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Curriculum Vitæ

Education

1994 – 2001 Computer Engineering. Universitat Autònoma de Barcelona.

Professional Experience

Apr 11 – Present **Software Engineer, Oblong Industries**, Los Angeles, CA

Jul 05 – Mar 11
5 years 9 months

Software Engineer, Institute of Space Sciences (ICE-CSIC/IEEC), Barcelona

I was part of the software team of the LISA Test Package project (within ESA's LISA Pathfinder), a payload developed by the European scientific community.

LISA Pathfinder is scheduled for launch in 2014.

My main goal was to develop the embedded software for the Data Management Unit which is in charge of handling the scientific information from the spacecraft. We also developed simulators to test the software. I was also in charge of software releases and software configuration management. I wrote the coding standards and I was also involved in the software requirements and architecture and other technical notes such as the schedulability analysis. Moreover, I designed and built the needed software infrastructure (build tools, nightly builds, moinmoin wiki, bugzilla, mercurial...).

Technologies: We wrote a 64 Kbytes non real-time kernel to bootstrap the DMU, including an interrupt manager, a non-preemptive scheduler and MIL-STD-1553 drivers. The main application, optimized for an ERC32 12 MHz processor and 2 Mbytes of memory, has hard real-time constraints and requires a real-time operating system (RTEMS). Both applications are written moslty in C and a bit of SPARC assembly. The software infrastructure (build tools, nightly builds and other scripts) was written in Python.

Feb 04 – Jun 05
1 year 4 months

Software Security Responsible, Allianz Seguros, Barcelona

I was responsible for the security of the software developed in Allianz (Spain). I was in charge of writing coding and software security guidelines, as well as developing prototypes that allowed the testing of new security requirements. I also created an initial PKI and developed in-house software security tools for data analysis and data encryption.

The PKI was built around Microsoft technologies. The analysis and encryption tools were developed using C, Python, Perl and Java.

Jul 01 – Feb 04
2 years 8 months

Co-founder and Software Engineer, Scytl Secure Electronic Voting, Barcelona

I was one of the fourth initial founders of the start-up, focused on secure electronic voting systems. My initial goal was to build all the company infrastructure as well as developing the initial e-voting prototypes. After that, I was part of the development team of the main distributed system for electronic voting. We developed a patented electronic voting system with a client-server multi-threaded architecture. The system was developed following well-known software engineering methodologies and also with a very demanding quality assurance process.

Scytl is one of the leading providers of secure election technology. It has offices in different countries, including Spain, United States, Canada or India.

Professional Experience (continued)

Technologies: The system was built upon public key cryptography following the founder's Ph.D. thesis, that was later patented. The inter-process and network communications followed the architectural patterns used by the ACE libraries. The software was written in C++, Perl and Java and it was also portable to various platforms (GNU/Linux, FreeBSD and Windows).

Apr 00 – Mar 01
1 year

Software Engineer, iSOCO, Barcelona

I participated in the development of the Spanish Fnac's electronic shop, creating client-server applications for multimedia content management and publishing automation. I also participated in smaller projects developing Servlets and JSP pages for e-commerce applications.

Technologies: The desktop application to publish content to the Fnac's web site was developed using Delphi and the server was developed in Java.

Sep 99 – May 00
9 months

Programmer, Pradinsa, Barcelona

Maintenance of an in-house ERP system that supported clients, invoices, budgets, custom statistics, product labels and more. After improving the system performance and adding some features, I had to implement a simple system to share information between multiple factories via modem communications.

Technologies: The system was developed using Microsoft Visual FoxPro and SQL Server.

Academic Experience

Feb 06 – Jan 08
2 years

Consultant professor, Universitat Oberta de Catalunya (UOC), Barcelona

I worked as a consultant teacher in the Cryptography course of the Computer Engineering degree in this Internet-based university. The course mainly included cryptography history, symmetric and asymmetric key cryptography as well as PKI theory and applicability.

Sep 01 – Sep 04
3 years 3 months

Assistant professor, Universitat Autònoma de Barcelona (UAB), Barcelona

I gave practical classes of a Computer Networks course of the Computer Engineering degree. This included Java RMI programming, mobile agents, a Trivial FTP RFC implementation and practical network protocols understanding.

Non-professional Experience

During my spare time I try to learn more about computers and programming languages and if I have some interesting technical experience to share, I post an article to my blog.

These are some of my personal projects:

BitPacket

BitPacket is a Python library to parse and build data structures (e.g. network packets) in an easy object-oriented way.

guile-json

guile-json guile-json is a JSON module for Guile (an interpreter and compiler for the Scheme programming language). It supports parsing and building JSON documents according to the json.org specification.

Non-professional Experience (continued)

guile-oauth guile-oauth guile-oauth is a simple OAuth client library for Guile. It supports the OAuth 1.0/A protocol.

guile-redis guile-redis guile-redis is a redis client module for Guile. redis is a key-value store.

guile-xmlrpc guile-xmlrpc guile-xmlrpc is an XMLRPC implementation for Guile. It allows easily parsing of XMLRPC responses and building XMLRPC requests. It conforms to the xmlrpc.com specification.

mkprom-erc32 mkprom-erc32 is a tool to create boot-images for RTEMS ERC32 based applications. Normally, applications are built to run from RAM. This tool compresses an application and creates a PROM image so it can load and execute this compressed application into RAM.

SCEW The aim of SCEW (Simple C Expat Wrapper) is to provide an easy interface around the XML Expat parser. It provides functions to load and access XML elements avoiding Expat internals. It also lets you access to the internal Expat parser, so one can still have all the functionality that Expat library provides. SCEW also incorporates functions to create and handle XML trees.

Mercurial I have done minor contributions to the Mercurial project, such as the GNU arch to Mercurial conversion and the Deps extension.

neon I wrote the initial GNU TLS support of the neon HTTP and WebDAV client library.

demoscene During the college years, my friends and I formed a demoscene group called Anaconda. We were part of the spanish scene and presented our productions (real-time rendered graphics), even winning some awards, at various parties (mostly at Euskal party).

Other Interests

Languages I have always found interesting to learn other languages. In the last few years I have been learning French.

- **Catalan and Spanish**: native
- **English**: well written and spoken
- **French**: basic written and spoken
- **German**: very basic

Travelling I really enjoy travelling and learning from other cultures. In the last years I have visited Mexico, Japan, Egypt, Morocco, United States and some European countries.