

Rodolphe Fremond

→ Contact details

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🌐 [Website](#)

🌐 [LinkedIn profile](#)

📄 [GitHub page](#)

📄 [Research publications](#)

Offering expertise in research, project management, and data science:

Air Traffic Management, Unmanned Aircraft System Traffic Management, Avionics, and applied AI/Machine Learning.

Available from October 2024. Limitless location.

Unrestricted to live and work in the UK and EU. Driving licence. Car owner.

WORK EXPERIENCE



Ph.D. Researcher in Aerospace (From September 2021 to September 2024) at Cranfield University (Bedford – UK)

- ✘ Machine Learning-based solver development for Unmanned Aircraft System Tactical Conflict Resolution Service. High expertise in conflict Resolution methodologies and complex Multi-agent Deep Reinforcement Learning system design. Familiar with programming languages and tools such as Numpy, Pandas, PyTorch, Keras, TensorFlow. Our solver⁽¹⁾ stands out due to: Scratch design, high safety performance, scalability, applicability considering UTM environment and its uncertainties.
- ✘ Tactical Conflict Resolution service development and regulatory framework. Autonomous and sustainable learning with in-depth expertise in UTM research area. Very familiar with regulatory framework (ASTM standards, EU/FAA regulations, AC, SC, and MoC).

Research Assistant in ATM/UTM (From December 2022 to November 2023) at Cranfield University (Bedford – UK)

- ✘ R&D of ATM/UTM digital twin platform⁽²⁾: Software requirements. Developing connectivity for UTM in-flight services⁽³⁾. Proficient with non-relational databases (JSON) and systems (DynamoDB) with experience in using AWS cloud services.
- ✘ Assisted in the development and instruction of a new MSc course in Advanced Air Mobility, including programming lectures.



Consultancy mission for Red Sea Global project (From October 2022 to January 2023) at Cranfield University

Project subcontracted by Buro Happold (London).

- ✘ Vendor assessment: Mapping of eVTOL original equipment manufacturer and concepts evaluation.
- ✘ Technical due diligence: Technical barriers of Urban Air Mobility within the Red Sea region. Gain experience in synthesising research, communicate effectively, and develop KPIs for market and aircraft certification tracking, and conducted risk assessments to offer strategic recommendations.



AMU-LED project UK demonstration (From December 2021 to June 2022) at Cranfield University

- ✘ Lead of ATM/UTM in-flight services⁽³⁾ integration. Including Conformance Monitoring, Contingency Management, and Tactical conflict and Resolution services provision. Very familiar with Urban Air Mobility Concept of Operations developed by the different regions of the globe. Project initiated by SESAR Program.



eVTOL “Q-Starling” aircraft avionics system design project (From April to September 2021) at Cranfield University for ARC Aero Systems

- ✘ Design of an Integrated Hazards Surveillance System. Airborne system integrating traffic collision avoidance, ground proximity warning, and weather detection and alert systems with prioritisation proposing pilot advisories and resolution notifications. Familiarity to exploit documentations such as AC 23-18/25-23/90/114B, ARINC 762/735, RTCA DO 161A/178C/254/300A, CS-23/27, SAE ARP 4102B/4153/4751/4754A/4761, and TSO C112d/C117a/C151c/C154c/C157a/C166b for system design process management and execution at the system and aircraft level.
- ✘ Project manager: Action and decision team leader,
- ✘ Technical reporter: Producing executive summary and final technical documentation.
- ✘ Avionics-part project presenter. Part of Aerospace Vehicle Design MSc program. Group Design Project.



AI-based Tactical conflict solver R&D (From October 2020 to March 2021) at Cranfield University

Research in Machine Learning algorithm coupling Genetic Algorithm and Neural Network policy for performing Tactical conflict Resolution in an isolated air-to-air conflict and for Air Traffic Management application. Part of Aerospace Vehicle Design MSc program. Individual Research Project.

Internships



Site Manager (From June to September 2020) at ALKEN (Aéroport Roissy Charles De Gaulle - France)



Production engineer (From May to August 2019) at LES GRANDS CHAIS DE FRANCE (Landiras – France)



Avionics Technician (From April to May 2015 and from November to December 2013) at FRENCH NAVY (Landivisiau – France)

EDUCATIONAL BACKGROUND

- 2024 ● (PhD Degree) [Aerospace PhD candidate](#) – Cranfield University
- 2021 ● (MSc Degree) Aerospace Vehicle Design in Avionics Systems – Cranfield University
- 2020 ● (MSc Degree) Civil engineering focus on Electricity and Mechanics – ESTP Paris
- 2018 ● (Bachelor level) Preparatory classes focus on Mathematics, Physics and Engineering Sciences
- 2015 ● (A-Level equivalent) Vocational High School in Aeronautics focus on Avionic Systems

