

Yves Rütschlé

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French nationality

Computer Security Architecture Consultant

Employment History

Apr 2008—Current Security Consultant, Altran, Toulouse

Altran is a service company.

I am currently taking part in the definition of computer security architecture for on-board systems on the up-coming Airbus A350 aircraft.

Activities: Specification, risk analysis, supplier follow-up, development follow-up.

Mar 2005—Mar 2008 Embedded Software Engineer, CS, Toulouse

CS (*Communication et Systèmes*) is a service company specialised in critical systems.

I took part in several projects:

Airbus, 2008 Expertise in operating systems: solved architectural problems to insulate applications from hardware evolutions.

Sagem, Nov 2007—Feb 2008 Technical manager of a team of three. Development of a C Unix server using XML-RPC, Samba, OpenSSL, with a Java interface

Airbus, 2006—2007 Design of a secure protocol to carry ACARS avionics data over TCP/IP via a GSM Internet connexion; development of a demonstrator and test campaign to assess performance; study of ways to compress XML using ASN.1-based technologies

Airbus, 2005—2006 Specification, development and test of an instrumentation application embedded in an avionics computer

Mentored the team in Unix, C and Perl as its most senior member.

Mar 2000—Feb 2005 Embedded Software Engineer, IndigoVision, Edinburgh

IndigoVision develops video over IP systems, targeted to the surveillance market.

My responsibilities related to the low-level platform software for new ARM-based platforms:

- Port of a custom real time operating system (based on Nucleus) to a StrongARM board
- Linux port to above board
- Integration and maintenance of a stand-alone flash-based μ Clibc/BusyBox Linux system
- Linux driver development
- Boot loader development
- User-space application development
- Provided Linux and Unix technical support for colleagues

I also took part, and had input, in the application design and architecture, as the most Unix-conversant employee of the company.

Sep 98—Feb 2000 R&D Engineer, DEF & Hekatron, Germany

DEF (Paris, France) and Hekatron (Sulzburg, Germany) build fire detection systems.

Assignment: French National Service. Spent 16 months with Hekatron as an employee of DEF. My task was to adapt a French fire detection panel to the German market.

Key responsibilities:

- Understanding and summarising of German DIN and VdS standards and specifications
- Specification and design (schematics and routing) of a PIC16C74-based board to achieve the functional adaptation
- Development of the software to operate the board as part of the full fire detection system

Training Courses

The following was performed as part of school work experience courses:

Feb 98—Jul 98 Final training course for the ENSEA at the University of Munich (Germany): Robot Navigation in Open Space. (Image processing and DSP programming.)

- Design of a navigation algorithm for the university's humanoid robot
- Simulation of the algorithm in C++
- Development in C for DSP of the image processing algorithms: landscape analysis, extraction and comparison of landmarks

1997 Participant in the Mobile Robot Competition of Carquefou (France) as part of the ENSEA team. In charge of the embedded software for the robot.

Jun—Jul 1996 Training course in the LAAS (Laboratory for System Architectures, Toulouse, France): automation of laser diode characteristic sampling.

Technical skills

Aeronautical Experience

- General knowledge of aeronautics networking protocols (ARINC 618 and ARINC 622).
- In-depth knowledge of Airbus' FSA-NG platform architecture.

Software Development

- Mastering of C, Perl, ARM assembly language; OOP concepts (used mainly in C, C++ and Perl)
- Linux kernel programming, Linux drivers and modules, Linux/Unix application development, general Linux administration and networking setup (Gateway, routing, Exim mail server and Apache web server configuration)
- Mastering of embedded and real time concepts: time sharing, race conditions, interrupts, resource locks and semaphores, multi-threading issues, shared memories, IPC, message queues.
- Mastering of network programming (TCP/IP, sockets) and Unix development (development environment, servers, threads, IPC, signals).

- Good knowledge of HTML, JavaScript, CGI, Pascal, shell scripts (bash and ash), L^AT_EX.
- General experience of data encoding technologies: XML, XSD, RELAX-NG, ASN.1, XER, PER.
- General experience of source control tools. Usage, support and administration of CVS and SubVersion, usage of Microsoft SourceSafe and TeleLogic CM Synergy
- Operating experience of PKI principles and SSL-based security.

Hardware design

- Very good understanding of hardware processor-based designs (PIC, 68000, StrongARM and XScale); ARM processor range
- General analog electronics, numeric and programmable logic electronics; theory of FPGAs and ASICs; theory and practice of state machines (Moore and Mealy), truth tables, synchronous logic; notions of fully asynchronous logic (asynchronous gates and pipe-lines)

Education

1995-98 **Electronic Engineering Degree, ENSEA, France**

Electronic and Computer Science Engineering studies in ENSEA (National School of Electronics and its Applications) in Cergy, France.

3rd year specialised in Information Technology and Systems.

1993-95 **Electronic and Industrial Data Processing Certificate**

IUT of Toulouse, France; two years technology certificate.

Languages

- French: Native language.
- English: Bilingual (Resident in the UK from 2000 to 2005).
- German: Spoken fluently, written correctly (Two years of work experience in Germany in 1998-99).

Miscellaneous

- Member of the Go club of Toulouse: organisation of a permanent tournament; developed and maintains a GnuGo-based robot player for an on-line Go Web site (*www.dragongoserver.net*).
- Administrator for the Web site of a bilingual conversation club (*www.englishintoulouse.com*)
- Developed a command-line interface program for on-line TODO list *www.rememberthemilk.com*.
- Hobbies include programming, board games such as Go and Chess, and botany.