Élodie Roux

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Dr. Eng. in Mechanics of Flight, Aircraft Design Expert

Personal profile
- 35 years old
- French nationality

Training and Degrees

2012	Aircraft Design Multidisciplinary studies Expert	ALTRAN
2008	Project Management	DIOREM
2002 – 2005	PHD Degree in Mechanics of flight	SUPAÉRO
2001 – 2002	DEA in Mechanics (grade A pass)	SUPAÉRO
1998 – 2001	Engineer graduate in Mechanics	INSA
	SUPAÉRO unregistered engineer and master student	SUPAÉRO
1996 – 1998	Classe Préparatoire aux Grandes Écoles. Maths sup/spé PSI	Lycée Michelet Vanves
1996	Baccalauréat S (A-level), specialized in Mathematics	Cours Secondaire d'Orsay

Professional record - Work Experience (11 years of experience)

- *2007 -2013* **ALTRAN TECHNOLOGIES** *(Flight Physics Business Unit)*
  Consultant (2007-2009), Project Leader (2009-2012), Expert (2012-2013). Management, technical support (R&T and M&T), and training of several transnational teams: to develop mass estimation models adapted to early project phase, to implement these methods into Airbus tools, to develop and support AIRBUS mass assessment tools, and to participate to multidisciplinary studies on behalf of AIRBUS (Mass properties EGWD), to support Weight Control & Support team, and to lead Overall Aircraft Design studies on behalf of AIRBUS (Future Project Office EIXOG).

  Éditions Élodie Roux
  Company manager: author and editor of Aeronautic books & aircraft 3-view drawings http://www.elodieroux.com

- *2006* **SUPAÉRO**
  Post-doctoral research in Aircraft Design (a multi-disciplinary study of the optimum wing aspect ratio).

- *2002 – 2005* **ONÉRA DCSD & SUPAÉRO**
  - Research in Dynamics of Flight at ONÉRA research center – SUPAÉRO PHD thesis
  - Supervision of SUPAÉRO and POLYTECHNIQUE engineer trainees.
  - Teaching support in Dynamics of Flight practices at SUPAÉRO

- *2001 – 2002* **DGA**
  Research and Teacher assistant in Dynamics of Flight.
  Servicewoman – military rank: Officer cadet, allocated to SupAéro Aircraft Department

Placements

- *2002* **SUPAÉRO / ONÉRA**
  DEA Training course (6 months): Wing mass model. This study aimed at the development of a wing mass model adapted to early project phase. The wing box mass is assessed thanks to Structure beam theory (the bending and torsion moments size the panels, the shear force sizes the spars), the secondary structure (leading and trailing edges: flaps, slats, spoilers …) mass is assessed statistically.

- *2001* **EUROCOPTER**
  Engineer training course (5 months): Assessment of no-measured parameters on helicopters in order to improve piloting laws. This research aimed at looking for a way to assess the angle of incidence and the slide-slip angle, which the Aerodynamic loads depend directly.

- *2000 - 2001* **SUPAÉRO / ONÉRA**
  Research Project (6 month): In the scope of on-design performances improvement, this task consisted in developing turbofan engine models, such as Specific Fuel Consumption, Thrust, and engine mass.

- *1999 - 2000* **INSA**
  Personal Project: (1 year at the same time as the courses): helicopter rotor: kinematics, dynamics, design, specific rotary aircraft issues, flight dynamics and performances.

- *1999 - 2000* **ARP (Maîtres du Pianos)**
  Company Web site development: translate into English and Spanish some pages, develop some dynamic language pages (asp) and html ones.
  Design the company logo, business cards, and write some mailshots.
  Take stock of the shop and support on restoration shop (saxophone polish …).

- *1996 - 1998* **Lycée Michelet de Vanves, DEF & SEMASE companies**
  TIPE (Travail d'Initiative Personnel Encadré): Study of an infrared smoke detector (FOP 20) thanks to the fire protection companies: SEMASE (Société d'Étude et de Mise Au Point des Systèmes Electroniques) and DEF (Détection Électronique Française)

- *Mai 1993* **Microsoft France:** paid work experience

Informatics skills

- ***Operating Systems:***
Windows XP & recently W7, UNIX (CDE & KDE), Linux, Mac OS9.
- ***Programming Language:***
Matlab, Fortran, Maple, C, C++, html, JavaScript, Clearcase
- ***Softwares:***
Word, Excel, Power Point, Visio, Illustrator 10, LaTeX, FileMaker, Ideas6

Languages: French (mother tongue), English, Spanish, Japanese (rudiments only).

Reports and publications

- ***Turboprop aircraft: 3 view drawings and specifications.*** To be published. 2017.
- ***Helicopters: 3 view drawings and specifications.*** To be published. 2015.
- ***Turboshaft, Turboprop and Propfan Engines: database handbook***
ISBN : 978-2-9529380-3-7. Éditions Élodie Roux. 2011. More than 1500 engines (644 pages)
- ***Set of technical reports on behalf of Airbus Mass Properties department***
Development of Mass estimation models of several airliners structure components, adapted to future projects and Participation to multi-disciplinary studies. Since 2007.
- ***Avions civils à réaction : plan 3 vues et données caractéristiques.***
ISBN : 978-2-9529380-2-0. Éditions Élodie Roux. 2007. More than 270 aircraft (660 pages)
- ***Turbofan and Turbojet Engines: database handbook***
ISBN : 978-2-9529380-1-3. Éditions Élodie Roux. 2007. More than 1500 engines. (596 pages)
- ***Réacteurs simple et double flux : données caractéristiques***
ISBN : 978-2-9529380-0-6. Éditions Élodie Roux. 2007. (596 pages)
- ***Influence de l'allongement voilure d'un avion basse vitesse sur ses performances conceptuelles***
MRIS Technical Report. SupAéro-DGA. 2006. (110 pages)
- ***Pour une approche analytique de la Dynamique du Vol***
PHD thesis. SupAéro - Onéra. 2005. (214 pages)
- ***Modèle de longueur de piste au décollage/atterrissage. Avions de transport civil.***
Take-off and landing distances and speeds models. SupAéro - Onéra. 2005. (345 pages)
- ***Modèle de masse voilure. Avions de transport civil***
Wing mass assessment. DEA report. SupAéro – Onéra. 2003. (350 pages)
- ***Modèles moteurs… réacteurs double flux civils et réacteurs militaires à faibles taux de dilution avec Post-Combustion.*** Turbofan and Turbojet with/without afterburner performances models.
Research project. INSA – SupAéro – Onéra. 2002. (280 pages)
- ***Estimation des grandeurs non mesurées : incidence et dérapage. Application à l'hélicoptère EC145***
Engineer training course. EUROCOPTER – INSA - SupAéro. 2001. (100 pages)
- ***L'hélicoptère : application, fonctionnement, dynamique et performances.***
Personal Project. INSA. 2000. (90 pages)
- ***Matériaux : essais en traction, diagramme de phase, métallographie, et essais en dureté***
Technical Report. INSA. 1999. (40 pages)
- ***Détection incendie par effet Tyndall : application au FOP20***
Travaux d'Initiative Personnel Encadrés. Lycée Michelet. 1998. (20 pages)

Page Layout :

- ***Handbook of FAR publications***
  - Part 1 - Definitions and abbreviations
  - Part 11 - General rulemaking procedures
  - Part 13 - Investigative and enforcement procedures
  - Part 21 - Certification procedures for products and parts
  - Part 23 - Airworthiness standards: normal, utility, acrobatic, and commuter category airplanes
  - Part 25 - Airworthiness standards: transport category airplanes
  - Part 27 - Airworthiness standards: normal category rotorcraft
  - Part 29 - Airworthiness standards: transport category rotorcraft
  - Part 31 - Airworthiness standards: manned free balloons
  - Part 33 - Airworthiness standards: aircraft engines
  - AC25-7A - Flight test guide for certification of transport category airplanes

  LaTeX page layout from official articles published by FAA.
  Personnal working tool. 2003. (1400 pages)
- ***Recueil des annales des examens de Dynamique du Vol – Jean-Luc Boiffier (SupAéro)***
Development of Dynamics of flight exam book: Capture all exams from 1993, create a database, and LaTeX document creation. 2003. (200 pages)
- ***Notes de Cours de Structure (version 1) – Frédéric Leclerc (Airbus).***
Development of SupAéro Structure training course document (teached by F.Leclerc). Translation in LaTeX Language. 2000. (78 pages)