

Luca Davies

PERSONAL DATA

🏠 ADDRESS:
☎ MOBILE:
✉ EMAIL:



PERSONAL SUMMARY

A highly motivated, curious and hard-working aerospace engineering professional with a broad spectrum of industry experience in wind-tunnel testing, CFD, weapons release modelling, coding, electronics, materials, manufacturing and aircraft airworthiness.

Strong inter-personal traits and project management skills stemming from industry experience in aerospace defence, motorsport and multiple academic projects in aerospace design and experimental aerodynamics. Consistent track record of delivering original, high-quality results within deadlines and targets.

Currently employed as a senior aerodynamicist at MBDA Missile Systems, with an aero technical role concerning BVRAAM store separation among other responsibilities.

PROFESSIONAL EXPERIENCE



Apr 22
-
Present

Senior Aerodynamics Engineer – MBDA Missile Systems – MBDA Filton, Bristol, UK

Since joining MBDA UK's aerodynamics department, I've been responsible for a broad range of tasks:

- Release modelling – I completed various 6 Degrees-of-Freedom (6DOF) Monte-Carlo trajectory studies aimed at characterizing missile behaviour during aircraft separation. This encompasses boosted release with active autopilot control, jettison and failure mode analysis scenarios. These tasks require intensive use of parallelization techniques, handling and manipulation of multi-dimensional datasets and the use of multiple aerodynamic methods. In the scope of this activity, I recently developed the first fifth-gen aircraft aero-interference dataset for our BVRAAM 6DOF Dynamic Reference Model.
- CFD – Part of my technical tasks include conducting CFD on the company HPC for isolated missile and aircraft interference cases. This type of work included leading a recent CFD validation study in conjunction with Lockheed Martin, presented to a wide range of civil and military stakeholders in Fort-Worth, Texas.
- Pressure Sensitive Paint (PSP) – leveraging on the experience gained at Airbus, I developed an image post-processing algorithm for the first MBDA PSP data. By also supporting multiple workshops at the Aircraft Research Association (ARA) wind-tunnel in Bedford, I was awarded an Innovation Award for the activity.
- Other – Beyond my day-to-day activities, I conducted missile trial telemetry studies, supported urgent operational requirements and aided the development of in-house tools. I also act as a recruiter for the MBDA Early Careers Programme.



Sep. 19
-
Apr. 22

HMG Graduate Aerospace Engineer - Ministry of Defence UK

I completed the Ministry of Defence (MOD) Defence Equipment and Support (DE&S) Air Domain engineering graduate scheme, a two-year training programme in aerospace defence. The scheme enabled me to proactively undertake exciting and diverse placements across industry, MOD establishments and operating bases.



Oct 21
-
Apr 22

Composites Manufacturing Engineer – Rolls-Royce – Rolls-Royce Filton, Bristol, UK

- UltraFan Case Manufacturing – Based in the Composites Technology Facility (CTF), I contributed to developing the composite containment case for Rolls-Royce's UltraFan engine, focusing on analysing manufacturing defects in the fiberglass curing process.
- Fiberglass voiding study – I proposed and completed a glass-ply relaxation study for the materials and case team using a FaroArm laser scanner and Polyworks.



May 21
-
Oct 21

Defence Materials Scientist - Navy Command -1710 NAS, HMNB Portsmouth, UK

- Aircraft Failure Investigation – Conducted fractographic analysis of failed aircraft parts using stereo and Scanning Electron Microscopy (SEM), EDX spectroscopy, optical profilometry and squadron equipment to provide scientific advice to the MOD end user on failure dynamics.
- Saltwater Dispensing System – Development of an automated saltwater dispenser for metal corrosion testing. After designing the CAD model, electronics, C/C++ control code I developed a fully functional CNC guided atomizing nozzle for the squadron.
- Hexavalent Chromium Cr⁶⁺ – Lab determination of Cr⁶⁺ concentrations. Using a UV-Vis spectrophotometry-based method, I evaluated Cr⁶⁺ concentration of field acquired samples.



Dec. 20
-
May 21

Aerodynamics Engineer - Airbus - Airbus Filton, Bristol, UK

- Pressure Sensitive Paint (PSP) – Developed a PSP system for the Filton Low-Speed Wind-Tunnel (FLSWT) as part of a joint project between Airbus and DLR (German Aerospace Centre). After designing the experimental setup and performing the static calibration of different PSP compounds I spearheaded the first successful in-house low-speed PSP test in Airbus.
- National Instruments (NI) DAQ and Control – To enable the PSP test, I developed a pressure, temperature and image acquisition control chain based on NI hardware and LabVIEW. This included the design of a dedicated GUI to allow future PSP calibration and testing.



Sep. 20
-
Dec. 20

Typhoon Airworthiness Engineer - MOD - Rolls-Royce Patchway, Bristol, UK

- EJ200 Safety – Investigation of the safety implications of the technical recommendations for the Eurofighter's propulsion system. By capturing the appropriate engineering judgement, I assured the propulsion Engineering Authority (EA) that the platform was operating safely.
- NATO Liaison – On behalf of the EJ200 EA, I was responsible for liaison tasks between the NATO Eurofighter and Tornado Management Agency (NETMA) and the team in Rolls-Royce.



Mar. 20
-
Sep. 20

Technology Engineer - GKN Aerospace - Airbus Filton, Bristol, UK

- Determinate Assembly (DA) - I researched, defined and tested the check procedures for the A320/A321 DA ribs and engine pylons. By updating the acquisition software code, I successfully completed a repeatability study of the rib measurement process.
- Retainers Manufacturing - I led the Retainers Automation Project for the Systems. Post release to tender, I independently engaged with and down-selected the suppliers, created the CAPEX case and delivered final presentations to Management and Value-Stream.
- Aerospace Sustainability - Wishing to develop my UK-SPEC sustainable development, I researched and proposed a framework to measure sustainability for GKN-Filton projects.



Sep. 19
-
Mar. 20

Puma Mk2 In-Service Support Engineer - MOD - MOD Abbey Wood, Bristol, UK

- Master Maintenance Schedule - Created an analysis tool to track and optimize the aircraft master maintenance schedule tasks, enabling me to brief the Type Airworthiness Authority on various maintenance issues, improving squadron operational output.
- Spectral Oil Analysis Program (SOAP) - By investigating the main, intermediate and tail-rotor gearbox failure rates, I proposed a new SOAP maintenance plan for the rotorcraft.
- Mentoring - I supervised and mentored an incoming apprentice to the engineering team.



Jan. 19
-
Jul. 20

Junior Aerodynamicist - Dallara Automobili - Varano de' Melegari, Italy

Part of the aerodynamics team in the Dallara wind-tunnel, I was responsible for a variety of technical tasks and transversal accountabilities covering:

- Operational Support - Installation and testing of aerodynamic models and experimental measurement chains.
- R&D - Cutting-edge activities conducted for both in-house and customer motorsport projects.
- Delivery - Report presentation and liaison with senior aerodynamic, technical staff and customers.



Oct. 16

Experimental aerodynamics intern - Università di Bologna - Forlì, Italy

Design of an anemometer calibrator for the Centre for International Cooperation in Long Pipe Experiments (CICLoPE). Working alongside the facility's team, I sized the device and planned experimental testing on the device.

EDUCATION



Sep. 17
-
Sep. 18

MSc in Aerospace Engineering - The University of Manchester - Manchester, UK

Grade: Distinction | Societies: Aerospace Society

Dissertation: Team development of an actuated slat-wing-flap demonstrator for low-speed wind tunnel testing. Led the structural analysis, wind tunnel test rig design and DAQ software and hardware development.

Modules: Experimental Methods, CFD, Advanced CFD, Aerospace Group Design Project, Helicopter Flight, Acoustics and Advanced Vibrations, Research Methods.



Sep. 13
-
Mar. 17

Degree in Aerospace Engineering - Università di Bologna - Bologna, Italy

Grade: 106/110 (First Class - ECTS UK equivalent)

Dissertation: R&D of a low-speed calibrator for hot-wire anemometers. I pioneered the design, numerical simulation and successful aerodynamic testing of a Venturi pipe with boundary layer control in the diffuser.

Key modules: Fluid Dynamics, Aircraft Aerodynamics, Aircraft Propulsion, Control Theory, Flight Mechanics, Aircraft Systems, Aeronautical Structures.



Sep. 07
-
Jun. 12

High school diploma - Istituto Tecnico L. Paolini - Imola, Italy

Grade: 86/100 (ABB - A-level equivalent)

Dissertation: Architectural design of a public leisure centre with the aid of AutoCAD.

SKILLS

LANGUAGE	<u>English</u>	<u>Italian</u>			
	Mother-tongue	Mother-tongue			
TECHNICAL	<u>Coding</u>	<u>Electronics</u>	<u>CAD</u>	<u>CFD</u>	<u>Other</u>
	MATLAB	NI Hardware	ANSA	Solar	Office 360
	LabVIEW	Arduino	CadFix	DLR Tau	LaTeX
	C/C++		SolidWorks	ParaView	PolyWorks
	Python		AutoCAD	ANSYS Fluent	

AWARDS AND CERTIFICATES

	Jul. 23	MBDA Innovation Award - Lifetime Pressure Sensitive Paint
	Sep. 22	MBDA Reward and Recognition - High-priority cruise missile performance study
	Mar. 20	Puma Mk2 Delivery Team - Type Airworthiness Authority (TAA) commendation and in-year bonus
	Dec. 18	The University of Manchester - MSc Aerospace Engineering best grade average

INTERESTS AND ACTIVITIES

Sports:	Rock climbing (lead sport and trad), mountain-biking, surfing and trekking.
Music:	Acoustic guitar, piano and saxophone.
Other:	Mediterranean cooking, gardening and board games with friends.

REFEREES

References available on request.