

# Antonio Pucciarelli

Aerospace engineer

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## SUMMARY

Five years ago, I moved from Salerno to Milano with the intent of building my career in the aerospace field. I started the MSc pointing to have a good comprehension of internal and external flows, so I decided to create a personalized learning track based on CFD, turbomachinery design and flows modeling. Over the next few years, I intend to develop as aerospace engineer in the field of turbulence modeling and combustion processes analysis, modeling and optimization. I am also interested in external aerodynamics, its modeling and the study of aeroelastic effects.

## PROJECTS

### Injector study and liquid jet breakup process in liquid rocket engines

May 2021 - Jun 2021

Politecnico di Milano, Milano - ITA

Study of injectors' properties and possible combustion chamber interactions. Analysis of conical jets, sprays and atomization process.

[NASA CEA](#) [Python](#) [L<sup>A</sup>T<sub>E</sub>X](#)

### Weissinger model • Study and modeling

Dec 2020 - Jan 2021

Politecnico di Milano, Milano - ITA

Study of steady incompressible flow around aircraft wings using Weissinger model. Worked on code scripting and its validation [\[link\]](#).

[MATLAB](#) [git](#) [L<sup>A</sup>T<sub>E</sub>X](#)

### Hess-Smith model • Study and modeling

Jul 2020 - Dec 2020

Politecnico di Milano, Milano - ITA

Study of flow around airfoils at steady and incompressible regime using Hess-Smith model. Coding fast and efficient script for modeling the problem [\[link\]](#).

[Fortran](#) [BLAS](#) [LAPACK](#) [CMake](#) [gnuplot](#) [git](#)  
[L<sup>A</sup>T<sub>E</sub>X](#)

### Pratt & Whitney RL10A-3 • Cooling jacket analysis and modeling

May 2020 - Jun 2020

Politecnico di Milano, Milano - ITA

Technical research on P&W RL10A-3 engine. Study of the heat exchange process phenomena and problem modeling. Analysis and comparison of results with collected data [\[link\]](#).

[MATLAB](#) [NASA CEA](#) [Fortran](#) [git](#) [L<sup>A</sup>T<sub>E</sub>X](#)

## PERSONAL PROJECTS

- **Wrapping techniques** between NASA CEA and Python [\[link\]](#).
- **Airfoil generator** program, easy and accessible way to make airfoils [\[link\]](#).
- **OpenFOAM airfoil's** blockMesh generator [\[link\]](#).

## SKILLS

**Languages** OpenFOAM, Fortran, Python, C++, C, CMake, MATLAB, Bash, L<sup>A</sup>T<sub>E</sub>X, gnuplot

**Tools** git, NumPy, SymPy, Pandas, FEniCS, vim, BLAS/LAPACK

**Softwares** NASTRAN, NASA CEA, xFoil, Femap, SolidWorks, SolidEdge, Inventor, xflr5, ParaView

## EDUCATION

### Aeronautical engineering

**Track** Combustion/rocket & aerodynamics

**Duration** Mar 2021 - up to now

Master degree, Politecnico di Milano - Milano, ITA

**Thesis** CFD based, subject to be defined

### Aerospace engineering

**Final grade** 101 / 110

**Duration** Sep 2017 - Sep 2020

Bachelor degree, Politecnico di Milano - Milano, ITA

**Thesis** Prova finale, consisting of 3 projects:

- Aerospace propulsion project 30L / 30
- Orbital dynamics project 30 / 30
- Technology and aerospace materials project 24 / 30

## PERSONAL GOALS

- **Pollution** reduction.
- **Electric** transition.
- **Hydrogen** transition.
- **Green fuels** transition.
- Manufacturing **sustainability**.



## COURSES MARKS

<b>Master degree • Aeronautical engineering</b>	<b>120 CFU</b>	<b>27.25 / 30</b>
◦ Combustion in thermochemical propulsion	8 CFU	28 / 30
◦ Numerical modeling of differential problems	6 CFU	30L / 30
◦ Structural dynamics and aeroelasticity	10 CFU	25 / 30
<b>Bachelor degree • Aerospace engineering</b>	<b>180 CFU</b>	<b>27.54 / 30</b>
◦ Analisi e geometria 1	10 CFU	27 / 30
◦ Analisi e geometria 2	10 CFU	29 / 30
◦ Calcolo numerico ed elementi di analisi	10 CFU	27 / 30
◦ Dinamica di sistemi aerospaziali	8 CFU	27 / 30
◦ Elettrotecnica e elettronica applicata	10 CFU	27 / 30
◦ Fisica tecnica	10 CFU	27 / 30
◦ Fluidodinamica	10 CFU	21 / 30
◦ Fondamenti di automatica	8 CFU	28 / 30
◦ Fondamenti di chimica	7 CFU	24 / 30
◦ Fondamenti di fisica sperimentale	12 CFU	27 / 30
◦ Fondamenti di meccanica del volo atmosferico	5 CFU	28 / 30
◦ Fondamenti di meccanica strutturale	10 CFU	26 / 30
◦ Fondamenti di sperimentazione aerospaziale	6 CFU	20 / 30
◦ Impianti e sistemi aerospaziali	8 CFU	25 / 30
◦ Informatica	6 CFU	25 / 30
◦ Introduzione all'analisi di missioni aerospaziali	2 CFU	30 / 30
◦ Istituzioni di ingegneria aerospaziale	8 CFU	26 / 30
◦ Meccanica aerospaziale	10 CFU	27 / 30
◦ Metodi di rappresentazione tecnica	7 CFU	29 / 30
◦ Modellazione di strutture aerospaziali	6 CFU	22 / 30
◦ Propulsione aerospaziale	7 CFU	23 / 30
◦ Tecnologie e materiali aerospaziali	7 CFU	24 / 30
◦ Prova finale di analisi di missioni aerospaziali	1 CFU	30 / 30
◦ Prova finale di propulsione aerospaziale	1 CFU	30L / 30
◦ Prova finale di tecnologie e material aerospaziali	1 CFU	24 / 30



## LANGUAGES

**Italian** Native speaker.

**English** Proficient user. Able to satisfy most work requirements with language that is often acceptable and effective.

◦ <b>TOEIC</b>	860 / 990	<b>B2</b> level
· Listening section	445 / 495	
· Reading section	415 / 495	
◦ <b>PET</b>		<b>B1</b> level