europass Curriculum Vitae

PERSONAL INFORMATION

Francesco Castagnotto

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Date of birth 25 october 1986 | Nationality Italian

WORK EXPERIENCE

Nov 2018 - Present

Embedded Software Engineer

Zirak s.r.l. http://www.zirak.it *at the customer:*

ETAS GmbH – Branch in Italy
Strada del Drosso 37/15, 10135 Turin (TO) - Italy
http://www.etas.com

Embedded C development microcontroller-oriented (ECUs).
Autogeneration of code and modules throught Autosar tools and debug using Trace32 technology.
C++ development of software applications to support development, integration and testing of embedded development.
R&D on new hw architectures.
Team work using Agile/Scrum and Jira.

Languages:	C, C++, Python
Tools:	Eclipse, CodeBlocks, Visual Studio, Isolar A-B, Isolar EVE, Tresos Studio, Trace32, Lauterbach, S32 Design Studio, Jira, SVN, GIT

Business or sector Automotive

May 2016 – Nov 2018

Embedded Linux Specialist
BSP and Middleware Developer

Domotica Labs s.r.l.
Via Pietragalletto 18, 12045 Fossano (CN) – Italy
http://www.domoticalabs.com/

Head of Linux kernel development, drivers, system daemons and embedded OSs.
Developer of middleware and IoT firmware.
Debug and support on hardware issues and new device making.

Linux Kernel development, code managment to customize the kernel on special devices presents on the system, kernel building with selection of special modules for multiple implementations (same kernel, multiple hardwares), patch release on Linux drivers to solve system issues.
System integrator on embedded GNU/Linux OS - Debian based, to connect web services and hardware connector (multiple buses depending on witch required on each target). Bash and Python scripting to automatic program the system, recognize the hardware used and manage the various devices at high-level.
C firmware development for wireless IoT devices.
C++ development of software and daemons multiarch with cross-compilation for 386/arm/armhf architecures, using native compilers, cross-compilers and compilation sandbox on Docker.
Hardware debug of components, carriers, peripherals and analisys of PCBs and schematics.

Kernel:	Linux 3.4.90, 3.4.104, 3.0.35, 2.6.35
OS:	Debian jessie 7-8.5-8.7, Ubuntu Server 16.04, ArchLinux
IDE:	Eclipse, Code Blocks
Languages:	C, C++, C#, bash, awk, python, php
Tools:	Docker, USB-RS232, gcc-arm-linux-gnueabi-hf, GIT, SVN, Jira, Gitlab, Trello, MantisBT, VirtualBox, WMware

Business or sector Home building automation

Apr 2015 – May 2016

Navigation System Validator
Embedded Linux System Integrator

Alten Italia S.p.A. http://www.alten.it *at the customer:*

Magneti Marelli S.p.A. Electronic Systems
Viale Carlo Emanuele II 150, 10078 Venaria Reale (TO) – Italy
http://www.magnetimarelli.com

Projects: Giorgio 1, Giorgio 2

System Validation on road, focused on IVI Navigation System, simulation testing of Navigation System and integration into production In-Vehicle Infotainment systems, for production vehicle Alfa Romeo Giulia.

Validation on route of the different system sensors, identification of specific route to stress test each vehicle positioning algorithm released and definition of official validation route to cover all the borderline cases that can bring to issues, deep analisys of route logs and bug reporting to related development team.
Integration of navigation software or maps release, customer validation abroad, international team support to setup and integration of navigation components.

International support:

CUSTOMER VALIDATION *at* ***Fiat Chrysler Automotive, Auburn Hills (MI) - USA***, system validation end-of-development, together with customer Alfa Romeo for project “Giorgio 1” of Navigation System, NAFTA market.
FCA official validation tracks on road, between cities Auburn Hills, Detroit and Chicago.

NAVIGATION SYSTEM SUPPORT *at* ***TomTom, Taipei - TAIWAN***, support of maps installation and navigation layer integration on simulation IVI systems, to gain chinese censorship approval for Navigation System, CHINA market.

Kernel:	Linux 3.1.10
OS:	Red Hat Linux Embedded, Ubuntu 14.04, Xubuntu 14.04
IDE:	Eclipse
Languages:	C, C++, bash, python
Tools:	Oracle VirtualBox, gcc, GIT, Confluence, JIRA, LogExpert, DLT Viewer, Lawicel CANUSB, Can-Case XL

Business or sector Automotive in-vehicle infotainment

Mar 2014 – Mar 2015

Embedded Software Developer
Navigation System Validator

Alten Italia S.p.A. http://www.alten.it *at the customer:*

Magneti Marelli S.p.A. Electronic Systems – ADAS team
Viale Carlo Emanuele II 150, 10078 Venaria Reale (TO) – Italy
http://www.magnetimarelli.com

Development of navigation system software for In-Vehicle Infotainment systems, to final automotive target car or truck. Development of satellite navigation system and dead-reckoning, based on GPS, odometers and gyroscope data.

C/C++ development on Windows CE and Linux/UNIX algorithms of navigation, interactions and integration to other system modules, management of CAN and GPS data.
Validation on-vehicle (various cars and trucks), bug fixing and new feature development dependig on real world issues.

Project: Positioning

Development of navigation system with dead-reckoning algorithm, using GPS signal and vehicle sensors, development and bug fixing of existing part of software. Add features of selection configuration sensors present on vehicle target (vehicle using single odometer with gyroscope, or vehicle using only double-odometers, or vehicle using double-odometers with gyroscope), comparing signal obtained with GPS and maps to get better direction to follow.

Project: Fuel Economy Assistant

Porting of navigation algorithm positioning module on vehicle, integrated into GPS and dead-reckoning navigation systems. Analyze and parsing of GPS messages, CAN vehicle messages (odometers, gyroscope), comparing with track on HERE maps and webcam visual module, check correct heading and prediction of vehicle direction, to automatic accelereate or decelerate through motor control.

Project: Pié Verde

Porting of navigation algorithm positioning module on vehicle, integrated into GPS and dead-reckoning navigation systems, to trace vehicle location. Analyze and parsing GPS, odometer and gyroscope messages, using protocol CAN J1939

OS:	Windows Embedded CE 6.0, VxWorks
IDE:	Visual Studio 2008 / 2010
Languages:	C, C++
Tools:	Vector CANanalyzer, LogExpert, U-center, SVN

Business or sector Automotive in-vehicle infotainment

Jan 2014 – Feb 2014

Embedded Software Developer

AL.MEC s.r.l. Engineering
Via Torino 172, 12063 Dogliani (CN) - Italy
http://www.almec.net

Project: CANopen over WIFI

Development of win32 software to upgrade microcontrollers firmware and check microcontrollers messages via LAN / WiFi, using interface WIFI-CAN. Software upgrade of same firmware on multiple microcontrollers at same time, using a simple LAN connection.

Project: Order fulfillment using RFID

Management orders and components along the supply chain using RFID tag, and check production of final product. Development and bug fixing of software interface to RFID antennas, bug fixing of company database for orders management, interface to company management software.

Project: Automatic testing of microcontrollers

Automatic tests EOL of CANopen microcontrollers via random power-off cycles.
Regulation of power-off time of microcontrollers power source, with analisys of correct running and graphical compare with sample signal.

OS:	Windows Embedded CE 5.0 / 6.0
IDE:	Visual Studio 2005 / 2008 / 2010, Matlab
Languages:	Visual Basic, XML, C++, C#, SQL
Tools:	Lawicel CANUSB, WIIcom

Business or sector On-vehicle automation

Mar 2013 – Dec 2013

Embedded Linux Developer – Experimental Thesis

Embedded Systems Laboratory – *Department of Control and Computer Engineering*, **Polytechnic University of Turin**
Corso Duca degli Abruzzi 24, 10129 Turin (TO) – Italy
http://www.dauin.polito.it/

Thesis topic: Performance analysis of embedded systems
Analysis of Linux Containers virtualization on ARM architectures, single and multi-core.
Compilation and build embedded GNU/Linux OSs for Freescale an Texas Instruments hardware.
Cross-compilation of linux programs and analysis system performance.
Work released into the **Genivi Alliance** project ***LXCBENCH***, done in collaboration with ***Mentor Graphics - Embedded Software Division***.

Activity of compiling linux kernel, with selection of needed modules into the make menuconfig, and build embedded GNU/Linux OS for ARM architectures. Cross compilation of Phoronix Test Suite test to be inserted into a custom build for ARM hardwares. Measurement of various type of performance based on different type of Phoronix tests used.

Performance measurement of Linux Containers, on various hardware single-core and multi-core, to check the division of workload of multiple Linux Containers on the various cores of the systems: the goal (reached) was to show a perfect division of a Linux Container for every core, like a "reservation" of every core for a Linux Container (in case of the number of Linux Container is less or equal to the number of cores).

Link project:	https://at.projects.genivi.org/wiki/display/PROJ/LXC+Bench
Repository:	https://github.com/gmacario/lxcbench
Acknowledgments:	**Handbook of Research on Embedded Systems Design** *Alessandra Bagnato, Leandro Soares Indrusiak, Imran Rafiq Quadri and Matteo Rossi* 2014, IGI Global - Information Science Reference *https://books.google.it/books?id=IRiXBQAAQBAJ&lpg=PR1&hl=it&pg=PR1#v=onepage&q&f=false*
Kernels:	Linux 2.6.35, 3.8.6
OS:	Ubuntu 12.04.2, Debian-ARM 6.0.6, mel6-lxcbench (Yocto-based)
IDE	Eclipse, Sourcery CodeBench
Languages:	C, bash, awk
Tools:	USB-RS232, gcc-arm-linux-gnueabi, Phoronix Test Suite 4.4.1, LXC 0.7.5 – 0.9.0, Confluence, GIT
Hw:	Freescale i.MX53, TI PandaBoard ES, Freescale i.MX6 SABRE
Cpus:	ARM Cortex A8, ARM Cortex A9

Business or sector Automotive

EDUCATION AND TRAINING

Sep 2010 – Dec 2013

Master Degree, "Ingegneria Informatica – Computer Engineering"

Grade 88/110

Polytechnic University of Turin
Corso Duca degli Abruzzi 24, 10129 Turin (TO) – Italy
http://www.polito.it

Specialization: Software and digital systems

- microprocessor-driven development
- operating systems (threads, page table, file systems)
- win32 interface programming and windows management
- computer security (IP security, authentication, X.509, PKI, firewalls, IDS/IPS)
- database management systems (triggers, data warehouse, data mining)
- digital systems and sensors programming
- local network (spanning trees, OSI level 2-3 switching, VLAN)
- web sites and web applications development

OS:	Ubuntu 8.04, GRML
IDE:	Eclipse, GNS3, LabVIEW, Visual Studio 2008 / 2010, Xilinx
Languages:	C, C++, C#, Java, xml, xsd, html, php, asm x86, ARM, VHDL

Sep 2005 – Apr 2011

Bachelor's degree, "Computer Engineering"

Grade 87/110

Polytechnic University of Turin
Corso Duca degli Abruzzi 24, 10129 Turin (TO) – Italy
http://www.polito.it

- computer architectures
- threads, tasks and kernel
- object oriented programmation
- electronics and semiconductors
- database design
- web development
- structure and functions of ethernet LAN (OSI / Ethernet)
- internet communications and web infrastructures

IDE: Eclipse, Visual Studio 2008 / 2010, Matlab
Languages: C, Java, SQL, html

PERSONAL SKILLS

Mother tongue: Italian

Other language

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	C1	B2	B2	B2
	IELTS, overall score 5.5				

Computer skills

- linux kernel
- device tree
- u-boot
- embedded linuxs
- Yocto (base)
- bitbake (base)
- buildroot
- python, bash awk, C/C++
- LXC, docker
- X-compiling
- debug HW (schematics, PCB)
- embedded GNU/Linux – Debian, Ubuntu, Arch, Fedora, Yocto-based

Job-related skills

- BSP problem solver
- Reverse engineering
- Critical issues finder
- Teamwork

Driving licence: B

ADDITIONAL INFORMATION

Personal data

I hereby authorize the use of my personal data in accordance to the GDPR 679/16 - "European regulation on the protection of personal data" and in accordance to the italian Legislative Decree of 30 june 2003, n. 196 "Codice in materia di protezione dei dati personali".