

Chris Reuter

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Specialties

- Static software analysis expert
- Code analysis and transformation
- Highly experienced generalist developer

Selected Work Experience

Perforce Software, Inc. (previously Rogue Wave Software)

May 2017 - present

Senior Software Developer, Klocwork

- Contributed to Klocwork's new Rust support
 - Wrote code to extract advanced Rust type information from LLVM bitcode debugging information
 - Refactored initial proof-of-concept code to significantly improve maintainability
- Contributed to Klocwork's Clang-based modern C/C++ compiler
 - Designed the basic framework for libClang AST-based defect checkers
 - Implemented support for C++ structured assignment
 - Standardized and normalized internal distinction between “constant” and “compile-time evaluable”
 - Debugged and improved robustness of intermediate temporary variable management system
 - Upgraded libClang versions, including tracking API changes and identifying new incompatibilities
 - Fixed many non-trivial bugs
- Various code quality improvements
 - Added smart pointers around legacy data structures to provide a more modern C++ interface
 - Added debugger-callable functions for displaying complex internal datatypes in a developer-friendly manner
 - Replaced macros with inline functions containing optional runtime checks
 - Improved internal documentation
 - Devised scheme for reliably matching third-party dependencies with the current Klocwork version
- Contributed to removing Klocwork's C/C++ components' implicit 32-bit word size dependencies
- Prototyped mechanism for providing meaningful backtraces to KAST (Klocwork's AST pattern language)
- Suggested and contributed to implementation of analysis-friendly alternate C++ standard header
- Triageed bug reports and addressed difficult customer service requests
- Liaised with testing and automation teams and occasionally contributed to their processes and tooling

Royal Bank of Canada

March 2014 - January 2017, Toronto, ON

Senior Software Developer (“Technical Systems Analyst”)

- Designed and implemented high-reliability ETL software in Java and Python and Oracle SQL
- Contributed to design and development of an ETL framework in Java
- Maintained and enhanced SOAP web services in Java and Python
- Designed and implemented automated build, deployment and testing systems
- Refactored legacy code to improve maintainability
- Mentored team members in Unix, Python, Java, git and software design

Imazen, LLC

August 2013 - March 2014, Charlestown, IN (remote)

Senior Software Developer (contract)

- Evaluated and benchmarked imaging libraries in C, Perl, Python and Ruby
- Deployed and published benchmark code
- Contributed optimizations and bug fixes to LibGD project (in C on Linux)

New Frontier Advisors, LLC

February 2011 - July 2011, Boston, MA

Senior Software Developer (contract)

- Wrote a utility in C# on Windows to aid customer troubleshooting
- Refactored, enhanced and debugged distributed computation service
- Reviewed and critiqued co-worker's designs and code

Veracode, Inc.

October 2008 - January 2011, Burlington, MA

Senior Software Developer improving and maintaining Veracode's decompilation engine

- Designed and implemented decompiler front-end for ARM executables
- Contributed to extending decompiler support for 64-bit architectures including x86-64 and SPARC
- Contributed to extending Intel x86 decompiler to also support x86-64 binaries
- Investigated potential problems in decompiling Objective-C
- Implemented various other improvements and bug fixes on C++/Windows codebase

Computershare, Inc.

July 2007 - September 2008, Canton, MA

Senior Software Developer improving and maintaining a document generation system

- Designed and proposed a number of improvements to the existing system
- Modified document system (Perl on Windows) to allow delivery by email instead of regular mail
- Extended system to sort mailings so as to reduce postage costs
- Proposed, then deployed a Wiki as an ad-hoc knowledge base

Archelon, Inc.

May 1997 - June 2007, Waterloo, ON

Junior, Intermediate Software Developer

- Maintained and enhanced standard library for MSP430 microcontroller in C and assembler
- Designed and developed simulator and debugger for DSP in C and Tcl/Tk on Windows and Linux
- Designed and developed user-retargetable instruction set simulator
- Advised DSP designer on avoiding compiler difficulties
- Led a 3-person team in updating DSP tools
- Tested C compiler and isolated compiler bugs
- Developed test framework automation in shell for a microcontroller
- Trained co-workers in the use of a version control system
- Designed and developed multi-platform GUI-based build tool

Additional Special Skills

C/C++, LLVM and libClang, Java, C#, Python, Ruby, Linux/Unix, git,
Programming language design and implementation

Education

Bachelor of Mathematics from the University of Waterloo