EMANUELE ZARFATI

now on a Gap Semester
for self-improvement

MSc in Control Engineering
Firmware Engineer
Product Owner

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currently

German Course — 2021/01 – 6m
EF Gap Semester – Self-improvement
Moved in Munich – Continuous education – Leadership competences improvement

work/internship

Firmware Engineer — 2018/04 – 2.5y
D-Orbit – New-Space systems
Architecture design and BSP development – Product owner of High-Performance computing solutions – Training of junior developers

Firmware Engineer — 2016/04 – 2y
Magneti Marelli – Automotive electronics
Responsible for the BSP (firmware) development of worldwide-scale projects – Activities planning and collaboration with international project leaders

Control Engineer — 2015 – 1y
RSE – Wind Energy research – MSc thesis
Design and modelling of HVDC-connected offshore wind farms – Design of low-level and supervisory control systems for Primary Frequency Control

Control Engineer — 2011 – 1y
ENEA – Fusion Energy research – BSc thesis
On-field sensors data acquisition and elaboration – Model identification and simulation of FTU's deuterium pre-filling phase

continuous education

Machine Learning — 2021
Coursera, University of Washington
Identify potential applications – Regression, classification, clustering and retrieval

FPGA for Embedded Systems — 2021
Coursera, University of Colorado
Hardware Description Languages – Softcore processors and IPs

Battery Management Systems — 2020
Coursera, University of Colorado
Modelling, simulation and algorithms for SOC, SOH, power estimation and battery pack balancing

Why some of us don't have one true calling

Wapnick – TED Talk

He currently pursues a career change towards the fields of energy storage, electric power conversion and control for applications promoting sustainable living. He would work to improve performance and fault prediction applying classical control and machine learning techniques, looking for implementable and economically viable solutions.

work attitude

He values work environments where ideas sharing, active participation and constructive criticism are encouraged. He is moderate, respectful, open to experience and embraces a "just be honest" lifestyle.
He favours building first the understanding required for the generation of better and possibly reusable solutions, avoiding to spend *weeks of development to save hours of design*.

competences

Control and Power systems engineering

He studied control and identification techniques for diverse physical systems (50% curricula), with focus on energy production and **energy conversion** (30% curricula).
The RSE internship allowed him to apply his knowledge on **power electronics**, electric power generators, power distribution and related control techniques. Here he designed in detail the chain of **wind energy** production: from turbine aerodynamics to power injection into continental grids.

Embedded Systems engineering

His childhood passion for **electronics** allowed him developing soon personal projects and motivated his high-school studies in this field. He understands **circuits schematics** and can design and prototype simple analog and digital circuits. He is also confident with **lab equipment** and measurement setups. He leveraged this knowledge in his most recent work experiences.

Project and Team leading

His early professional experience as a **firmware engineer** brought him fundamental knowledge on industry-level software quality and **large-scale project** management.
He has awareness of **quality** and **process** concepts as Agile and Scrum methodologies, traceability, modularity, design patterns, DevOps, CI&CD, version control, MISRA, safety...

international education

Erasmus programme — 2014
ETH Zurich

Main courses: Power system dynamics and control – Engine systems – Dynamic programming and optimal control – Image analysis and computer vision

Athens programme — 2013/2015
Lisbon, Paris, Delft, Warsaw

A programme of 7-day intensive courses

Courses: Quality Control – Nonlinear Computational Mechanics – Product and Process Design Concepts – Ethical Aspects of Research and Engineering

home country education

MSc Control Engineering — 2016
Polytechnic University of Milan

Final Mark: 105/110

Main courses: Advanced and multi-variable control – Model identification and data analysis – Adaptive systems and learning – Control of electrical machines and drives – Power electronics and power supplies – Dynamics of mechanical systems

Alta Scuola Politecnica — 2013
Polytechnic University of Milan

Parallel to MSc, an additional multidisciplinary curriculum for '*150 young and exceptionally talented students*' selected on the basis of merit.

Final Mark: Not completed path. All assignments graded *excellent*.

Courses: Innovation and Society – Design Methods – Management of Innovation.

BSc Control Engineering — 2012
Sapienza University of Rome

Final Mark 110/110 with honors

Main courses Dynamic control systems – Digital control systems – Modeling and simulation – Operational Research – Measurements and instrumentation.

some projects

Design of Building Primitives — 2014
FMA, ETH Zurich

Demonstration through mathematical modelling and implementation of the feasibility for a rope-equipped quadcopter to perform knot-tying tasks.

Idle Speed Control — 2013
Engine Systems, ETH Zurich

Model-based Idle-Speed Control System (ISCS) solutions for a spark-ignited engine are compared. Hardware in-the-loop testing on test bench.

The main purpose of these pages is showing he continuously try to improve and adapt to situations. If it is not here, it does not mean it cannot be learn.

some skills

Simulation & Analysis

Simulink – Power Factory – PSpice – SystemC

CANalyzer – Polyspace – CUnit – GoogleTest

Electronics

KiCad – Renesas x850 – dsPIC – STM32 – AVR32

SPI – I2C – CAN – PWM – WDG

Development

IBM Synergy/Doors – Enterprise Architect – UML

Jira – Confluence – Git – Jenkins – Toggl

Programming

Vim – GreenHills – GCC/GDB – WAF – Make

Matlab/Octave – Ada – C/C++ – Assembly – Python

Planned...

Blender/Rhinoceros – 3D Printing – Unreal – Comsol

Penetration Testing – Embedded security

languages

Trying to improve every day...

Italian mother tongue

English C1 fluent professional

German B1 non-professional

life

Electronics

He runs personal collaborations with artists and architects, designing and integrating electronics in their projects.

Sport

Sport practice is an indispensable part of the daily life. Better with adrenaline (running, snowboarding, kite surfing ...)

Music

He is an ex piano player, enjoying also live-performance experiences with his band in Rome, playing as synth-man of a Rammstein tribute band.

Bartending

He works as professional bartender for passion since 2008, which allowed him to afford his university studies. He has also experience as bar manager.

Other

Non-smoker – Social-media-free

Photo for representation only,
actual resource appearance may differ slightly ;)

LaTeX, April 26, 2021