embraer S.A.*

I worked on the development of the Embraer 190/195 E2 aircrafts. I was responsible for the safety of flight of the flight control laws, management of the V&V process, creating the standards and plans for test creation, execution, and analysis. I also developed an integrated testing system for requirement implementation verification from desktop simulations (SIL) to test bench and Iron Bird tests (HIL/SIL) and pilot in-the-loop testing.

Main achievements:

- Automated the test process with desktop model-based simulations, test bench execution (hardware and software in the loop), and test report generation for the system and software verification campaign.
- Sub-team leader of the control laws simulation, validation and verification group.
- Scrum master and the responsible for the verification package.

2013–2015 **Flight Control Laws Engineer, Legacy 450/500**, *Embraer S.A.*

I worked on the development of the Legacy 450/500 aircrafts. I developed tools and prepared simulations reproducing flight test maneuvers and different failure scenarios to assess the flight control system behavior, perform control laws and autopilot control laws analyses, and model integration.

Main achievements:

- I received an innovation prize for my contributions to the new SOF process, where we were capable of identifying problems in the software and hardware testing before the supplier delivered the red-label versions, resulting in a 500,000.00 USD cost reduction per year in the SOF campaigns
- Development of air vehicle flight control laws, flight director, navigation, guidance, and autonomous systems control algorithms
- Flight control laws responsible for simulation, validation, and verification

2012–2013 **Systems Engineer Trainee (PEE)**, *Embraer S.A.*

The program offers over 2200 hours of multidisciplinary content in partnership with Aeronautical Technology Institute (ITA) that allows engineers to specialize in several aspects of aeronautical engineering such as aerodynamics, flight controls, avionics, and other aircraft systems focusing on the integrated product development and systems engineering approaches.

2011–2012 **Intern**, *Embraer S.A.*

As part of the Legacy 500 / Flight Controls and Hydraulic System tests (Ground Systems tests), I participated in the development of the rig's and Iron Bird tests and tools for the systems tests required for the safety of flight and certification activities.

Main achievements:

- Development of tools and devices for the Iron Bird
- Preparation of detailed test procedures
- Support test execution and post processing

Skills

Hard

- Model-based design
- Requirements development and management (using IBM Rational Doors)
- Safety-critical systems development
- Matlab/Simulink and Python
- Data analysis (laboratory and flight test)
- Test automation and continuous integration (using Jenkins)
- Validation and Verification (V&V) - System integration & testing (HIL/SIL)
- Version control systems (SVN and Git) and Issues management (using Jira, including its API)

Soft

- I am focused and motivated to do the job with good problem solving skills.
- Strong organizational skills – ability to oversee multiple tasks simultaneously; ability to identify and resolve task conflicts and issues
- I have a teamwork spirit and can communicate technical issues with different audiences.
- I am a data-driven person with a passion for Data Science and Machine learning techniques and their application.

Languages

Portuguese Native

English Advanced

Education

2011–2014 **Master of Science**, *Aeronautical Institute of Technology (ITA)*, Brazil.

Thesis: Stall Pilot Model with Longitudinal Control Law

2007–2011 **Bachelor: Aeronautical Engineering**, *Universidade Paulista (UNIP)*, Brazil.

Thesis: Solid Propellant Small Caliber Rocket Development