

Christian Rinderknecht

Compiler Engineer and Expert in Formal Methods

Dr Christian Rinderknecht <http://crinderknecht.free.fr>
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FRANCE French citizen

Key skills and Knowledge

- Compiler Construction and Related Toolchains
- Research and Development of Software
- Multidisciplinary engineering (SE, telecomm, electronics)
- Protocol Engineering and Model-based Test Generation
- International work experience (France, Korea, Hungary)
- Professional Tutor and Academic Educator
- Technical Documentation and Scholarly Publications
- Monograph on functional programming
- Technical support (prospects, clients).
- Bilingual French/Spanish and Fluent English (C1 level 93%)

Employment History

2015- Numalis (Montpellier, France)

Compiler Engineer

Development of tools in C++ and OCaml for assessing the loss of accuracy in floating-point calculations, by means of source-to-source transformations (standalone and based on Clang/LLVM) of C++ code.

2014-2015 Cortus (Montpellier, France)

Compiler Engineer

Maintenance and development of a .NET compiler (in C# and OCaml) for Cortus microprocessors.

2001-2014 *Researcher and University Professor* (France, Korea, Hungary)

R&D on compiler construction, protocol verification, domain-specific language design (Internet of Things), augmented reality, web-based framework for e-learning. Teaching of undergraduates and postgraduate students.

2000 PolySpace Tech. (now MathWorks, Montbonnot, France)

R&D Engineer

Development of a static analyser for JavaCard, automatic testing, reverse-engineering and maintenance, case studies and sales support.

1998-00 National Institute of Telecommunications (now Télécom SudParis)

R&D Engineer (Software for Networking Lab.)

R&D projects, specification-based test generation for telecommunication services, development of tools for protocol testing.

1997-98 Alcatel-Alsthom CRC (now Alcatel-Lucent R&I, France)

Case Engineer (Object Architecture Unit)

Design of a software quality analysis for a C++ project (networking).

Education

1993-98 INRIA & Pierre and Marie Curie University (France)

Ph.D. in Informatics

Design and implementation of an analyser for ASN.1. Soundness proof of the BER (encoding rules). Working group at ISO on ASN.1 (London, 1997).

Tools and formal languages

- *Programming languages*: Java, OCaml, Erlang, C, C[#], C++, F[#], XSLT, Eiffel, Ada, Perl, Standard ML, Prolog, Pascal.
- *Markup technologies*: L^AT_EX, XML, DTD.
- *Protocol engineering*: ObjectGeode, Tau (Telelogic), LOTOS, ASN.1, TTCN-3, MSC, SDL, specification-based test generation, automata theory.
- *Software engineering*: Test generation, compiler construction, static analysis, formal methods (specification, correctness).
- *System administration*: Linux, OS X.
- *Databases*: SQLite.
- *Development tools*: Monodevelop (a.k.a. Ximian Studio), Emacs, makefiles, shell scripting, versioning (CVS, Subversion, Git), scanning and parsing (sed, ocamllex, menhir) etc.
- *Free Software*: Shell scripts for Linux system administration, a pretty-printer for T_EX messages, a build system for OCaml, an OCaml library for dictionaries based on ternary search trees, a preprocessor for C[#].

Publications and Honours

- 15 papers in journals and conferences, 3 technical reports.
- *Design and Analysis of Purely Functional Programs* (volume 15, *Texts in Computing*, College Publications, UK, Nov 2012, 650 pages).
- Translator in French of the love poems *Veintes poemas de amor y una canción desesperada* of Pablo Neruda (Gallimard Poésie, Paris, 1998).
- I received a cheque from Knuth for finding an error in Volume 4 of *The Art of Computer Programming*.
- One of my mathematical articles is the source for the integer sequence <http://oeis.org/A261003>.