

Guglielmo Grillo

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Gender: Male **Date of birth:** 30/04/1997 **Nationality:** Italian

ABOUT ME

I'm a recently graduated Physicist (Master's degree, University of Trento) with a strong passion for computer science. This passion led me to choose a computational path both for my curricular and extracurricular classes and to work on personal projects in my free time. I'm also one of the founding members of Progetto Apollo, a scientific divulgation group operating at the University of Trento in collaboration with Arditodesio. Since 2019 I've been a tutor for the University of Trento. My hobbies include video games and parkour.

DRIVING LICENCE

Cars: B 09/03/2017 – 30/04/2027

EDUCATION AND TRAINING

[09/2020 – 03/2023]

Master's Degree in Physics

Università degli Studi di Trento

Final grade: 110/110

Thesis: Computational Models Of Astrocyte-Neuron Dynamics To Explain The Formation Of Working Memory
Statistical Biophysics path with a focus on computational methods.

Relevant courses:

- Quantum Computing and Quantum Machine Learning
- Advanced Computational Physics
- Experimental Methods
- Laboratory of Advanced Electronics (signal processing via FPGA)
- Multi-Scale Methods in Soft Matter Physics
- Statistical Mechanics and Statistical Field Theory.

[09/2016 – 03/2020]

Bachelor's degree

Università degli Studi di Trento

Thesis: Emergent features: from renormalization group to artificial intelligence

Relevant courses:

- Scientific Computing (fka Computer Science), Introduction to Machine Learning (fka Advanced Algorithms)
- Linear Algebra I, Analysis I, II, III, and Complex Analysis, Complementary Mathematics for Quantum Mechanics
- Physics I, II, and III, Analytical Mechanics, Quantum Mechanics
- Physics Laboratory I (measures), II (analogue electronics and optics), and III (digital electronics)
- Chemistry with Laboratory Sessions.

I took part in a Scientific Storytelling course twice during my bachelor's degree. This resulted in two 5-minute plays and the creation of the storytelling group Progetto Apollo. After graduating, I took part in the course Data Science for Physicists as a listener (March-June 2020).

[02/2019 – 04/2019]

Innovation Camp Diploma

University of Trento in partnership with Samsung <https://webmagazine.unitn.it/evento/ateneo/69296/samsung-innovation-camp>

Field(s) of study: Business, administration and law

The first month was devoted to a 25h online course about the main topics of Industrial Innovation and a two-day intensive training course I was allowed to attend upon ranking among the best in the online test. The following months were used to develop a project work on a real business case.

[02/2021 – 03/06/2021]

Certificate

Università degli Studi di Trento in partnership with Laboratorio Nazionale di Cybersecurity (CINI) <https://cyberchallenge.it/halloffame/2019>

Field(s) of study: Information and Communication Technologies

During my master's degree, I took part in the CyberChallenge.IT (February-June 2021) a course designed to provide the methodological and practical basis to analyze vulnerabilities and possible attacks and identify the most suitable solutions to prevent them. Admission to the course followed the passing of three levels of tests that recorded an admission rate of 13.70%. The total duration of the course was 72 hours (24 hours of lecture and 48 hours of hands-on experiences) followed by a local final competition lasting 7 hours.

WORK EXPERIENCE

[09/2019 – 12/2022]

Classroom tutor

University of Trento

In the in-class courses, my task as a tutor was to prepare ad-hoc exercises beforehand and then follow the students in their reasoning by providing hints and guidance toward the solution. In the laboratory courses, our job was to explain the lab experiences to the students and assist them in the data collection and analysis ensuring that they understood the underlying reasoning and scientific approach.

I was assigned to the following courses:

- Sep 2022 - Dec 2022: Introductory Physics Laboratory (DII), Mathematical Basis for Cognitive Sciences (CIMEC), Mathematics and Statistics I (CIBIO);
- Mar 2022 - June 2022: Laboratory of Physics I with Matlab (DF), Introductory Physics Laboratory (DICAM);
- Set 2021 - Dec 2021: Introductory Physics Laboratory (DII);
- Set 2020 - Dec 2020: Mathematics and Statistics (A3C);
- Set 2019 - Jan 2020: Calculus I (DICAM), Calculus I (DIPSCO), Quantitative Methods for life-sciences (DIPSCO).

The underlined courses represent the courses for which I was the only tutor. In all other courses, I was part of a team of 2 to 4 tutors.

[2017 – 10/2022]

Storyteller

Arditodesio / University of Trento

I'm one of the founding members of Progetto Apollo, a scientific divulgation group operating at the University of Trento in collaboration with Arditodesio. Some of our activities include research on a key topic or an interview with a Professor at the University of Trento to write narratives with the principles of storytelling. The narratives were then performed in the course of various editions of Teatro della Meraviglia, EIT RAW Materials 2021, CO.SCIENZA Festival 2019, Focus Days 2019 and Fisicità 2017. In 2022 we partnered with Caltech for the event "La Terra fatta dagli umani" (Earth made by humans) about the beginning of the Anthropocene. The narratives were presented both in Trento and at Caltech.

[06/07/2015 – 31/07/2015]

Internship

FBK - Fondazione Bruno Kessler

City: Trento

Country: Italy

The task of our two-student team was to study the effects of different NaCl concentrations on the contact angle between water droplets and various substrates (Borosilicate, Aluminium, and Soda-Lime Glass). The analysis was conducted both in the static regime, where droplets were studied at deposition and in the dynamic regime where we analyzed the contact angle as a function of time. The experience ended with a presentation held in the context of "Notte dei Ricercatori 2015".

TECHNICAL SKILLS

Advanced User

I've been using Python 3 since 2018 for all sorts of programming purposes. My main focus is on scientific packages (NumPy and SciPy), Data Science/Machine Learning packages (Pandas, Pytorch, Sklearn), and Data Visualization (Matplotlib both for plotting and animation, Jupyter Notebook with widgets, Quarto) but I also worked on projects requiring non-scientific-oriented packages like image recognition (OpenCV's wrapper opencv-python) and text recognition packages (Tesseract's wrapper py-tesseract).

When possible, I try to implement algorithms from scratch, therefore I'm also capable to avoid the most frequent Python bottlenecks. If needed I can also work with object-oriented Python and type hints.

Intermediate User

Intermediate user refers to programming languages and technologies that I can understand and use but are not my main focus.

- **Programming languages:** C, C++, Matlab, Java, Verilog.
- **Technologies:** Regex, SQL, Git, Linux command line (bash).
- **Markup languages:** LaTeX, Markdown (GitHub syntax).
- **Hardware:** Raspberry Pi, Arduino.

Beginner Users

Beginner user refers to programming languages and technologies that I've been exposed to and I'm confident I can learn in a short amount of time.

- **Programming languages:** Julia, Javascript, Mathematica, C#.
- **Markup languages:** Html, CSS.
- **Miscellanea:** Unity game engine, Gromacs.