Aurélien Doriat

PhD in Materials Science - Experiments and simulation
Aerodynamic Engineer - Experiments and simulation

Profile

I am highly specialized in the fields of **aerodynamics**, and **materials**. I take great pride in tackling **complex challenges** and delivering **innovative solutions**. As a proactive learner, I consistently seek opportunities to **expand my knowledge and skillset**. I am passionate about aeronautics.

Work experience

ajd ↑ **juil. 2025**

Self employed

- Fire simulation for fire building safety
- Speech recognition for ATC communication
- Computational Fluid Dynamics simulations

dec. 2024 ↑ **dec. 2021**

PhD thesis (ISAE-ENSMA, SAFRAN)

Influence of a sonic heated flow on thermo-oxidation aging of epoxy polymer.

- Experiment : from the conception of the set-up to reporting results
- Development of a material characterization method
- Modelisation, CFD, coupled simulation, PINN
- Autonomy, Project Management, Scientific Rigor, Supervision of Master Interns

dec. 2021 ↑ **jan. 2021**

Research Engineer (CNRS)

Towards a Better Understanding of the Effect of Water on the Acoustic Reduction of Rocket Take-Offs.

- Inverse methods for predicting heat flow in a free jet.
- Fluorescence-based metrological development for simultaneous two-phase measurements. Post-processing using Python.

dec. 2020 ↑ **mar. 2020**

Final Internship (Safran Helicopter Engine)

Ecopulse Project. Simulation of the Internal and External Aerothermal Flow of an Electric Propulsion Unit.

- Setting up 3D CFD calculations: Comparing Methods: RANS methods, Virtual Blade method.
- Understanding distributed propulsion architecture.

Education

mar.2020 ↑ **sep. 2017**

Aeronautical Engineer and Master diploma

ISAE-ENSMA, Poitiers

- Turbulence (concepts and simulation), Blade aerodynamics, Flight Mechanics, Compressible aerodynamics, Heat Transfer Modelling, Inverse Method.

Personal achievement

2017

Micro-gravity flight and experiment

Managed the project from A-Z. Designed, created and ran an experiment in a parabolic flight to simulate microgravity conditions.

2024

Software to analyse flight trace

Python code to analyze flight path data and statistics to compare and improve glider pilot performance. Integrated this code into a website for remote access and usability

Contact

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Software

- Python, LaTeX, HTML
- Starccm+
- Microsoft Pack
- Linux, Windows

Languages

French	Native Language
English	Professional use

Publications

- **Congress**

SFT 2019 : French National Congress, Nantes
Indentation 2023 : National Indentation Congress, Tours
MECA-J 2023 : Congrès des Jeunes Chercheurs en Mécanique, Online
EMMC19 : European Mechanics of Materials Conference, Madrid (2024)
ECCM21 : European Conference on Composite Materials, Nantes (2024)
MoDeSt : 11th conference of the Modification, Degradation, Stabilization of Polymers Society , Palerme (2024)

- **Articles :**

Assessment of a color measurementbased method for the characterization of polymer thermo-oxidation, (2024)
Effect of high-temperature high-speed airflow on the thermo-oxidative aging of epoxy polymer and composite: An experimental study, (2025)

Hobbies

- **Gliding** :

Flight instructor, More than 1400 flight hours, French team and record holder, Volunteer at the gliding club.

- **Sports** :

Tennis, Hiking, Cross-country Bike, Skiing