Massimo Perfetti

Thermal Design / CFD Engineer
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EDUCATION

TU Delft - Delft University of Technology **Delft, Netherlands**
Master's in Mechanical Engineering, EFPT Track (Energy, Flow, Process & Technology) Sep. 2024 - Present

- **Relevant Coursework:** Advanced Fluid Dynamics, Advanced Heat Transfer, Computational Fluid Dynamics (CFD), Advanced Applied Thermodynamics, Machine Learning, Deep Learning, Data Analysis, Drive and Energy Systems, Intelligent Vehicles, Equipment for Heat and Mass Transfer, Measurement Technology.

EPFL - Swiss Federal Institute of Technology **Lausanne, Switzerland**
Exchange Semester Sep. 2023 - Feb. 2024

- **Relevant Coursework:** Introduction to Optimization & Operations Research, Fluid Dynamics and Transport Phenomena. Electronics, Electrical Machines, Product Development and Engineering Design.

Politecnico di Torino **Turin, Italy**
Bachelor in Mechanical Engineering Sep. 2021 - Jul. 2024

- **Final GPA:** 28.1/30, top 3%.
- **Thesis:** "Impact of material change on thermo-structural behavior of F-class gas turbine discs".
- **Relevant Coursework:** Statistics, Calculus, Linear Algebra, Applied Thermodynamics, Turbomachinery, Numerical Analysis, Engineering Drawing, CAD.

ACADEMIC PROJECTS

CFD Analysis of DARPA SUBOFF Hydrodynamics & PCB Cooling Strategies **Delft, Netherlands**
Academic Project in CFD and Heat Transfer Feb. 2025 – Present

- **CFD:** Conducting 2D axisymmetric simulations of the DARPA SUBOFF underwater vehicle (ANSYS Fluent) to analyze flow characteristics, pressure distribution, and turbulence modeling.
- **Heat Transfer:** Developing PCB cooling strategies simulating transient thermal states and optimizing convective heat dissipation (MATLAB).

E2 Engine - Contribution to future TU Delft Start-up **Delft, Netherlands**
Non-academic Project in CFD for Turbomachinery Oct. 2024 – Feb. 2025

- **Feature Engineering:** Applied CFD for shape optimization of Pelton-like turbines in a turbomachinery-based hydrogen engine. Contributed to project validation, with E2 Engine advancing through the YES!Delft startup validation program.
- **Project Leadership:** Took an active role in coordinating technical development, ensuring alignment between CFD simulations, mechanical design, and hydrogen system integration.

Construction of Gripper End Effector **Lausanne, Switzerland**
Academic Project in Electro-Mechanical Product Design Sep. 2023 – Feb. 2024

- **Project aim:** Designed and built a end effector in an international team, integrating Fusion 360 for CAD, laser cutting, 3D printing, Arduino-based electronics, and YOLOv8-trained computer vision for object detection and adaptive grasping.

WORK EXPERIENCE

Ethos Energy SpA **Turin, Italy**
Thesis Internship Mar. 2024 – Jul. 2024

- **Work:** Simulated rotor assembly of an Fr-1500 turbine, focusing on material optimization.
- Conducted analyses of temperatures, deformations, and stresses to identify the optimal material for the turbine disc construction using ANSYS Fluent and ANSYS Mechanical.

Honours & Awards

> **Percorso Intraprendenti - PoliTO Honours Program** (reserved to top 240 students) Sep. 2021 - Jul. 2024
> **HPM - TU Delft Honours Program** (reserved to 100 MSc students every year) Feb. 2025 - Present

SKILLS & INTERESTS

Languages: English (fluent), Italian (native), French (novice).
Technical Skills: Python, LaTeX, Matlab, ANSYS (Fluent - Mechanical - CFX), OpenFoam (currently learning), Microsoft 365, Fusion 360, Solidworks, PrusaSlicer.
Interests: Thermo-fluid dynamics, Machine learning, Logic games, Reading, CFD, NBA, Chess, Coding.