

James Craig Burley

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Objective

Lead Architect or Principal Developer role involving design, implementation, and deployment of software and networking systems, including operating systems, developer/tester toolchains, and communications protocols.

Profile

- Primary architect/designer and project leader for various projects improving server availability, performance, and capacity at Bloomberg LP, via improved TCP and IPC utilization; Coverity, Purify, valgrind, and a custom fuzzer to validate code; and Splunk, profiling tools, and heatmaps to analyze effects and performance.
- Shepherded substantial portions of large-scale refactoring of Bloomberg LP systems-level run-time libraries (mostly written in C and C++) to improve packaging.
- As a consultant, drove lag time to port a code-generation module, in a Verilog compiler written in C, down from estimated 6 months to nearly nothing via partial automation coded in Lisp.
- Pioneered novel approach to writing test-automation infrastructure using reflection and other techniques while at Microsoft. Also served as Scrum Master.
- As a volunteer for the Free Software Foundation, wrote and maintained a widely-used GCC compiler front end and run-time library.

Recent Systems and Programming Languages

- Unix, OS X, Windows
- Clojure, Go, C, C++, C#
- Networking protocols (such as SMTP)
- Shell programming and scripting (GNU Bash, PowerShell, Perl, GNU Emacs Lisp)
- Software-development/deployment technologies (Git, dpkg, Visual Studio)
- Network and system administration and maintenance (Splunk, Linux, Windows)

Recent Professional Experience

Bloomberg LP, [New York, NY](#)

Senior Software Architect, Systems Infrastructure, January 2012 — March 2017

Architected, designed, debugged, and implemented core infrastructure protocols, communications software, libraries, and test-architecture infrastructure. Goals included: supporting more clients and client capabilities; reliable infrastructure; and improved developer workflows. Stack included proprietary multi-threaded applications (written in C, C++, and legacy Fortran) with heavy use of shared memory and related synchronization primitives, leveraging Git, Subversion, dpkg, Splunk, Coverity, Purify, valgrind, etc.

Microsoft Corporation, [Cambridge, MA](#)

Senior Software Developer in Test, [Application Virtualization](#), March 2008 — October 2010

Architected, designed, and implemented Test Automation Infrastructure for Application Virtualization (App-V), focusing primarily on core virtualization components (such as Registry virtualization), by leveraging C# features, such as reflection, and WCF to easily create numerous effective, reliable, and easily-maintained automated tests to exercise the product during early development. Served as Scrum Master. Assessed and made recommendations concerning source-control and test-infrastructure systems under consideration for adoption.

Designed and implemented product-installation testability hooks (in C++) to enable fully-automated failure injection. Found numerous product bugs, including in late-cycle changes that would otherwise have delayed RTM dates, via code review.

James Craig Burley, Software Craftsperson **Compiler/toolchain R&D, IT Support, and Training**

Sole Proprietor, August 1989 — March 2008; October 2010 — December 2011

Clients included [DRH Internet, Inc.](#), Dallas, TX (client support and software development); [Reflexion](#), Woburn, MA (SMTP server enhancements); [Cadence Design Systems](#), Chelmsford, MA (porting code-generation modules of NC-Verilog from native HP-PA RISC to SPARCv8); Archetype, Waltham, MA (page-layout software development and API documentation); [PictureTel](#), Peabody, MA (wrote high-level assembler for custom video processor); [Lehigh University](#) (added Interval Arithmetic support to g77, funded by [Sun Microsystems](#)).

Other

- Various and sundry projects and contributions on [GitHub](#)
- [Software Architecture Fundamentals](#) training (May 2018)
- Approximately 10 years' experience with optimizing-compiler design and internals, run-time libraries, debuggers
- Over 5 years' experience with operating-system internals (kernel and filesystem)
- Over 5 years' experience as a technical writer, mostly in Lead and Manager roles
- Created companion videonotes on concurrency for "[Operating Systems: Internals and Design Principles, 8th Edition](#)" by William Stallings
- Nominated for the [Free Software Award](#) (1998 and 1999)