

# Resume - Christophe Delord

## Personal data

Christophe Delord

### Software Engineer

Age: 49 year old – born in 331 PPM

contact: [cdelord.fr](mailto:cdelord.fr) – [github/CDSoft](https://github.com/CDSoft) – [Linkedln](#)

## Experience

Computer science

### Computer Science Engineer

#### Post Graduate Degree in Artificial Intelligence

#### ENSEEIH

25 year experience (artificial intelligence, natural language processing, genetic algorithms, specification, design, unit testing, integration, validation, embedded computers, avionics, automotive...)

## Technical Skills

Programming

- functional (**Haskell**, CaML, LISP),
- logic (**Prolog**),
- imperative (**C**, Ada, Pascal, **Python**, **Lua**),
- object (Java, **C++**, Eiffel, Pascal, **Python**),
- mathematics (FORTRAN, Xcas),
- low level (Assembleur (80x86, 680x0, SHARC, PowerPC, PIC32), PL/M)
- Web (HTML, Javascript),
- script (bash, Perl, **Python**, **Lua**, TCL)

Methods

Safety-critical standards

Architecture

Operating Systems

Version control

Publishing

formal specification (event-B, Rodin), artificial intelligence, DO-178B (avionics), ISO 26262 (automotive) Intel (80x86), Motorola (680x0), VHDL, SHARC (2106x), PowerPC (MPC5554), Microchip (PIC32) UNIX, GNU/Linux (Debian, Fedora, Shell, Perl, Python, Tcl/Tk, C, ...)  
Git  
LaTeX, reStructuredText, **Markdown**, **Pandoc**

## Patents

Dec. 20, 2019

Method and system for handling blind sectors of scanning layers of redundant sensors in a vehicle. See [patents.google.com](https://patents.google.com) or [patents.justia.com](https://patents.justia.com)

## Professional Experience

Feb. 2017 - ...

### **EasyMile. Toulouse.**

- Real-time embedded software (C, Lua, Ethernet, CAN)
- Sensor (LiDAR) and environment (vehicle and moving obstacles) simulation (Haskell, Lua, Python, Ethernet, CAN, Linux)

Personal project

### **Modeling and simulation**

- Usage of functional programming (**Haskell**) to model and simulate critical real-time systems
  - strong static typing → type system proofs replace some integration activities
  - pure functional programming → no side effect, determinism, testability

Studies

### **Sopra**

- Evaluation of formal methods (**event-B**, **Rodin**)
- Usage of functional languages (Haskell, OCaml, F#) to model real-time embedded systems
- Artificial intelligence applied to automatic unit test generation

Aug. 2015 - Jan. 2017

### **Sopra for Airbus, Simulation. Toulouse.**

- Real-time simulation for flight computers (Simics, Power PC, Linux, AFDX)

Sept. 2014 - Jan. 2017

### **Sopra for Airbus, Flight test. Toulouse.**

- A330 Neo flight tests optimisation. Study on the process and tools for the aircraft instrumentation.
- Wi-Fi network optimisation of the A350 flight test installation.
- Real-time Linux OS
- Study of a real-time physical parameter acquisition modules (Microchip PIC32 microcontroller, clock synchronisation, C).

Sept. 2014

### **Sopra for Thales Avionics. Toulouse.**

Qualified ARINC 665 load generator - Design and code (C) - Evolution

Jul. 2014 - Aug. 2014

### **Sopra Group for Thales Optronique. Élancourt.**

Real-time modular test bench (design, code, tests) - real-time kernel in C++ (Windows and RTX) - modular and configurable by Python scripts

(Windows, RTX, C++, embedded Python interpreter)

June 2014 - June 2014

### **Sopra Group for Liebherr-Aerospace. Toulouse**

Specification, design and code manual verification (KC 390, SW-LR)

June 2014 - June 2014

### **Sopra Group for Liebherr-Aerospace. Toulouse**

Unit testing (C, RTRT, SCADE, automatic test generation in Python, RTRT)

Mar. 2014 - May 2014

### **Sopra Group for Airbus. Toulouse.**

Flight Control SECONDARY Computer test (A350) (CMM level 3, DO-178B level A, Sharc Assembly, integration, validation, JScript, Perl, Python, C).

Feb. 2014 - Feb. 2014

### **Sopra Spain for Fermox. Valencia, Spain.**

Study for a VoIP intercom with Sopra Valencia (VoIP, Microchip IC32 microcontroller, real-time, C).

Oct. 2013 - Mar. 2014

### **Sopra Group for Thales Avionics. Toulouse**

Qualified ARINC 665 load generator - Design and code (C) - Generic data formatting system (symbolic description of data formats and their relationships, automatic formatting and generation).

Sept. 2012 - Nov. 2013

### **Sopra Group for Thales Optronique. Élancourt.**

Real-time modular test bench (design, code, tests) - real-time kernel in C++ (Windows and RTX) - modular and configurable by Python scripts

(Windows, RTX, C++, embedded Python interpreter)

Apr. 2012 - Oct. 2012	<p><b>Sopra Group for Liebherr-Aerospace. Toulouse</b></p> <p>Onboard Maintenance System (OMS) simulator (DO-178B niveau B): - design, code and test of an OMS - graphic user interface to drive the BITE function of a LRU - ARINC 604 protocol over an ARINC 429 link - Python scriptable test environment - ARINC 604 protocol test - BITE LRU simulation (to test and validate the test environment) - Sphinx documentation project, automatic documentation generation (design, traceability matrices, test reports)</p> <p>(Python, C, reStructuredText / Sphinx documentation, SVN, automatic documentation generation)</p>
Jan. 2011 - Sept. 2012	<p><b>Sopra Group for Airbus. Toulouse.</b></p> <p>Flight Control SEcONdary Computer (A350) (CMM level 3, DO-178B level A, Sharc Assembly, unit testing, integration, validation, JScript, Perl, Python, C, DSP simulation for performance and robustness validation).</p> <p>Microprocessor simulation (time and stack usage measure, Python, Optimized graph searched)</p>
Jun. 2008 - Jan. 2011	<p><b>Sopra Group for Thales Avionics. Toulouse/Paris.</b></p> <p>A320 flight control secondary computer redesign (DO-178B level A and D, MPC5554, Assembly, C and ADA, Specifications, Design, Code).</p>
Mar. 2007 - Oct. 2008	<p><b>Sopra Group for Airbus. Toulouse.</b></p> <p>Specification of an embedded Onboard/Ground communication system for Airbus (Wifi, GSM, VPN, ...).</p>
Jan. 2007 - Feb. 2007	<p><b>Sopra Group for Airbus. Toulouse.</b></p> <p>Unit testing for an Airbus embedded calculator (A400M), training of a testing team in India.</p>
Jan. 2007 - Jul. 2007	<p><b>Sopra Group. Toulouse.</b></p> <p>TOPCASED: Toolkit in Open-source for Critical Application and SystEms Development, Safety study. Contribution to the AESE conference for the centenary of ENSEEIHT.</p>
Nov. 2006 - Dec. 2006	<p><b>Sopra Group for Airbus. Toulouse.</b></p> <p>Flight Warning Computer (A400M), coding rules and unit testing (DO-178B, Level B).</p>
Mar. 2002 - Oct. 2006	<p><b>Sopra Group for Airbus. Toulouse.</b></p> <p>Flight Control SEcONdary Computer (A380) (CMM level 3, DO-178B level A, Sharc Assembly, unit testing, integration, validation, TCL, Perl, Python, C, DSP simulation for performance and robustness validation).</p> <p>Microprocessor simulation (time and stack usage measure, Python, Optimized graph searched)</p>
Oct. 2001 - Mar. 2002	<p><b>Sopra Group for Airbus. Toulouse.</b></p> <p>Flight Control Primary Computer (A330/340) Validation (DO-178B, Level A, Intel Assembly).</p>
May 2001 - Oct. 2001	<p><b>Sopra Group for Airbus. Toulouse.</b></p> <p>Update of the Flight Warning System (A340) for a certification, update of the software life cycle (DO-178, Intel Assembly, PL/M, ADA).</p>
Jul. 1999 - May 2001	<p><b>Sopra Group for Pierre Fabre Laboratories. Castres.</b></p> <p>Communication between data bases and distant PC (Unix, Shell, Perl, C).</p>
Oct. 1998 - Jul. 1999	<p><b>Sopra Group for CNRS. Labège.</b></p> <p>Correction and evolution of the "Accounting and Financial Management" application of the CNRS.</p>
1997 - 1998	<p><b>ENSEEIH-IRIT. Toulouse.</b></p> <p>DEA training period and ENSEEIHT 3rd year: Modeling of the cognitive process of dialogue (Prolog, Speech Acts, ...).</p>

## Personal Projects

<a href="#">BonaLuna, LuaX</a>	<p><b>Lua extension</b></p> <p>A small, standalone and extendable Lua interpreter providing portable scripting features for Windows, MacOS and GNU/Linux.</p>
<a href="#">bang</a>	<p><b>Ninja file generator scriptable in LuaX</b></p> <p>Combine the speed of Ninja and the expressiveness of LuaX to write efficient build systems.</p>
<a href="#">PP, ABP, Panda, UPP, ypp</a>	<p><b>Text preprocessor</b> designed for <a href="#">Pandoc</a>, Markdown and reStructuredText written in <a href="#">Haskell</a> and <a href="#">Lua</a></p> <ul style="list-style-type: none"> <li>• text macros</li> <li>• user defined macros</li> <li>• diagrams</li> <li>• scripts</li> <li>• <a href="#">literate programming</a></li> </ul>
<a href="#">Functional specifications</a>	<p><b>Formal methods</b></p> <p>Functional languages (Haskell) used to formally describe and verify a system</p>
<a href="#">PopF</a>	<p><b>Unsolicited Emails Filtering</b></p> <p>Statistical filter, POP3 Proxy</p>
<a href="#">PyLog</a>	<p><b>First order logic and PROLOG in Python</b></p> <p>First order terms and variables, PROLOG inference engine, PROLOG to Python translator</p>
<a href="#">TPG</a>	<p><b>Toy Parser Generator</b></p> <p>A lexical and syntactic parser generator for Python (Recursive descendant parser, Attributed grammars, Abstract syntax tree building).</p>
<a href="#">SP</a>	<p><b>Simple Parser</b></p> <p>Another lexical and syntactic parser generator for Python (Recursive descendant parser, Backtracking, Functional Programming, Abstract syntax tree building).</p>

## Student Projects

1997 - 1998	<p><b>ENSEEIH- 3rd year Student</b></p> <p>ENSEEIH/DEA training period (human dialogue simulation).</p>
1996 - 1997	<p><b>ENSEEIH- 2nd year Student</b></p> <p>Compilation of a subset of C-language, execution in a virtual machine (Eiffel, C)</p> <p>Object oriented design and programmation (Eiffel)</p> <p>Expert Systems, Predicate Logic (Prolog)</p>

	Operating systems, client/server (HTTP server) (Unix, C)
	Hardware (calculator, pipeline, ...) (VHDL)
1995 - 1996	<b>ENSEEIH - 1st year Student</b>
	Hardware, microprocessor (and biprocessor) design and simulation in C++ (as a personal project)
	Cryptography (C)
	Expert Systems (Lisp)
Taxia	<b>Embedded computers in a taxi</b>
	Event programming, Gui, C++, assembly.
Hardware, simulation	<b>Biprocessor simulation (see 1st year)</b>
	(C++, HP48), Schip-48 virtual machine and disassembler (C)

### Other Experiences

Summer 1993	Development of a data-base software for pupil registration management
1993 - 1998	Private lessons (Mathematics, Physics, Computer Science)

### Education

1997 - 1998	<b>Post Graduate Degree in Artificial Intelligence</b>
	ENSEEIH-IRIT, Toulouse
1995 - 1998	<b>Computer Science Engineer (10th)</b>
	ENSEEIH, Toulouse
1998	<b>Test Of English for International Communication (820/990)</b>
	Toulouse
1994 - 1995	<b>Two year degree in Mathematics and Physics</b>
	Paul Sabatier University, Toulouse
1994	<b>Cambridge Examinations (First Certificate in English)</b>
	Lycée Pierre de Fermat, Toulouse
1993 - 1994	<b>Preparatory classes</b>
	Lycée Pierre de Fermat, Toulouse

### Publications

Sep. 1998	<b>Christophe Delord. Actes de langage et jeux de dialogue.</b>
	Human dialogue simulation. ENSEEIH-IRIT, Toulouse, France
Sep. 1998	<b>Christophe Delord. Actes de langage et jeux de dialogue.</b>
	Introduction of a human dialogue simulation model. In Colloque Intelligence Artificielle et Complexité (I.A.C'98), Saint Denis University - Paris VIII

### Languages

French	Native Speaker
English	Intermediate
German	Working Knowledge