



Héctor Orón Martínez

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RESEARCH

My principal research interests lie in the field of embedded systems, either developing hardware or software.

I had investigated during my engineering final project about hardware on safety critical systems. Publishing the final report on:

Safety and Rugged Hardware Design for Harsh Railway Environment

My future research plans to build on foundations of my final project a certified safety-critical hardware to be useful on the global markets to increase safety of users.

I am also investigating the design and implementation of a multiple architecture operative system with free and open source tools.

EDUCATION

Telecommunication Engineer (2nd cycle) *September 2003 - February 2008*
Studies at ETSETB, Polytechnic University of Catalonia (UPC), in Barcelona

Telecommunication Engineer (1st cycle) *September 1999 - July 2003*
Studies at ETSIT, Polytechnic University of Valencia (UPV), in Valencia

Graduate from High School
Studies in CEU San Pablo, SPAIN and
Cascade Christian High School, Medford, OR USA

WORK EXPERIENCE

Toby Churchill Ltd *July 2010 - Nowadays*
Hardware and Software Engineer
Development and maintenance of production machines, build systems and test and validation framework. Development of hardware and customization and tailoring of embedded Linux and open source applications for certified medical devices.

Universidad Politécnica de Catalunya, UPC *July 2009 - June 2010*
Hardware Engineer
K2M Program, project BLOCKSAT, safety critical system on board trains, european patent EP1705095 (A1), currently following CENELEC EN5012X certification SIL-4. System running VxWorks in Real Time.

Digi International Inc. *January 2009 - June 2009*
Embedded Linux Firmware Engineer
Linux Device Drivers programming for NetSilicon, Samsung and Freescale ARM embedded hardware

processors.

Elecmos Universal, S.L.

January 2008 - December 2009

SW/HW Engineer

Development of hardware and customization and tailoring of embedded Linux and open source applications.

Universitat Politècnica de Catalunya, UPC

March 2006 - December 2007

Hardware Engineer

K2M Program, project BLOCKSAT, safety critical system on board trains, european patent EP1705095 (A1), currently following CENELEC EN5012X certification SIL-4. System running VxWorks in Real Time.

'Centre de Recerca i Investigació de Catalunya', CRIC

October 2005 - February 2006

Software Engineer

European project SafePhone, telephone over IP for safety environments, running Embedded Linux.

PROFESSIONAL MEMBERSHIPS

Free Software:

Debian.org developer

Development of Debian GNU Linux/BSD OS Based Distribution, specially on ARM architecture. I am currently co-maintaining ARM autobuilders for Debian, some software packages as the cross toolchain build system, but i also do some other things, as server administration, webpage programming, arranging work sessions and meetings, etc.

Emdebian.org developer

Development of Debian Linux OS Based Distribution for Embedded Devices. I am currently maintaining Debian's cross toolchain build system, but i also do some other things, as server administration, webpage programming, arranging work sessions and meetings, etc.

OpenCores.org developer

Hardware PCB Board Project based on FPGA ACEX1K50.

Cell/B.E. Spumedia developer

Provide accelerators for the cell broadband engine processor. The improved project aims to avoid the limitations and give better accelerations than current tools.

TECHNICAL SKILLS

Languages

English (excellent), Spanish (excellent), Catalanian (excellent), French (basic), Italian (basic)

* Grau mitjà en Valencià

* Academic year in North America

* English Certificate of Competency in English by Michigan University

* Basic french level by International Language Center

Computer Science knowledge

Linux/Unix and Real Time operating systems programmer, administrator and user;

Knowledge on embedded systems:

VxWorks, RTAI, RTOS, Emdebian, Slind, ELDK, LxNETES, OpenEmbedded in architectures like PowerPC, MIPS, M68K, ARM, i386 and others.

Experience with:

Cadence's OrCAD PCB Design Tools, Altera's Max+PlusII, Altera's Quartus II, Xilinx's ISE, GCC, Scratchbox, Qemu, Microchip's MPLAB, Matlab and Simulink Mathworks, Polyspace CTAE, Altium Designer.

Programming languages:

C, VHDL, ASM, Java, PHP, Bash scripting, Python ... with ability to learn new languages.

Experience with many communication buses:

CompactPCI, VME, CAN, I²C, SPI, X10, Profibus, ...

CONFERENCE & COURSES

Postgraduate courses

- * 'Workshop on Signal Integrity and EMI Control in High Speed Digital Circuits' by Premium EDA (Rick Hartley)
- * 'Training session on CENELEC EN 50126-8-9' by Bureau Veritas
- * 'Polyspace course' by CTAE-UPC. * 'Signal Integrity on High Speed Systems' by Universidad Politecnica Catalunya
- * 'Real Time industrial communications busses' by Universidad Politecnica de Catalunya
- * 'Quartus II, tool for FPGA electronic design' by Universidad de Valencia
- * 'TDT (DVB-T) and satellite TV (DVB-S) reception systems' by Universidad Politecnica de Valencia
- * 'CAN Bus and other field busses' by Universidad Valencia
- * 'Advanced Linux' by Universidad Politecnica de Valencia
- * 'Certificate of attendance to Red Iris scientific workshop' by Universidad Politecnica de Valencia
- * 'Visual C++ Programming' by Universidad Politecnica de Valencia
- * 'Taller d'art sonor i mÀsica electroacÀstica' by Universidad Politecnica de Valencia
- * 'Micro PLC. Easy Automation.' by Spanish Education Ministry (Mentor program).
- * 'Contability introduction' by Spanish Education Ministry (Mentor program).

Workshops and worksessions

- * Emdebian workshop in Finland, June 2005 - Debian Conference 5
- * Emdebian workshop in Belgium, February 2006 - Free and Open source Software Developers' European Meeting
- * Organizer staff for Emdebian worksession in Extremadura, April 2006 - Sponsored by Junta de Extremadura.
- * Emdebian workshop in Belgium, February 2007 - Free and Open source Software Developers' European Meeting
- * Emdebian workshop in Scotland, June 2007 - Debian Conference 7
- * Organizer staff for Emdebian worksession in Extremadura, April 2008 - Sponsored by Junta de Extremadura.
- * Emdebian workshop in Caceres, July 2009 - Debian Conference 9
- * Organizer staff for Emdebian worksession in Cambridge, February 2011 - Sponsored by ARM-Linaro, Genesi-USA and Toby-Churchill Ltd.

PUBLICATIONS AND PRESENTATIONS

Telecommunications engineering final report

Safety and Rugged Hardware Design for Harsh Railway Environment

February 2008

Qualification Excellent with Honors

Presentations

Multiarch

Mayo 2009

Steve Langasek and Hector Oron

Ubuntu Developer Summit 2009

Emdebian 1.0 release - small & super small Debian

Febrero 2009

Neil Williams, Hector Oron and Wookey

Free and Open source Software Developers' European Meeting (FOSDEM) 2009

Curso PS3 (arquitectura, programación y clustering)

Octubre 2008

Hector Oron

Escola Politècnica Superior de Castelldefels, Universitat Politècnica de Catalunya

Emdebian Update: Rootfs, GPE and tdebs

Febrero 2008

Neil Williams, Hector Oron and Wookey

Free and Open source Software Developers' European Meeting (FOSDEM) 2008

SETR Live CD

Febrero 2006

Hector Oron

Free and Open source Software Developers' European Meeting (FOSDEM) 2006

TEACHING/ADMINISTRATION EXPERIENCE

Work and activities for Universidad Politècnica de Catalunya, UPC:

* K2M electronics laboratory provisioning and administration.

* Laboratory work sessions for circuit design and electronics systems lab with FPGAs.

* Telematics laboratory sessions on VPNs, IPSeC. General subject review. Department webpage programming.

* Catalanian to english translation of microelectronic circuit design subject for UPC Master Studies Program.

REFERENCES

Prof. A. Comerón (Supervisor)

Escola Tècnica Superior d'Enginyeria en Telecomunicacions de Barcelona

Universitat Politècnica de Catalunya

Jordi Girona 1-3. Edif. D3-202

Barcelona, SPAIN

E-mail: comeron@tsc.upc.edu

Prof. A. Gelonch (Supervisor)

Escola Tècnica Superior d'Enginyeria de Telecomunicacions

Universitat Politècnica Superior de Castelldefels

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