Pedro Reis

Aeronautical Engineer | UAV Design, Structures & Systems Integration

Getafe, Madrid, Spain | (+351) 927 223 581 | pgfmreis@gmail.com | linkedin.com/in/pedro-reis-ab73842b9

Professional Experience

Airbus Defence and Space — Getafe, Madrid, Spain

Powerplant Engineering Intern – PWP Control & Monitoring — Sep. 2026 – Present

- Contribute to the design, development and aircraft-level integration of powerplant control and monitoring systems within a multidisciplinary turboprop aircraft development programme.
- Support future powerplant control architectures, addressing modularity, flexibility, independence and interfaces with aircraft systems.
- Use MATLAB/Simulink for system modelling, simulation and engineering analysis supporting control-system development and validation; review qualification and verification documentation in support of V&V.
- Support requirements analysis, design coordination and manufacturer interfaces, contributing to technical alignment between powerplant systems and aircraft-level integration activities.

Engineering Experience & Projects

UBI Aeronautics Team (UBIAT) — Covilhã, Portugal

Structural Design & Manufacturing Engineer – Air Cargo Challenge 2026 — Sep. 2025 – Sep. 2026

- Designed and sized UAV primary structures and mechanical assemblies in SolidWorks using load analysis: spars, ribs, fuselage elements, motor mounts, landing gear and control-surface mechanisms; developed CAD layouts, component interfaces and engineering drawings.
- Performed FEA and topology optimisation in ANSYS Mechanical, evaluating stress, deformation and preliminary buckling; achieved up to **45% mass reduction** in UAV wheel components while preserving assessed structural performance.
- Developed landing gear and airless tyre geometries for impact loads, structural efficiency, load distribution and manufacturability; manufactured and assembled carbon-fibre structures through hand lay-up, curing, finishing and structural integration.
- Developed flight-ready UAV hardware from CAD to field testing using FDM 3D printing, CNC machining and physical assembly; iterated designs through manufacturing, integration, ground testing and flight-test feedback.

Bachelor's Final Project: VTOL Tailsitter UAV for Disaster Relief — Feb. 2026 – Jun. 2026

CONOPS, Aircraft Design, CAD Layout, Structures & Physical Integration

- Developed the CONOPS and UAS architecture, defining mission phases, operational requirements, ground control station, support vehicles, ground equipment and deployment resources.
- Led the multidisciplinary design of a 25 kg MTOM VTOL tailsitter UAV, covering configuration, aerodynamic sizing, mass and mission performance; developed the 3D CAD assembly, subsystem layout and physical integration of propulsion, avionics, flight-control hardware, payload and onboard systems.
- Performed aerodynamic, structural and integration trade studies using XFLR5, Flow5, CAD and numerical tools, including sizing of empennage and landing-support components and refinement of component placement and mechanical interfaces.
- Designed a custom avionics tray and access hatch, resolving component mounting, cable/fuel routing and cooling; integrated EO/IR and LiDAR packaging with maintenance access, field-of-view and centre-of-gravity constraints.
- Contributed to internal CAD layouts, camera/gimbal packaging and structural connections; developed system connection schematics and centre-of-gravity analysis across aircraft layout, structures and multidisciplinary design.

Aerospace Structures II – Composite Wingbox Sizing & Testing — Academic team project – Jun. 2026

- Developed a Python/NumPy wingbox optimiser for a 650 kg light aircraft: Classical Lamination Theory, boom idealisation, cut-out shear-flow analysis and ply-level Tsai–Hill checks; compared mass/cost across two curing routes under +4/-2 g, landing loads and stiffness constraints.
- Created SolidWorks/ANSYS ACP and Static Structural models and compared analytical/FE stresses and deflections; manufactured and tensile-tested three hand-laid carbon/epoxy coupons, analysing stress–strain curves, strength, apparent stiffness and specimen variability.

Education

Universidad Carlos III de Madrid (UC3M) — Madrid, Spain

Master's in Aircraft Systems Integration (MASI) – In progress — Sep. 2026 – Present

- Practical UAV control: used ArduPilot and configured PID controllers for quadcopter drones.
- Airbus-sponsored programme covering Aircraft Systems Integration, Systems Engineering, Aircraft Control, Airborne Electronics & Instrumentation, Aeronautical Communications and aircraft-level systems architecture.
- Curriculum includes Certification & Safety Analysis, Airborne Software & Hardware, Design & Configuration Management, Electromagnetic Compatibility, Digital Aircraft Data Engineering, Aeronautical Project Management, UAS and integration of fuel, hydraulic, electrical and avionics systems.

University of Beira Interior (UBI) — Covilhã, Portugal

*Bachelor's Degree in Aeronautical Engineering – Average: **16.48/20*** — Sep. 2023 – Jun. 2026

- Aerodynamics, Flight Dynamics, Aerospace Structures, Aircraft Systems, Propulsion and Aircraft Design.

Technical Skills

Aircraft & Systems Engineering: Aircraft design, UAV configuration and layout, systems integration, powerplant systems, control & monitoring, requirements analysis, verification & validation, flight dynamics, mission analysis.
Mechanical Design, Structures & Manufacturing: 3D CAD, mechanical interfaces, engineering drawings, FEA, structural sizing, load estimation, topology optimisation, carbon-fibre composite manufacture, CNC machining, FDM printing and assembly.
Software: MATLAB/Simulink, ArduPilot, ANSYS Mechanical/ACP, CATIA V5, SolidWorks, XFLR5, Flow5, CAM/CNC.
Programming & Numerical Methods: Python/NumPy, C, numerical modelling and engineering simulation.
Languages: Portuguese (Native), English (Advanced).