

# Yves Rüttschlé

Aeronautical Computer Security and  
Software Architect

✉ [yves@rutschle.net](mailto:yves@rutschle.net)  
<http://www.rutschle.net>

---

## Work Experience

2008—2011 **Computer Security Architect**, *Altran*, Toulouse.

Took part in the definition and design of the computer security architecture of Airbus' upcoming A350 aircraft on the FSA-NG system.

- Security functions specification.
- Risk analysis.
- Project management and supplier follow-up : technical reviews and evaluation of the suppliers' proposed technical solution.
- Expertise in networking protocols, computer architecture and operating systems.
- Authoring of technical notes and documents for Airbus' design office.

Tasks performed outside the scope of Airbus mission :

- Training and support of junior members of the team and newcomers.
- Technical support for recruiting : CV reviews and technical interviews. Responsible for hiring interns.
- Internship management : definition of work, schedule, support and follow-up of interns.
- Technical support for response to tenders : workload evaluation, preliminary definition of activities.

2005—2008 **Embedded software engineer**, *CS*, Toulouse.

CS is a service company specialised in critical software development.

- Airbus, 2008** Operating system expertise : study to solve software obsolescence linked to the LynxOS operating system on the ATSU communication router.
- Sagem, Nov. 2007—Mar. 2008** Technical leader of a team of three developers. Development of a Unix server using XMLRPC, Samba and OpenSSL for the NSS A380 system.
- Airbus 2006—2007** Design of an avionics data secure transport protocol to carry ARINC620 messages over TCP/IP on a GSM connection ; this design lead to filing a patent (USPTO 20110047281) ; development of a mock-up based on LynxOS and test campaign to study its performance ; study of XML message compression methods using ASN.1 technologies.
- Airbus 2005—2006** Complete development of a new application for the avionics computer ATSU : requirement collection, redaction of the specification and design documents, design of the test plans, development and test on final target.

- 2000—2005 **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  $\mu$ Clibc/BusyBox Linux system
  - Linux driver and boot loader development
  - User-space application development
  - Development, installation and maintenance of automated factory testing of all new products.
  - Provided Linux and Unix technical support for colleagues as the company's most Unix proficient member.
- 1998—2000 **Engineer**, *D.E.F. (Détection Électronique Française)*, Massy and Hekatron, Germany, French National service.  
DEF (Paris, France) and Hekatron (Sulzburg, Germany) build fire detection systems.  
Assignment : 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.
- 1998 **E.N.S.E.A. internship**, *Munich University*.  
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.

## Technical skills

**Aeronautical Experience** Knowledge and practice of Airbus' security method : identification of assets, threats, definition of security objectives.

General knowledge of Airbus development cycles.

In-depth knowledge of Airbus' A350 FSA-NG platform architecture.

General knowledge of aeronautics networking protocols (ARINC 618 and ARINC 622).

General knowledge of ATSU communication computer architecture and related development tools.

**Software Development** Mastering of C, Perl, ARM assembly language; OOP concepts (used mainly in C, C++ and Perl)

Embedded real-time system design. Notions of software criticality and development compliant to DO178B standard.

Linux kernel programming, driver and module development; Unix application development.

Installation, maintenance and administration of Linux networks (Exim, Apache, ssh, mailman).

Mastering of embedded and real time concepts : time sharing, race conditions, interrupts, resource locks and semaphores, multi-threading issues.

Mastering of network programming (TCP/IP, sockets) and Unix development (development environment, servers, threads, IPC, signals, shared memories, IPC, message queues.)

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.

**Hardware design** General analog electronics, numeric and programmable logic electronics (FPGAs, ASICs); theory and practice of state machines, truth tables, synchronous logic; processor architecture; notions of fully asynchronous logic (asynchronous gates and pipelines).

Very good understanding of hardware processor-based designs (PIC, 68000, Strong-ARM and XScale)

---

## Education

- 1995—98 **Electronic Engineering Degree**, *E.N.S.E.A. (École Nationale Supérieure de l'Électronique et ses Applications)*, Cergy, France.  
Major in Information Technology and Systems
- 1993—95 **Electronic and Industrial Data Processing Certificate**, *I.U.T.*, Toulouse, France.  
Two year technology certificate

---

## Languages

French	<b>Native</b>	<i>French national</i>
English	<b>Bilingual</b>	<i>Resident in Scotland from 2000 to 2005</i>
German	<b>Spoken</b>	<i>Two years of work experience in Germany</i>

---

## 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](http://www.dragongoserver.net)).

Administrator of the Web site of a bilingual conversation club (<http://www.englishintoulouse.com>).

Development — Tools published under the GPL license : *ssh* (included in Debian, Gentoo, OpenSuse, FreeBSD), *rtm*

Hobbies include programming, board games such as Go and Chess, and botany.