

Lorenzo Turchini

Padova / Rimini, Italy | lorenzo.turchini@studenti.unipd.it
lorenzoturchini.lt@gmail.com | turchini.uk | linkedin.com/in/lorenzo-turchini

Education

2025 – 2027 (exp.)	M.Sc. Aerospace Engineering — Aeronautics Curriculum <i>Università degli Studi di Padova, Italy</i> Relevant exams: Aircraft Propulsion (27/30), Laboratory of Computational Fluid Dynamics (27/30), Structural Dynamics and Aeroelasticity (26/30), Advanced Aerodynamics (25/30), Aircraft Air Conditioning Systems (29/30). Erasmus+ grant for Master's thesis research at RWTH Aachen University (2027).
2022 – 2025	B.Sc. Aerospace Engineering — 95/110, graduated at the first available session <i>Università degli Studi di Padova, Italy</i> Relevant exams: Turbomachinery (26/30), Aerodynamics (26/30). Thesis: <i>Analysis of solid propellant propulsion systems: performance and applications.</i>
09/2024 – 01/2025	Erasmus+ Exchange Semester <i>ETSIAE — Universidad Politécnica de Madrid, Spain</i> Heat and Mass Transfer, Thermodynamics, Applied Thermodynamics.

Course Projects

2026	Transonic drag divergence of the RAE2822 airfoil <i>OpenFOAM 11 — Advanced Aerodynamics</i> Compressible RANS ($k-\omega$ SST) on a structured C-grid ($y^+ \leq 1$); Mach sweep 0.60–0.85 with solution continuation; drag-divergence Mach number $M_{dd} \approx 0.75$.
2026	Supersonic diamond airfoil: CFD verification <i>Ansys Fluent and OpenFOAM 11 — Advanced Aerodynamics, Laboratory of CFD</i> Density-based Euler simulations at $M_\infty = 2$ with angle-of-attack sweep; C_l and C_d within 0.2% of shock-expansion theory in both solvers; independent structured mesh with <code>blockMesh</code> .
2026	NACA 4412 polar at $Re = 5 \times 10^5$ <i>Ansys Fluent with PyFluent — Laboratory of CFD</i> RANS $k-\omega$ SST polar from -5° to 20° with a fully Python-scripted workflow; three-mesh sensitivity study; validation against XFOil.
2025 – 2026	Numerical methods and aeroelasticity <i>Python, Fortran/MPI, MATLAB</i> 2D incompressible Navier–Stokes solver validated on Poiseuille and Taylor–Green flows; MPI scaling study; trim of a flexible aircraft with coupled bending and torsion modes.

Personal Projects

2025 – present	The Turing Box — electronic puzzle box <i>Electronics, embedded firmware, e-commerce</i> ESP8266-based puzzle designed, built and sold internationally (hardware, C++ firmware, web shop).
2026	StaticaLT and custom ESP32 board <i>Lua on TI-Nspire CX / PCB design</i> 2D frame solver (direct stiffness method) for graphing calculators; two-layer ESP32 board with fail-safe OTA updates.

Skills and Languages

CFD / FEM	Ansys Fluent (incl. PyFluent scripting), OpenFOAM, XFOil, Patran/Nastran
Programming	Python (NumPy, pandas, Matplotlib), MATLAB, Fortran (MPI), C++ (embedded), Lua
Other	Autodesk Fusion 360, LaTeX, Git, Linux
Languages	Italian (native), English (B2, Cambridge English), Spanish (B1), German (A1 course in progress)
Work	Hotel receptionist (summers 2021–2025), football referee (A.I.A., 2020–2021)