Resume - Christophe Delord

Personal data

Christophe Delord

Software Engineer

Age: 50 year old – born in 331 PPM

contact: cdsoft.codeberg.page – codeberg/cdsoft – github/CDSoft – LinkedIn

Experience

Computer science

Computer Science Engineer

Post Graduate Degree in Artificial Intelligence

ENSEEIHT

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

Safety-critical standards: DO-178B (avionics), ISO 26262 (automotive)

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

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

Version control: Git

Publishing: 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 or 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 microcontroler, 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 Fermax. Valencia, Spain.

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

Oct. 2013 - Mar. 2014

Sopra Group for Thales Avionics. Toulouse

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

Sopra Group for Liebherr-Aerospace. Toulouse

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)

(Python, C, reStructuredText / Sphinx documentation, SVN, automatic documentation generation)

Jan. 2011 - Sept. 2012

Sopra Group for Airbus. Toulouse.

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).

Microprocessor simulation (time and stack usage measure, Python, Optimized graph searched)

Jun. 2008 - Jan. 2011

Sopra Group for Thales Avionics. Toulouse/Paris.

A320 flight control secondary computer redesign (DO-178B level A and D, MPC5554, Assembly, C and ADA, Specifications, Design, Code).

Mar. 2007 - Oct. 2008

Sopra Group for Airbus. Toulouse.

Jan. 2007 - Feb. 2007	Specification of an embedded Onboard/Ground communication system for Airbus (Wifi, GSM, VPN, ...). **Sopra Group for Airbus. Toulouse.** Unit testing for an Airbus embedded calculator (A400M), training of a testing team in India.
Jan. 2007 - Jul. 2007	**Sopra Group. Toulouse.** TOPCASED: Toolkit in OPen-source for Critical Application and SystEms Development, Safety study. Contribution to the AESE conference for the centenary of ENSEEIHT.
Nov. 2006 - Dec. 2006	**Sopra Group for Airbus. Toulouse.** Flight Warning Computer (A400M), coding rules and unit testing (DO-178B, Level B).
Mar. 2002 - Oct. 2006	**Sopra Group for Airbus. Toulouse.** 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). Microprocessor simulation (time and stack usage measure, Python, Optimized graph searched)
Oct. 2001 - Mar. 2002	**Sopra Group for Airbus. Toulouse.** Flight Control Primary Computer (A330/340) Validation (DO-178B, Level A, Intel Assembly).
May 2001 - Oct. 2001	**Sopra Group for Airbus. Toulouse.** Update of the Flight Warning System (A340) for a certification, update of the software life cycle (DO-178, Intel Assembly, PL/M, ADA).
Jul. 1999 - May 2001	**Sopra Group for Pierre Fabre Laboratories. Castres.** Communication between data bases and distant PC (Unix, Shell, Perl, C).
Oct. 1998 - Jul. 1999	**Sopra Group for CNRS. Labège.** Correction and evolution of the “Accounting and Financial Management” application of the CNRS.
1997 - 1998	**ENSEEIHT-IRIT. Toulouse.** DEA training period and ENSEEIHT 3rd year: Modeling of the cognitive process of dialogue (Prolog, Speech Acts, ...).

Personal Projects

BonaLuna, LuaX	**Lua extension** A small, standalone and extendable Lua interpretor providing portable scripting features for Windows, MacOS and GNU/Linux.
bang	**Ninja file generator scriptable in LuaX** Combine the speed of Ninja and the expressiveness of LuaX to write efficient build systems.
PP, ABP, Panda, UPP, ypp	**Text preprocessor** designed for Pandoc, Markdown and reStructuredText written in Haskell and Lua • text macros • user defined macros • diagrams • scripts • literate programming
*Fun*ctional 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).

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)

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)

1993 - 1994

Lycée Pierre de Fermat, Toulouse

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