Tommaso **Bocchietti**

Junior Mechanical Engineer

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"Get things done!"

Enthusiastic mechanical engineer with a strong problem-solving mindset and excellent technical skills in software development.
My hands-on experience has enabled me to develop a diverse portfolio of projects, resulting in a distinctive ability to tackle complex challenges with a structured and analytical approach. I am currently seeking opportunities in the space industry to leverage my technical expertise, grow professionally in a dynamic environment, and contribute to cutting-edge exploration projects.

Experience

Polimi Sailing Team

Politecnico di Milano, Milan (IT)

Mechatronic Engineer

19.10.2023 - PRESENT

- Coded from scratch high performance NMEA0183 libraries.
- Worked with STM32 microcontrollers to create interfaces for the sensors and the control algorithms.
- Selected as the overall winners of the 2024 edition of the "SuMoth" competition among 11 participating teams.

Politecnico di Milano in partnership with RIMAC Automobili

Politecnico di Milano, Milan (IT) & RIMAC Automobili, Zagreb (HR)

Mechanical Engineer Intern

09.03.2023 - 01.06.2023

- Idealized and designed an innovative personal transportation vehicle to meet the vision of RIMAC Automobili.
- Collaborated in a team of 10 students coming from different European universities.
- Selected by company engineers as the best project among the 4 participating teams.

Confedilizia Como

Como (IT)

Software developer

04.2020 - 02.2021

- Responsible for the development of a custom software for the management of the real estate properties.
- Full stack development of the web platform for the secure distribution of the software to the clients.

Education

Politecnico di Milano

Milan (IT)

MSc in Mechanical Engineering (Mechatronics and Robotics)

13.09.2023 - 07.2025 (expected graduation)

- Current GPA: 29.08/30

University of Waterloo

Waterloo (CA)

MSc in Mechanical Engineering (Erasmus+ exchange)

01.01.2024 - 26.04.2024

Politecnico di Milano

Milan (IT)

BSc in Mechanical Engineering

14.09.2020 - 21.07.2023

Skills

Engineering ★★★★☆ MATLAB, Ansys Fluent (basic level)
3D CAD ★★★☆☆ CATIA V5, SolidWorks, Inventor
Programming ★★★★☆ C/C++, PHP, MySQL, Java, Python

Languages

Italian Native
English Proficient

Projects

Selection (not exhaustive) of some projects I've worked on that relate to my academic, professional, and personal interests.
I consider them as way to experiment, learn, and get a hands-on approach to engineering.

Academic Projects

Politecnico di Milano, Milan (IT) & University of Waterloo, Waterloo (CA)

MOST OF THE PROJECTS WERE DONE INDIVIDUALLY, AT THE EXPLICIT REQUEST OF THE PROFESSOR. *14.09.2020 - PRESENT*

- **Structural Health Monitoring (SHM) as a multivariate outlier detection problem**: analysis of a tie-rods element subjected to both damage and environmental variability, by means of statistical indices as Mahalanobis Squared Distance (MSD) and Principal Component Analysis (PCA).
- **Development of a 2D CFD solver in C/C++ for the solution of the Navier-Stokes equations for incompressible flows**: implementation of the SCGS and SIMPLE algorithms, with validation on the lid-driven cavity flow.
- **Chip Scale Atomic Clocks (CSAC)**: analysis of the physics behind their operation and current state of the art, with a focus on MEMS/NEMS technology.

Personal Transportation Vehicle (Sidewalk vehicle)

Politecnico di Milano, Milan (IT) & RIMAC Automobili, Zagreb (HR)

PRO HACKIN' PROJECT 2023, IN PARTNERSHIP WITH RIMAC AUTOMOBILI *09.03.2023 - 01.06.2023*

Idealize and Design a Personal Transportation Vehicle (Sidewalk vehicle).

Team-based project involving students from 4 top European universities, with corporate feedback sessions after each hackathon. Selected as winning team by RIMAC Automobili engineers.

- Hackathon 1: visions, user personas and functions & requirements
- Hackathon 2: functional decomposition, morphological matrix and concepts development
- Hackathon 3: CAD design, FEM simulations, FMEA and cost analysis.

Model Rocket with On-Board Flight Computer

Personal Workshop, Como (IT)

PERSONAL PROJECT TO CELEBRATE BSC *12.07.2023 - 21.07.2023*

Design, optimization and realization of a $63cm$ model rocket.

Final design was achieved after a couple of iterations between CAD model and CFD simulations. Built mostly from cheap materials (cardboard & wood) and 3D printed parts (PLA based). Essential characteristics:

- Launched and recovered without any damage, maximum elevation $+538m$
- Flight time $\approx 60s$, maximum speed reached $+120m/s$, maximum acceleration $+10g$.
- Simulations driven design ($C_D \approx 0.806$)
- On board flight computer in $< 20cm^3$, with barometric, temperature and acceleration sensors capable of logging data.

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