MATTIA PIAZZA

Researcher
Mechatronics Engineer

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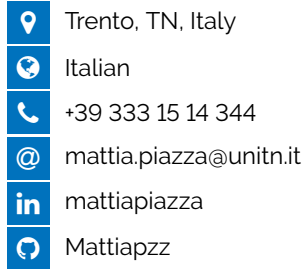in mattiapiazza
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WHO AM I?

I am a highly motivated and results-driven mechatronics engineer with a passion for autonomous driving, optimization and control systems. To further my passion, I joined a research team at the University of Trento where I am pursuing my doctoral research on optimal control algorithms for advanced driver assistance systems (ADAS). Through this work, I collaborated directly with leading partners from the automotive and motorsport industries, gaining valuable experience and knowledge in the field. Moreover, I managed the entire process of designing, developing, and implementing prototype control systems for a MISE project, including critical decision-making, cross-functional coordination, and adhering to project timelines. In all aspects of my work and life, I remain curious, ambitious, open-minded, and determined to succeed.

SOFTWARE AND PROGRAMMIG SKILLS

- Maple
- Matlab
- C/C++
- LaTeX
- Python
- Mathematica
- Ruby
- cmake
- Carmaker
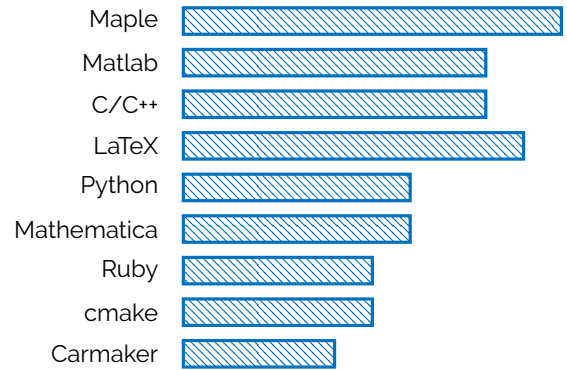
WORKING EXPERIENCES

2021–2022 — **Research Fellowship (Research grant decree n. 205/2020)** — University of Trento
Title: "Solution algorithms comparison for minimum-time optimal control problems for racing vehicles"
Supervisor: Prof. Francesco Biral.

2020–2021 — **Research scholarship (Decree n. 74/2020)** — University of Trento
Title: "Minimum Time Manoeuvres of complex vehicle models described with DAE".
Supervisor: Prof. Francesco Biral.

2017 — **Internship in Quality Control department** — SIAP s.p.a. gruppo CARRARO
Precision measurements of mechanical components, development of sequential charts, specific control plans (SPC), CCP, measurements for capability analysis (Cp, Cpk, *etc.*).

2012 & 2013 — **Plumber apprentice** — DE NARDO ALESSANDRO IMPIANTI TERMOIDRAULICI
Plumber apprentice during summer season. Even if this job seems unrelated to my current career goals, it was a fundamental experience for my personal growth.

PROJECTS WORKING ON

2021–Present — **Minimum Lap Time Simulator** — APRILIA RACING | University of Trento
In collaboration with Aprilia Racing team we develop algorithms to solve optimal control problem for minimum lap time purposes on a complete motorcycle dynamic model. This work is a direct spin-off of my master thesis.

2022–Present — **VeDi 2025** — CRF - STELLANTIS | University of Trento
Collaboration with CRF (*Fiat Research Centre*) within the european project VeDi 2025. Our contribute is the development of algorithms to plan and negotiate manoeuvres for autonomous vehicles equipped with ADAS systems.

2022–Present — **Automatic generation of racetracks for vehicle simulators** — AnteMotion | University of Trento
Collaboration with AnteMotion to develop a toolchain for automatic generation of racetracks and scenarios for vehicle simulators.

LANGUAGES

	Listening	Reading	Spoken Interaction	Spoken Production	Writing
Italian (mother tongue)	C2	C2	C2	C2	C2
English	C1	C1	C1	C1	C1
German	A1	A1	A1	A1	A1

EDUCATION

2022–Present — **PhD student in Materials, Mechatronics and Systems Engineering** — **University of Trento**
Doctoral program Materials, Mechatronics and Systems Engineering

2020 — **Professional qualification to practice as an engineer** — **University of Trento**
Industrial Engineer

2017–2020 — **Master of Science degree in Mechatronics Engineering** — **University of Trento**
Curriculum mechanics e mechatronics in English. With particular focus on simulation, robotics and controls.

2013–2017 — **Bachelor of Science degree in Mechanical Engineering** — **University of Udine**
BSs in mechanical engineering with focus on turbo machinery and mechanical design.

2008–2013 — **Scientific High school diploma** — **Liceo Scientifico "Michelangelo Grigoletti"**
High school diploma with curriculum PNI (National Informatics Plan).

TEACHING EXPERIENCES

2023–Present — **Teaching assistant – *Modeling and Simulation of Mechatronic Systems*** — **University of Trento**
Teaching assistant for courses of *Modeling and Simulation of Mechatronic Systems* in collaboration with Prof. Francesco Biral.

2022–Present — **Tutoring and mentoring of thesis students** — **University of Trento**
Tutoring, managing and mentoring of multiple students during their research thesis with Prof. Francesco Biral.

2021–Present — **Teaching assistant – *Sistemi Meccanici e Modelli* and *Fondamenti di Meccanica*** — **University of Trento**
Teaching assistant for courses of *"Sistemi Meccanici e Modelli"* and *"Fondamenti di Meccanica"* in collaboration with Prof. Mauro Da Lio. and Prof. Emiliano Rustighi.

2018–2019 — **Tutorship specific areas for mechanics and mechatronics and video-lectures** — **University of Trento**
Frontal lecturer and video lecture (UNITN DII Youtube channel) in English for MSc in Mechatronics Engineering students. Supervisors: Professors F. Biral, E. Bertolazzi, D. Fontanelli and D. Bortoluzzi

PUBLICATIONS

[1] M. Piccinini, S. Taddei, M. Larcher, M. Piazza, and F. Biral, "A physics-driven artificial agent for online time-optimal vehicle motion planning and control," *IEEE Access*, 2023.

THESIS

[1] M. Piazza (2020). Influence of Slip Versus Torque Control Formulation on Minimum Time Manoeuvres of a Motorcycle, Master of Science thesis, Prof. F. Biral. University of Trento, Italy.

HOBBIES AND SPORTS

I have a passion for both technology and nature. When I am not programming or editing videos, I enjoy spending time outdoors. Some of my favorite activities include climbing, skiing, hiking, trail running and ski touring.
I am also an amateur climber and alpinist. I find joy in pushing my limits and exploring new terrain. Being in the mountains allows me to disconnect from technology and connect with the natural world, which brings me a sense of balance and fulfillment.

PRIVACY

Trento, 19th June 2023