

# Resume - Christophe Delord

## Personal data

Christophe Delord

**Software Engineer**

Age: 42 year old

contact: <http://CDSoft.fr>

## Experience

Computer science

**Computer Science Engineer**

**Post Graduate Degree in Artificial Intelligence**

**ENSEEIHT**

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

[Haskeller](#)

## 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

Architecture

Operating Systems

Publishing

formal specification (event-B, Rodin), artificial intelligence

Intel (80x86), Motorola (680x0), VHDL, SHARC (2106x), PowerPC (MPC5554), Microchip (PIC32)

UNIX, GNU/Linux (Debian, Fedora, Shell, Perl, Python, Tcl/Tk, C, ...)

LaTeX, reStructuredText, Markdown, Pandoc

## Professional Experience

Feb. 2017 - ...

**[EasyMile](#). Toulouse.**

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

Personal project

**[CDSoft.fr](#), 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	<p><b>Sopra Group for Liebherr-Aerospace. Toulouse</b></p> <p>Unit testing (C, RTRT, SCADE, automatic test generation in Python, RTRT)</p>
Mar. 2014 - May 2014	<p><b>Sopra Group for Airbus. Toulouse.</b></p> <p>Flight Control SECondary Computer test (A350) (CMM level 3, DO-178B level A, Sharc Assembly, integration, validation, JScript, Perl, Python, C).</p>
Feb. 2014 - Feb. 2014	<p><b>Sopra Spain for Fermax. Valencia, Spain.</b></p> <p>Study for a VoIP intercom with Sopra Valencia (VoIP, Microchip IC32 microcontroler, real-time, C).</p>
Oct. 2013 - Mar. 2014	<p><b>Sopra Group for Thales Avionics. Toulouse</b></p> <p>Qualified ARINC 665 load generator</p> <ul style="list-style-type: none"> <li>• Design and code (C)</li> <li>• Generic data formating system (symbolic description of data formats and their relationships, automatic formating and generation).</li> </ul>
Sept. 2012 - Nov. 2013	<p><b>Sopra Group for Thales Optronique. Élancourt.</b></p> <p>Real-time modular test bench (design, code, tests)</p> <ul style="list-style-type: none"> <li>• real-time kernel in C++ (Windows and RTX)</li> <li>• modular and configurable by Python scripts</li> </ul> <p>(Windows, RTX, C++, embedded Python interpreter)</p>
Apr. 2012 - Oct. 2012	<p><b>Sopra Group for Liebherr-Aerospace. Toulouse</b></p> <p>Onboard Maintenance System (OMS) simulator (DO-178B niveau B):</p> <ul style="list-style-type: none"> <li>• design, code and test of an OMS</li> <li>• graphic user interface to drive the BITE function of a LRU</li> <li>• ARINC 604 protocol over an ARINC 429 link</li> <li>• Python scriptable test environment</li> <li>• ARINC 604 protocol test</li> <li>• BITE LRU simulation (to test and validate the test environment)</li> <li>• Sphinx documentation project, automatic documentation generation (design, traceability matrices, test reports)</li> </ul> <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>

1997 - 1998 Correction and evolution of the "Accounting and Financial Management" application of the CNRS.  
**ENSEEIH-IRIT. Toulouse.**  
DEA training period and ENSEEIHT 3rd year: Modeling of the cognitive process of dialogue (Prolog, Speech Acts, ...).

### Personal/Student Projects

1997 - 1998 **ENSEEIHT - 3rd year Student**  
ENSEEIHT/DEA training period (human dialogue simulation).

1996 - 1997 **ENSEEIHT - 2nd year Student**  
Compilation of a subset of C-language, execution in a virtual machine (Eiffel, C)  
Object oriented design and programmation (Eiffel)  
Expert Systems, Predicate Logic (Prolog)  
Operating systems, client/server (HTTP server) (Unix, C)  
Hardware (calculator, pipeline, ...) (VHDL)

1995 - 1996 **ENSEEIHT - 1st year Student**  
Hardware, microprocessor (and biprocessor) design and simulation in C++ (as a personal project)  
Cryptography (C)  
Expert Systems (Lisp)

**PP** **Text preprocessor** designed for [Pandoc](#), Markdown and reStructuredText written in [Haskell](#)

- text macros
- user defined macros
- diagrams
- scripts
- [literate programming](#)

**Functional specifications** **Formal methods**  
Functional languages (Haskell) used to formally describe and verify a system

**PopF** **Unsolicited Emails Filtering**  
Statistical filter, POP3 Proxy

**PyLog** **First order logic and PROLOG in Python**  
First order terms and variables, PROLOG inference engine, PROLOG to Python translator

**TPG** **Toy Parser Generator**  
a lexical and syntactic parser generator for Python (Recursive descendant parser, Attributed grammars, Abstract syntax tree building).

**SP** **Simple Parser**  
another lexical and syntactic parser generator for Python (Recursive descendant parser, Backtracking, Functional Programming, Abstract syntax tree building).

**BonaLuna** **Lua extention**  
a small, standalone and extensible Lua interpreter providing portable scripting features for Windows and GNU/Linux.

Taxia **Embedded computers in a taxi**  
Event programming, Gui, C++, assembly.

Hardware, simulation **Biprocessor simulation (see 1st year)**  
(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 **Post Graduate Degree in Artificial Intelligence**  
ENSEEIHT-IRIT, Toulouse

1995 - 1998 **Computer Science Engineer (10th)**  
ENSEEIHT, Toulouse

1998 **Test Of English for International Communication (820/990)**  
Toulouse

1994 - 1995 | **Two year degree in Mathematics and Physics**  
Paul Sabatier University, Toulouse

1994 | **Cambridge Examinations (First Certificate in English)**  
Lycée Pierre de Fermat, Toulouse

1993 - 1994 | **Preparatory classes**  
Lycée Pierre de Fermat, Toulouse

### Publications

Sep. 1998 | **Christophe Delord. Actes de langage et jeux de dialogue.**  
Human dialogue simulation. ENSEEIHT-IRIT, Toulouse, France

Sep. 1998 | **Christophe Delord. Actes de langage et jeux de dialogue.**  
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