# Andrea Rausa

*Post Doctorate Researcher*

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## Education

2024–now **Post Doctorate Researcher in Aerospace Engineering**, *Politecnico di Milano*, Milano
Topic: High-fidelity simulation of compressible flows.

2020–2024 **Research Doctorate in Aerospace Engineering**, *Politecnico di Milano*, Milano
Topics: Numerical simulations of separated flow over tail surfaces, numerical simulations of ice shedding.

2017–2020 **MSc in Aeronautical Engineering**, *Politecnico di Milano*, Milano, *110L/110*
Thesis - Ice shedding: a two-dimensional structural analysis for fixed-wing aircraft and a new iterative volume-mesh approach for rotorcrafts. Supervisors: Prof. Alberto Guardone, Dr Tommaso Bellosta PhD.

2014–2017 **BSc in Aerospace Engineering**, *Politecnico di Milano*, Milano, *106/110*

2009–2014 **High school diploma: Technical/Vocational**, *Istituto Tecnico IND.LE Enrico Fermi*, Lecce - Italia, *100/100*

## Work Experience

2024-2025 **Teaching Assistant**, *Politecnico di Milano*, Milano
Giving lessons on Computational Fluid Dynamics for Master students.

2023-2024 **Teaching Assistant**, *Politecnico di Milano*, Milano
Giving lessons on Fluid Dynamics for Bachelor students.

2021-2023 **Teaching Assistant**, *Politecnico di Milano*, Milano
Giving lessons on Aerodynamics for Master students.

## Skills

Programming Languages: C++, Python, Matlab, and TCL

Writing Softwares: LaTeX, Microsoft Office Suite

CAD Softwares: SolidWorks, Inventor, CATIA

CFD Softwares: SU2, FreeFEM++, Pointwise, GMSH, ParaView, StarCCM++

## Languages

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| Italian | Mother tongue | |
| English | Written: Good - Spoken: Very Good | *Trinity College (Grade: B2), PET, TOEIC (910/990)* |
| French | Sufficient | |

## Honors and Awards

2020 Best Paper Award at ESCO 2020

## Publications

Andrea Rausa, Alberto Guardone, and Nijso Beishuizen. Su2 results for the fifth high lift prediction workshop. In *AIAA SCITECH 2025 Forum*, page 0276, 2025.

Andrea Rausa and Alberto Guardone. Avt-390: Outlook on innovative simulation technologies arising from analyses of the dlr lk6e2 airframe. In *AIAA AVIATION FORUM AND ASCEND 2024*, page 4241, 2024.

Alessandro Donizetti, Tommaso Bellosta, Mariachiara Gallia, Andrea Rausa, and Alberto Guardone. Multi-step ice accretion on complex three-dimensional geometries. In *Mater. Res. Proc.*, volume 37, pages 184–188, 2023.

Mariachiara Gallia, Andrea Rausa, Alessandro Martuffo, and Alberto Guardone. A comprehensive numerical model for numerical simulation of ice accretion and electro-thermal ice protection system in anti-icing and de-icing mode, with an ice shedding analysis. Technical report, SAE Technical Paper, 2023.

Alessandro Donizetti, Andrea Rausa, Tommaso Bellosta, Barbara Re, and Alberto Guardone. A three-dimensional level-set front tracking technique for automatic multi-step simulations of in-flight ice accretion. Technical report, SAE Technical Paper, 2023.

Andrea Rausa, Francesco Caccia, and Alberto Guardone. Multi-physics simulations of ice shedding from wind turbines. Technical report, SAE Technical Paper, 2023.

Giulio Gori, Tommaso Davoli, Andrea Rausa, Alex Zanotti, Franco Auteri, and Alberto Guardone. Bayesian calibration of a low order aerodynamic model for the design of unconventional tail empennages. In *AIAA AVIATION 2023 Forum*, page 4422, 2023.

Andrea Rausa, Alessandro Donizetti, and Alberto Guardone. Multi-physics simulation of 3d in-flight ice-shedding. *Journal of Computational and Applied Mathematics*.

Alessandro Donizetti, Tommaso Bellosta, Andrea Rausa, Barbara Re, and Alberto Guardone. Level-set mass-conservative front-tracking technique for multistep simulations of in-flight ice accretion. *Journal of Aircraft*, pages 1–11, 2023.

Andrea Rausa, Alberto Guardone, and Franco Auteri. Implementation of gamma-retheta transition model within su2: model validation and verification. In *AIAA SCITECH 2023 Forum*, page 1570, 2023.

A Zanotti, A Rausa, D Grassi, L Riccobene, G Gibertini, A Guardone, and F Auteri. Infrared thermography measurements over a tail-plane model of a large passenger aircraft. In *Journal of Physics: Conference Series*, volume 2293, page 012014. IOP Publishing, 2022.

Franco Auteri, Giuseppe Gibertini, Giulio Gori, Alberto Guardone, Andrea Rausa, Alex Zanotti, Pietro M Congedo, Andrea Menzago, and Raul C Llamas-Sandin. Monnalisa: Modelling nonlinear aerodynamics of lifting surfaces. In *AIAA Aviation 2022 Forum*, page 4149, 2022.

Andrea Rausa, Giulio Gori, Alberto Guardone, Alex Zanotti, and Franco Auteri. Multi-fidelity assessment of the aerodynamic performances of unconventional aircraft tail configurations. In *AIAA Aviation 2022 Forum*, page 3902, 2022.

Andrea Rausa, Myles Morelli, and Alberto Guardone. A novel method for robust and efficient prediction of ice shedding from rotorcraft blades. *Journal of Computational and Applied Mathematics*, 391:113452, 2021.

A Rausa and A Guardone. Multi-physics simulation of in-flight ice shedding. In *Journal of Physics: Conference Series*, volume 1730, page 012024. IOP Publishing, 2021.

Andrea Rausa. Ice shedding: a two-dimensional structural analysis for fixed-wing aircraft and a new iterative volume-mesh approach for rotorcrafts. 2020.

## Presentations

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| 7–11 Jan 2025 | SU2 results for the Fifth High Lift Prediction Workshop – AIAA SciTech Forum 2025, Orlando |
| 29 July–2 August 2024 | AVT-390: Outlook on Innovative Simulation Technologies Arising From Analyses of the DLR LK6E2 Airframe – AIAA Aviation Forum 2024, Las Vegas |
| 20–22 June 2023 | Multi-Physics Simulations of Ice Shedding from Wind Turbines – International Conference on Icing of Aircraft, Engines, and Structures |
| 15 June 2023 | MONNALISA Project - Sum Up – Advanced Read End Conference, Airbus, Toulouse |
| 23–27 Jan 2023 | Implementation of $\gamma - Re_\theta$ transition model within SU2: model validation – AIAA SciTech Forum 2023, Online |
| 13–17 Jun 2022 | Multi-physics Simulation of 3D In-flight Ice-Shedding – ESCO 2022, Plzen |
| 7–10 Sep 2020 | Multi-physics simulation of shedding of in-flight ice – ICMSquare, Online |
| 8–12 Jun 2020 | A novel method for robust and efficient prediction of ice shedding from rotorcraft blades – ESCO 2020, Online |

## References

Available upon request.

## Authorizations

- Autorizzo al trattamento dati ai sensi del GDPR 2016/679 del 27 aprile 2016 (Regolamento Europeo relativo alla protezione delle persone fisiche per quanto riguarda il trattamento dei dati personali).
- Autorizzo la pubblicazione del Curriculum Vitae sul sito istituzionale del Politecnico di Milano (sez. Amministrazione Trasparente) in ottemperanza al D. Lgs n. 33 del 14 marzo 2013 (e s.m.i.).