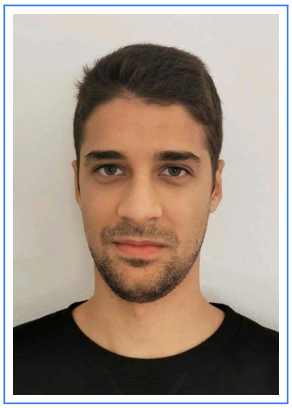
Filippo Valmori

Curriculum Vitae

Contacts

(+39) 349 683 2687
filippo.valmori@gmail.com
filippovalmori.wixsite.com/eletlcdsp
linkedin.com/in/valmorif
filippo.valmori



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 in 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), with specific tasks concerning:

- embedded firmware programming of 32-bit ARM Cortex-M0+ and -M7 microcontrollers for power and user-interface 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 in the power electronics field, as part of the R&D team, in the embedded hardware and firmware development of domotic, 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 in 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 in 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

Italian Mother tongue

English Proficient

German Basic

Computer and working skills

Operating systems Windows, Linux, FreeRTOS, RTEMS.

Software languages C/C++, Python, ASM, VHDL, XML, Java.

Scientific softwares MATLAB, LabVIEW, GNU Radio, LTspice, Quartus, Altium Designer, MPLAB, IAR, Eclipse, PlantUML, Doxygen, LaTeX, J-Link RTT.

Further competences

- 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 *software-defined radio* 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.

November 22, 2024 Signature: