

PERSONAL INFORMATION **Alberto Burattini**

EDUCATION AND TRAINING

November 2023 - Present **Student at the Specialization School for Medical Physics**

La Sapienza University - Rome, Italy

During my first months as an intern at the SBAI (Basic and Applied Sciences for Engineering) department I have started investigating the behaviour of a read-out chip designed by *Weeroc* company and its applications to a online beam monitor for flash radiotherapy based on air fluorescence developed within the SBAI department (*FlashDC project*)

In March 2024 I participated to an on-field test of the FlashDC monitor at the Beam Test Facility of the Frascati National Laboratories with high energy electron beam (VHEE) at high intensity.

In the framework of developing a treatment planning system for low energy electron flash radiotherapy, in collaboration with CPFR of the University of Pisa, I started working with the Monte Carlo *FLUKA* tool, to simulate radiation-matter interaction phenomena in the energy range of interest.

2021-2023 **Master of Science in Physics of Biosystems (110/110)**

La Sapienza University - Rome, Italy

Thesis title Investigation and design of an accelerator system for collective data communication in scientific computing-oriented interconnection networks

Thesis advisors Prof. Andrea Biagioni, Dr. Paolo Cretaro

Thesis experience I worked under the supervision of the INFN's APE (Array Parallel Experiment) Group in Sapienza University of Rome, exploiting Xilinx's Vivado Design Suite to run the behavioral simulation of a FPGA-based collective communication system (using both VHDL and Verilog hardware description language) also performing a quantitative performance analysis

Fields of study

- Experimental and theoretical biophysics
- Medical Physics
- Solid state sensors and particle detector systems
- Computer architecture, low-level programming (RISC-V) and hardware designing (VHDL, Verilog)
- Fluorescence-data images analysis and processing (with Python and Matlab)

2017-2021 **Bachelor of Science in Physics (107/110)**

La Sapienza University - Rome, Italy

Thesis advisor Prof. Franco Meddi

Thesis Development of a fast photometer in the optical band for Astrophysics in Rome

Fields of study

- Classical and modern physics
- Mathematical modeling
- Scientific Programming (C, Python)
- Statistical analysis and tools (R, Kaleidagraph, MicrosoftExcel)
- Machine Learning and Artificial Intelligence (Python)
- Analog and digital electronics (including Arduino Microcontroller)
- Laboratory activities and scientific reports writing

PERSONAL SKILLS AND EXPERIENCES

Mother tongue Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
Cambridge English Level 2 Certificate in ESOL (Advanced)					

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
[Common European Framework of Reference for Languages](#)

Programming languages and computer tools

- C, Python and Matlab for scientific programming
- R, KaleidaGraph and Microsoft Excel for statistical analysis
- LaTeX and Microsoft Word
- VHDL and Verilog for hardware design and basic knowledge and practice with Xilinx’s Vivado Design Suite

Participation at conferences and schools

I attended the *ShareScience* conference held in University La Sapienza, during which I also gave a brief presentation about the *FlashDC project*, an online beam monitor for flash radiotherapy based on air fluorescence developed within the SBAI department.

Soft skills

- Team working, planning and managing attitude developed throughout both laboratory experiences and non-academic activities such as live events organization and direction.
- Habit in working meeting the deadlines and managing stressful and critical situation.

Personal interests

Audio and video editing, playing guitar and bass, singing, playing tennis

Driving licence

A, B