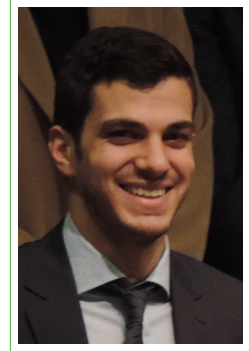


Fabio Busignani

Curriculum Vitæ

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Desidered Employment and Current Skills

Hardware Engineer - ASIC Designer

I have always loved the world of electronics, long before I started my studies in electronics. While I achieved high marks in school, my interest for electronics goes well beyond the academic setting. Indeed in my free time, I love to experiment with microcontrollers and embedded systems boards as well as deepen some interesting topics.

My course of study allowed me to have a strong electronic knowledge, focusing on digital electronics where I made some experience in every level of the design workflow of digital hardware implementation and SoC design.

Technical skills

Languages	VHDL, C/C++, SystemC, JAVA, C#, UML, MIPS Assembly, PIC Assembly, Python, L ^A T _E X
Operating Systems	Linux, Android, Windows
Software Tools	Modelsim, Synopsys Design Compiler, Synopsys Design Vision, Quartus II, Cadence Design Environment, Multisim & Ultiboard, NI LabVIEW, Matlab + Simulink, Android Studio, Qt, mbed.org, IAR, MPLAB, Code Composer Studio
Hardware Platforms	Electronic bench equipment, microPIC, MSP430, FRDM-KL25Z, Beaglebone Black, RaspberryPI, Altera Cyclon II, STM32F401

Education

- Oct. 2012 - **Master Degree in Electronic Engineering**, *Polytechnic University of Turin*, Turin, Italy.
Mar. 2015 Specialization in Electronic Systems
Thesis Title: Google Glass Assisted Data Visualization and Monitoring for Organs-on-a-Chip and Biomedical Applications.
Grade: 110/110
- Sep. 2009 - **Bachelor Degree in Electronics, Informatics and Telecommunications Engineering**,
Oct. 2012 *Seconda facoltà di ingegneria con sede a Cesena - University of Bologna*, Cesena, Italy.
Thesis title: Design of a microcontroller system which controls an electrodynamic shaker.
- Sep. 2004 - **Electronic and Telecommunications Technician**, *I.T.I.S. Leonardo da Vinci*, Rimini, Italy.
July 2009 Italian secondary school diploma

Academic Projects

- June 2014 **Multithreaded Blowfish Algorithm Implementation.**
Github link.

- January 2014 **Design of a 4-state ACS (Add-Compare-Select) with SystemC.**
 Design covered the following steps:
- ACS design;
 - SystemC implementation;
 - Matlab implementation used to verify the results;
 - First simulation with G++ compiler and GTKwave viewer;
 - Second simulation with SystemC Modelsim;
 - Third simulation with Modelsim mixed SystemC-Verilog using a given implementation of the ACS.
- Github link.
- December 2013 **ASIP design based on Transport Triggered Architecture using TCE.**
 Design of an architecture which implements DCT, using *TTA* architecture.
 Github link.
- November 2013 **FIR ASIC Implementation.**
 Design covered the following steps:
- Behavior design with Matlab;
 - VHDL implementation;
 - Testbench implementation and simulation with Modelsim;
 - Switching activity-based power consumption estimation;
 - ASIC Place&Route;
 - Post Place&Route simulation and switching activity-based power consumption estimation.
- Github link.
- July 2013 **Low-power serial interface for SoC functional units communication.**
 The aim was to make a very low power interface, and in order to do this, certain low power design methods were exploited, such as clock gating and state encoding. Synthesis was made with *Synopsys Design Compiler*.
 Github link.
- January 2013 **Butterfly Design using Microcode Technique.**
 Design of a processing element which implements a *Butterfly*. In this project several hardware constraints were given, and they were solved through the adoption of the *folding* technique.
- December 2012 **Wishbone Implementation.**
 Design covered the following steps:
- VHDL implementation;
 - Testbench implementation and simulation with Modelsim;
 - Synthesis using Quartus;
 - Hardware test using Altera Cyclone II.

Working Experience

- Apr. 2015 - Present **Firmware Designer**, *Sherlock Bike*, Turin, Italy.
 Sherlock is a GPS-based anti-theft device connected to a smartphone app that allows cyclists to precisely locate their bicycles and retrieve them in case of theft.
- Aug. 2014 - Feb. 2015 **Research Trainee**, *Khademhosseini Lab (Harvard-MIT Health Sciences and Technology)*, Cambridge, MA, United States of America.
 Designed and developed a custom user interface on Google Glass for simultaneous recording of biosensing data (T, pH) and microscopy images/videos as well as remote control of microfluidic valves for organ-on-a-chip applications. In order to fulfill this aim I have designed and created a complete system which is based on Beaglebone Black.
- July 2012 - Sep. 2012 **Internship**, *Fortech s.r.l.*, Rimini, Italy.
 Worked with the company's electronic engineers, learning about the hardwares present in payment systems of fuel service stations.
- 2007 - 2010 **Summer Jobs**, *TES s.r.l. and FM s.n.c.*, Rimini, Italy.
 Summer job as apprentice electrician and photovoltaic technician.