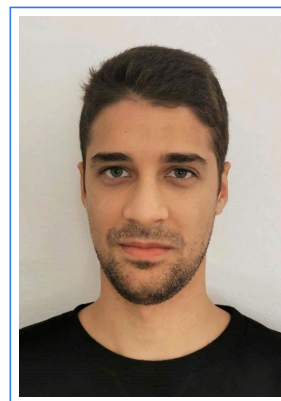


Filippo Valmori

Curriculum Vitae

Contacts

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Profile

I am a master graduate in Electronics and Telecommunication Engineering, with currently more than 7 years of work experience in aerospace and industrial areas. Over the years I have acquired skills in embedded firmware programming (FW), hardware design (HW) and digital signal processing (DSP), besides solid teamwork and individual problem-solving abilities. Given my background, curious aptitude and passion for innovative scientific projects, I am especially interested in R&D roles, with the aspiration of undertaking a stimulating career growth path.

Personal information

name and surname Filippo Valmori
date and place of birth November 24, 1991 - Forlì, Italy
residence via Campo degli Svizzeri 84-b, Forlì (FC), 47121, Italy
citizenship italian
driving license cat. B

Work experience

Nov. 2023 - present • **Embedded FW Engineer** at **Electrolux S.p.A.** (Forlì, Italy)

Engaged within the food-preparation field, as part of the R&D team, in the embedded firmware development of kitchen appliances (especially ovens, induction hobs and hoods), in particular with tasks concerning:

- embedded firmware programming of 32-bit ARM Cortex-M0+ and -M7 microcontrollers for power and user-interfaces boards, with special focus on UI graphical design based on Figma/Zeplin;
- dealing with connectivity (BLE, Wi-Fi and infra-red) and safety (POST/BIST mechanisms for class-B certification) topics.

Feb. 2021 - Oct. 2023 • **HW/FW Engineer** at **Eaton Industries GmbH** (Vienna, Austria)

Engaged within the power electronics field, as part of the R&D team, in the embedded hardware and firmware development of domestic, industrial and automotive safety devices, in particular with tasks concerning:

- embedded firmware programming of 16-bit dsPIC33 single/dual-core microcontrollers for solid-state *circuit breaker* applications, included writing of hardware-specific *board support package* (BSP), and with increasing interest in cyber-security mechanisms;
- simulation and modelling of solid-state breakers *overload* and *short-circuit* algorithms, replicating the thermal/electro-magnetic behavior of standard mechanical devices;
- development of GUI interface in Python for external monitoring of MCU board status registers and updating of its parameters at run-time;
- design, choice of components and documentation drafting of MCU subsystems in terms of schematic, BoM, and firmware documentation;
- stand-alone modules and platform integration testing.

Oct. - Dec. 2020 • **DSP/RF Engineer at Leaf Space S.r.l.** (Lomazzo, Italy)

- Engaged within the aerospace field in the DSP and radio-frequency (RF) development of shared and distributed *ground station* services, in particular with tasks concerning:
- design of RF transmitting/receiving communication chains based on USRP B200 and N200 *Software Defined Radio* (SDR) in GNU Radio / Linux environment for applications up to 10 Mb/s in the VHF, UHF, S and X bands;
 - implementation of ad hoc signal processing algorithms in Python and C/C++ (*e.g.* about synchronization, filtering, modulation, channel coding, etc.);
 - knowledge and adaptation of most popular RF protocols (*e.g.* DVB-S, DVB-S2 and CCSDS) to customer's requests;
 - laboratory integration testing with customer's modules, included hardware setup and test reports;
 - support for operations and problem-solving during missions.

Jul. 2016 - Sep. 2020 • **ELE/TLC Engineer at SITAEL S.p.A.** (Forlì, Italy)

- Engaged within the aerospace field in the design and development of digital and RF electronic systems for *smallsat* platforms in cooperation with the *European Space Agency* (ESA), in particular with tasks concerning:
- analysis and forecast of the telecommunication chain between *Spacecraft* (S/C) and *Ground Segment* (G/S) in terms of *link budget*, management of the relative protocol (*e.g.* operations of scrambling, coding, modulation, etc.) for *Telemetry, Tracking and Command* (TT&C) functionalities and frequency allocation request toward ITU;
 - embedded firmware programming of 32-bit STM32F4 microcontrollers based on RTEMS real-time operative system, mainly focused on intra-platform communication and RF transceivers management;
 - desing and update of electrical schematics and PCB layout through Altium Designer, SPICE circuit simulation, requirements definition;
 - development of the *Electrical Ground Support Equipment* (EGSE) radio-frequency and telecommunication section by means of USRP N210 SDR and LabVIEW / GNU Radio softwares for the validation of the onboard communication;
 - execution of test campaigns on both S/C and G/S side (*e.g.* HW/SW integration tests, platform scenario tests, RF tests, check of COTS components);
 - drafting of technical documents for design, test procedures and test reports;
 - support for G/S post-launch operations with activities of data analysis and post-processing.

Apr. - Jun. 2016 • **Post-degree researcher at University of Bologna** (Cesena, Italy)

Further development and finalization of Master's thesis, funded by *Consorzio Nazionale Interuniversitario per le Telecomunicazioni* (CNIT), oriented towards the participation at *International Conference on Ubiquitous Wireless Broadband* (ICUWB) and the publication of a scientific article in IEEE journal [1].

Educational qualifications

Mar. 2016 ○ **Master's degree in Electronics and Telecommunication Engineering**

- at University of Bologna (Italy),
- score of 110/110 with honors,
- experimental degree thesis about ultra-wideband radar sensor networks for passive localization and tracking in indoor environment.

Oct. 2013 ○ **Bachelor's degree in Electronics and Telecommunication Engineering**

- at University of Bologna (Italy),
- score of 110/110 with honors,
- experimental degree thesis about *flicker noise* and reliability study of power-MOSFET devices under stress and after subsequent annealing recovery.

Language abilities

<i>Italian</i>	Mother tongue
<i>English</i>	Proficient
<i>German</i>	Basic

Computer and working skills

<i>Operating systems</i>	Windows, Linux, FreeRTOS, RTEMS.
<i>Software languages</i>	C/C++, Python, ASM, VHDL, XML, Java.
<i>Scientific softwares</i>	MATLAB, LabVIEW, GNU Radio, LTspice, Quartus, Altium Designer, MPLAB, IAR, Eclipse, PlantUML, Doxygen, LaTeX, J-Link RTT.
<i>Further competences</i>	<ul style="list-style-type: none">· Proficient in firmware versioning tools (Git and TortoiseSVN) and MISRA static analysis validation (PC-Lint);· Proficient in communication protocols (e.g. UART, SPI, I2C, CAN, DMA);· Experience in optimized fixed-point arithmetic;· Experience with EDA softwares (Altium Designer, KiCad);· FPGA prototyping (Intel Cyclone and MAX 10);· DSP development of RTX chains based on <i>software-defined radio</i> and GNU Radio;· Proficient in laboratory instrumentation use (e.g. oscilloscope, spectrum analyzer, function generator);· GUI programming based on Python (Qt/Tkinter);· Setup of test benches exploiting remote and automatic instrumentation controlling based on PyVISA;· Experience with Arduino and Raspberry Pi;· PCB soldering skills.

Publications

- [1] F. Valmori, A. Giorgetti, M. Mazzotti, E. Paolini, and M. Chiani, “Indoor Detection and Tracking of Human Targets with UWB Radar Sensor Networks”, IEEE International Conference on Ubiquitous Wireless Broadband (ICUWB), Nanjing, China, Oct. 2016

Extra activities

- Creator of a personal website for the description, implementation and sharing of projects in the electronic, telecommunication and digital signal processing area (e.g. MCU and FPGA programming, circuit analysis and simulation, channel coding and modulations) → filippovalmori.wixsite.com/eletlcdsp
- Passionate about art and history;
- *Red Cross* volunteer.

In compliance with the EU GDPR law, I hereby authorize the recipient of this document to use and process my personal details for the purpose of recruiting and selecting staff and I confirm to be informed of my rights.

March 8, 2024

Signature:

