# Silvano Seva

*Curriculum vitæ*

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## Education and training

2016 – 2019 **Master's degree in Automation and Control Engineering**, *Politecnico di Milano*, *107/110*.

2013 – 2016 **Bachelor's degree in Automation and Control Engineering**, *Politecnico di Milano*, *96/110*.

2008 – 2013 **Scientific lyceum diploma**, *Liceo classico e scientifico "Giulio Casiraghi"*, *91/100*.

## Work experience

September 2021 **HW and SW embedded systems developer**, *E2G srl*, via Polveriera 6, Novate Milanese (MI), Italy.

Hardware design and firmware development for embedded systems applications as freelance engineer.

November 2019 – September 2021 **PhD research fellow**, *DEIB, Politecnico di Milano*, via Ponzio 32/5, Milano (MI), Italy.

PhD research activity having as major research topic the development of equation-based simulation tools.

May 2017 – January 2018 **Stage as Research and Development Engineer**, *Leaf Space srl*, via Cavour 2, Lomazzo (CO), Italy.

- Hardware design.
- Software development for *embedded* systems.
- Unit and assembly tests of equipment.

January 2014 – June 2017

**Member of *Electronics Systems* department**, *Skyward Experimental Rocketry, Politecnico di Milano*, Milano, Italy.

- Hardware design and software development of some subsystems of the R-2X rocket
- Design and realization of the process control, data acquisition and safety systems for a rocket engine test bench developed in the HRE-15K project.
- Preliminary design and supervision of the development of the process gas (oxigen and nitrogen) handling system used in rocket engine test bench developed in the HRE-15K project.

## Languages

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|---|---|
| Italian | Mother tongue |
| English | Intermediate level |

## Technical skills and competences

- Good knowledge of C and C++ programming languages.
- Basic knowledge of Python and Java programming languages.
- Basic knowledge of web development languages PHP, HTML and CSS.
- Good knowledge of the version control tools Git and Subversion.
- Good knowledge of Linux, Microsoft Windows and Apple Mac OSX operating systems as well as of Microsoft Office package.
- Good knowledge of LaTeX environment.
- Good knowledge of EDA (Electronic Design Automation) softwares Eagle, Altium Designer and KiCad.
- Good knowledge of 2D CAD software Draft Sight.
- Good practice in electronic circuit design and realization.
- Good practice in software development for embedded systems with the following microcontrollers:
  - Microchip ATSAMxx, using C and C++.
  - Microchip PIC Micro using C and Assembly.
  - Silicon Laboratories EFM32, using C and C++.
  - ST Microelectronics STM32 using C and C++.
- Basic knowledge of FPGA-based systems using Verilog language.
- Skills in metal and woodworking also using the various machineries associated with these activities.
- Solid skills in usage of equipment for electronic laboratories (multimeter, oscilloscope, spectrum analyzer, arbitrary waveform generator).

## Social skills and competences

Both in Skyward Experimental Rocketry and Leaf Space I have been working in groups of different sizes, often with the role of team leader. Inside Skyward Experimental Rocketry I have given some short courses on programming for embedded systems, some for the members of the association and some open to the public; the most recent one, titled "Prototype embedded systems", has been inserted into the PEoPLe@DEIB program.
Since September 2019 I have been volunteering as an educator at the "Centro per la Cultura Popolare" association in Sesto San Giovanni, whose goal is to provide learning support to children from disadvantaged social backgrounds. I also carried out teaching activities at the Politecnico di Milano as an assistant for the laboratory teaching activities related to the "Fondamenti di Automatica (Fundamentals of Automatic Control)" B.Sc course held by Professor Alberto Leva.

## Organisational skills and competences

Inside Skyward Experimental Rocketry I have been managing and supervising the workflow for the electronics team assigned to the HRE-15K project, covering aspects like definition of requirements, partitioning of tasks between team members, and financial management. The work on this project required also to strictly interact with the main project manager and the other working groups. in order to define and maintain a coordinated workflow between the various teams. Following the suspension of on-site teaching activities due to the outbreak of the Covid-19 pandemic, I contributed to the reorganization of the laboratory activities for the "Fondamenti di Automatica (Fundamentals of Automatic Control)" B.Sc course, held by Professor Alberto Leva, to allow an equivalent remote delivery.

## Other activities

Contributor of Miosix Kernel development regarding the writing of device drivers, the creation of Board Support Packages and the development of kernel parts.

## Licenses and certifications

- European computer license ECDL Core.
- First Certificate in English (FCE), level B2.
- TOEIC Listening and Reading Certificate (score 940/990).
- CEPT Amateur radio license, class A.

## Personal interests

Small farming activities and management of agricultural heritage, railway modeling, amateur radio activity, design and construction of electronic equipment for specific applications, small metal structural work and basic mechanical processing.

## Publications


A.Leva, F. Terraneo, and S. Seva. A multitransmission event-based architecture for energy-efficient autotuning wireless controls. *IEEE Transactions on Control Systems Technology*, pages 1–15, 2021.

S. Seva, W. Fornaciari, and A. Leva. Event-Based Control Enters the Real-Time World: Perspectives and Pitfalls. In *Second Workshop on Next Generation Real-Time Embedded Systems (NG-RES 2021)*, January 2021.

A. Leva, C. Cimino, and S. Seva. A control education software suite to bridge methodological and engineering aspects. *IFAC-PapersOnLine*, 53(2):17179–17184, 2020.

A. Leva, S. Seva, F. Terraneo, A. V. Papadopoulos, and M. Maggio. How control-friendly is a computing system? and how control-friendly could it be? *IFAC-PapersOnLine*, 53(2):7857–7864, 2020.

S. Seva, C.E. Lukaschewsky Mauriziano, W. Fornaciari, and A. Leva. A low energy fpga platform for real-time event-based control. In *NG-RES@HiPEAC*, January 2020.

A Leva, A.V. Papadopoulos, S. Seva, and C. Cimino. Explicit model-based real pid tuning for efficient load disturbance rejection. *Industrial & Engineering Chemistry Research*, 58(51):23211–23224, 2019.

A. Leva, F. Terraneo, C. Cimino, and S. Seva. An event-based multi-purpose approach to computational sprinting. In *16th IFAC Conference on Programmable Devices and Embedded Systems*, October 2019.

A. Leva, F. Terraneo, and S. Seva. Event-based thermal/power/performance management at the core level in multicore cpus. In *4th International Conference on Event-Based Control, Communication, and Signal Processing*, June 2018.

A. Leva, S. Seva, and A.V. Papadopoulos. Progress rate control for computer applications. In *17th European Control Conference*, June 2018.

A. Leva and S. Seva. Structure-specific analytical pid tuning for load disturbance rejection. In *3rd IFAC Conference on Advances in PID Control*, May 2018.

A. Leva, F. Terraneo, and S. Seva. Periodic event-based control with past measurements transmission. In *2017 3rd International Conference on Event-Based Control, Communication and Signal Processing (EBCCSP)*, May 2017.

A. Leva, F. Terraneo, S. Seva, and I. Giacomello. High-speed thermal management for power-dense microprocessors. In *2016 IEEE 55th Conference on Decision and Control (CDC)*, Dec 2016.

F. Terraneo, A. Leva, S. Seva, M. Maggio, and A. V. Papadopoulos. Reverse flooding: Exploiting radio interference for efficient propagation delay compensation in wsn clock synchronization. In *2015 IEEE Real-Time Systems Symposium*, Dec 2015.