Curriculum Vitae
Francesco Mugnaini

Personal Information

Name / Surname	**Francesco Mugnaini**
Address	7 Silver Birch Grove, Leamington Spa, CV31 3QY
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Date of birth	12th October 1986

Work History

Dates	18 May 2016 - Ongoing
Role	Senior Control Engineer for Chassis Systems, EDAG Engineering, Leamington Spa (United Kingdom)
Main responsibilities and contribution to the company	– Requirements capture for suspension system actuators – Definition of suspension system features – Project engineer activities support – Process engineer activities support – Complex systems analysis – DSM, DMM, MDM definition and analysis – Benchmarking support – Graduate team member support and coordination – Use of IBM DOORS – Use of Microsoft Office
Dates	1 April 2014 – 13 May 2016
Role	Computer Engineer in Integration & Validation team, McLaren, Woking (United Kingdom)
Main responsibilities and contribution to the company	– Team management – Development of Distributed Functions for entire vehicle – Development of Test Cases (both automatic and manual) related to Distributed Functions – Testing, analysis and validation of functionalities related to entire vechicle. Tests performed on LabCar, static Car, dynamic Car. – Analysis of test results and issues definition to be sent to suppliers – Software flash and car commissioning – Hardware reworks and LabCar upgrade – Use of Vector products as VTSystem, CANalyzer, CANoe, VTestStudio – Use of Monaco – Use of Microsoft Word/Excel – Basic knowledge of dSpace system – 100 days validation activities/resources coordination and management
Dates	23 September 2013 – 28 March 2014
Role	Software Designer, CF3000, Reggio Emilia (Italy)

Main responsibilities and contribution to the company	– Software and Hardware design of an ECU for Pagani Zonda that handles car lift and main cluster. Use of Code Warrior, RappID, Kvaser / CANalyzer, Freescale products, physical assembly of the prototype. – Software and Hardware design of a CAN gateway unit for Pagani Huayra. Use of Code Warrior, RappID, Kvaser / CANalyzer, Freescale products, physical assembly of the prototype. – PCCU, ECM, ESP HIL wiring for McLaren. Design of the interconnection system, configuring connections, electrical testing of continuity. – Software testing of different units for Piaggio Porter. – Lab-Car and Prototype-Car testing and analysis.
Dates	19 February 2013 – 21 September 2013
Role	Barista, Creams / Kaspa's bar, London (United Kingdom)
Main responsibilities and contribution to the company	– Desserts preparation, caring about table service and keeping preparation area clean and stocked – Customer Service
Dates	March 2012 – July 2012
Role	Internship, ENEA Brasimone Research Centre, Camugnano (Italy)
Main responsibilities and contribution to the company	Studying of different algorithms for obstacle avoidance, then using MATLAB/Simulink design of a trajectory generator for robotic arms in work environment with obstacles. Implementation also of a simple control system for a real robotic arm and development of a 3D interface representing the work environment and the manipulator.

Education and training

Dates	December 2009 – September 2012
Title of qualification awarded	MASTER DEGREE IN COMPUTER ENGINEERING
Principal subjects / occupational skills covered	Graduation in Robotics and Automation with a final vote 110/110 cum laude. Thesis entitled "Design of a trajectory generator for robotic arms in work environment with obstacles."
Name and type of organisation providing educational and training	University of Siena
Level in national or international classification	Master Degree in Computer Engineering
Dates	September 2005 – December 2009
Title of qualification awarded	COMPUTER ENGINEERING
Principal subjects / occupational skills covered	Graduation in Automatic and Systems for Industrial Automation with a final vote 92/110. Thesis entitled "Study and comparison of different controllers for Quadcopter X-UFO."
Name and type of organization providing educational and training	University of SIENA
Level in national or international classification	Bachelor Degree in Computer Engineering

Pre-university studies
Secondary school diploma: SCIENTIFIC CERTIFICATE
School-leaving examination taken in (year): 2005
C.Cattaneo Scientific High School, Follonica (GR), Italy
Italian secondary school diploma

Personal skills and competences

Languages	**Fluent Italian, Fluent English**

Diploma or certificate

English: 03 2006 – European Level: B1

Social skills and competences | Excellent communication and interaction skills either in a working team or outside work.

Technical skills and competences | Solid knowledge of CAN Bus and related tools.
Solid knowledge of ECU flashing and diagnosis with tools as Monaco.
Solid knowledge of Freescale powerPC processor
Solid experience of developing software and models in MATLAB/Simulink (university laboratories and internship at the research centre ENEA Brasimone).
Solid experience of control techniques and modelling of robotic arms.
Good knowledge of electronics.
Basic experience with LabVIEW. (university laboratories).
Solid knowledge of Windows, Office and Programming C-Java . (laboratories and university projects)

Computer skills and competences | **Operating Systems :** Limited
Programming : Good
Word Processing: Good
Spreadsheets : Good
Internet Browsing : Good
Website Creation : Limited
Multimedia (sounds, pictures, video): Good
Known programming languages: C

Interests | I like playing almost every sport especially football and ski. I like watching sports as football, basketball, ski, tennis, F1, motogp. I am also interested in computers and videogames and I really enjoy watching movies and listen to the music. I often spend my free time playing football with friends or simply going out with them. I like to go out with colleagues too in order to improve the team relationship strength.

Further Information

Programming Skills | During the bachelor degree I had to develop a simple project using **C** in which I had to simulate a beverage dispenser in all of its functions giving in input a drink and coins inserted; moreover I learned the basics of using LabView, how to interface with **Linux Shell**, and I also developed simple pseudo-code to interface with **Rabbit microcontroller.**

During the Master degree I developed a simple project in which we had to make two parallel threads running on **RT Linux**. The internship project has included the development of a software for a robotic arm, so that the manipulator could avoid obstacles in the work environment; this project has included the development of a working algorithm and the development of the code in **MATLAB/Simulink** language considering also the dynamics of the robotic arm, moreover I had to develop a simple 3D model of the work environment.
Good knowledge of software developing for Freescale MPC5604B due to working experience in CF3000. Usage of serial port, AD converter, digital and analog IO.

Driving Licence	A1 – B
Master's Thesis	The target of the master's thesis was to develop a trajectory generator, for a redundant robotic arm, that could individually find an admittable trajectory in an environment with obstacles. Using Matlab/SIMULINK I developed a genetic algorithm that, starting from a population of random trajectories and knowing the start position and the desired final position, could evolve to an admittable trajectory using a pre-defined fitness formula.
Bachelor's Thesis	The target of the bachelor's thesis was to compare two different controller: a PID and an MPC. The test was developed using a quadcopter mixing ideal dynamics and real dynamics and analyzing different kind of trajectories as sinusoids, ramps, steps. Using the MPC, tests showed great responses compared with inputs waveforms but also problems due to the high complexity of the controller, using the PID outputs were a bit worse compared with desired waveforms but showed a lighter calculation complexity and an easier tuning adaptability.
Software skills	I developed two main projects using C, both of them are firmware for automotive ECUs. One is a gateway among 3 CAN channels for Pagani Huayra. The other one is an ECU for Pagani Zonda that handles cluster main functions (RPM, Speed, Odometer), nose-lift of the car, gear visualization and sequential LED for gear-change suggestions..
References	References available on request.
Signature	