

# ROSELLINI

## MATTEO

### CONTACT INFO

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### ABOUT ME

I recently graduated in Aerospace Engineering from the University of Pisa with a score of 110 *summa cum laude*. I would be enthusiastic to enhance my knowledge and to give my contribution in fluid dynamics being part of a research project. I am a creative and a very passionate person, I love team-working and to be engaged in stimulating and challenging projects.

### EXPERIENCE

- CFD ENGINEER** **2021 - present**  
*Cubitlab c/o Ferrari s.p.a.* | Maranello (MO), Italy
- Aerodynamic development of the new Ferrari GT cars like the F167, F169M and F244;
  - Pre- and post- processing, steady and unsteady CFD simulation on external aerodynamics and air vents;
  - Data analysis and wind tunnel correlation;
  - Development of new procedures for meshing and simulation scenarios with Python, Scheme and Bash.
- CFD ENGINEER** **2020**  
*Sly Garage Lucca* | Tassignano (LU), Italy
- Aerodynamic analysis of "Anomaly" concept car.

### EDUCATION

- MSc IN AEROSPACE ENGINEERING** **2019 - 2021**  
*University of Pisa* | Pisa, Italy  
(Fluid Mechanics curriculum)
- Graduated with *summa cum laude*
  - Thesis topic: "Analysis of the longitudinal dynamic behaviour of an America's Cup AC75 high-performance foiling sailboat"
- BSc IN AEROSPACE ENGINEERING** **2015 - 2019**  
*University of Pisa* | Pisa, Italy
- Thesis topic: "An introduction to a turbulent boundary layer"

## PROJECTS

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### Master thesis project (2021)

Design of a digital twin of an America's Cup foiling sailboat performing multiphase unsteady CFD simulations. The aim of the work was to study the effect of the deep of the wing-foil from the water surface and its impact on the stability derivatives of the body. Then, a closed loop controller with autopilot and a command decoupling system were created to make the boat reach and maintain the desired attitude. We are currently working on a scientific paper for this topic.

### Machine design project (2021)

Design of the 4 bar linkage mechanism for the B747-SP single slotted trailing edge flap. The linkage was designed in order to maximize aerodynamic performances considering both force coefficients and Fowler motion. For doing so, an optimizer software was used to allow the CAD model and the CFD solver to interface in order to find the best configuration. Once the linkage points were defined, a multibody model of the mechanism was created in Matlab Simscape environment for the calculation on the frame reaction forces assuming a flap extended rule compliant load factor of the aerodynamic loads calculated with CFD.

### Wind tunnel testing (2021)

I participated to a wind tunnel session using an automotive wing on which we calculated the pressure coefficient using pressure trasducers connected to a 16 channels (8 for the pressure side, 8 for the suction side) multiplexer. These results were compared with the ones given by CFD simulations using two different turbulence models, a realizable k-epsilon model and a k-omega sst model with RANS approach.

### Formula student team (2018-2021)

I've been part for three years of the Formula Student university team as CFD methodologist in aerodynamics division. I dedicated myself to improve meshing techniques, physical modeling and optimization of airfoils in 2D and then finite wings using both a parametrical approach with a genetic algorithm and an adjoint method. In 2019 I went in Most Autodrom (Hungary) for a design competition.

## SKILLS

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AEROSPACE ENGINEERING: Aerodynamics, Flight Dynamics, Compressible Aerodynamics, Experimental Aerodynamics, Stability and Control, Aerospace Structures, Thermodynamics, Propulsion, Numerical methods for engineering and fluid dynamics;



StarCCM+, Fluent



MATLAB, PYTHON: language, fundamentals, functions, loops, plotting, data analysis



Microsoft Office Pack,  $\LaTeX$

### Languages

- Italian (Native)
- English (B2 First Certificate)
- French (Basic)