




# Charles Kerr

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**Summary** I'm a software engineer with 20 years of experience delivering solid, well-written projects in many languages and frameworks. I design and develop testable code, work with stakeholders, and lead projects.

## Technical Skills

**Languages** C++, C, Java, JavaScript, Python, BASH. Older: C#, PHP, Perl  
**Technologies** Qt, GTK+, HTML/CSS, Linux, TCP/IP, DBus, REST, jQuery. Older: Oracle, SQL, OpenGL, Win32  
**Tools** Git & GitHub, CMake, Autotools, Valgrind, perf, adb, Subversion, SASS  
**Techniques** Agile, Test-Driven Development, Continuous Integration, Scrum, Remote Work

## Experience

### Canonical Ltd. Senior Software Engineer 2011 – 2017

**Architect** I designed and co-wrote Keeper, Unity 8's cloud backup & restore tool. I evaluated approaches for our security model and customer requirements, presented my design, and co-wrote Keeper with other developers. I followed the same steps on a smaller project, Ubuntu Pay Service's QtPurchasing implementation.

**Project leadership** I ran Ubuntu Linux's [User Services / Indicators](#) project – the services doing work behind those little panel icons. I worked with other teams, UX designers, QA, users, and other developers to ensure features landed smoothly and bugs got fixed. I updated the desktop services to also run on phones for [Ubuntu Touch](#), added calendaring and phone alarms, and management of data transfers, USB connections, and bluetooth connections.

**Quality** I expanded test coverage in all projects I was on. I introduced tests into several inherited projects that were difficult to test, wrote harnesses for integration testing, and wrote reusable test mocks.

### Transmission Project Lead 2008 – 2012

**Team Leadership** I led development of [Transmission](#), a popular open source networking app. I planned features, triaged bugs, reviewed and committed patches, and coordinated volunteer developers, sysadmins, testers, and forum assistants.

**Improved market share** I worked with prominent Linux distributions (e.g. [OpenSUSE](#) and [Ubuntu](#)) to ship with Transmission preinstalled, and with [Fon](#) to preinstall it on their Fonera routers. I wrote and documented a JSON-RPC [extension API](#) that led to dozens of third-party apps on virtually every platform, expanding Transmission's reach beyond our team's own resources.

**Efficient** I wrote Transmission's backend, which uses about [half the memory and a third less CPU](#) as similar apps, winning users on resource-limited systems (e.g. [routers](#), [Raspberry Pis](#), and metered cloud.)

**GUI developer** I was the primary author of the Web UI and the Qt client. These began as my personal side projects to learn JavaScript, CSS, and Qt, then gained user interest and became shipping code.

**Community** I wrote upstream patches accepted by projects such as [libcurl](#), [libevent](#),

and [GMime](#).

<b>University of Oklahoma, Natl. Severe Storms Lab</b>	<b>Senior Software Developer</b>	<b>2005 – 2011</b>
	<b>Software Developer</b>	<b>1999 – 2005</b>

<b>Weather visualization</b>	I co-wrote the <a href="#">WDSS-II</a> display, a large-scale data visualization tool for severe weather research. I contributed to the OpenGL rendering, wrote much of the UI, and ported it from Linux to Windows. I co-wrote <a href="#">OPUP</a> , a 2D visualization system for the Air Force to combine data from a region's radars for visualization and algorithm processing.
<b>Collaboration</b>	I worked closely with research meteorologists to determine code and system requirements for their weather algorithms. I wrote and maintained code for weather algorithms and their display in WDSS-II.
<b>Process coordination</b>	Processing multi-radar data is extremely I/O-bound. I identified and fixed bottlenecks at the code level and helped coordinate weather algorithm processes at the system level.
<b>Customer satisfaction</b>	I worked closely with our customers when delivering OPUP: I wrote documentation, participated in acceptance tests, and worked onsite with their IT staff to ensure they understood the system's codebase and operations.

<b>Pan Newsreader</b>	<b>Volunteer Project Lead</b>	<b>1999 – 2006</b>
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<b>Volunteer</b>	I was the primary developer of <a href="#">Pan</a> , the only Linux GUI Usenet client to earn a Good Net-Keeping Seal of Approval. It was popular enough that it's still maintained by other developers today. I led a redesign and C++ rewrite. My changes improved threading, added multiserver support, cut memory use by two-thirds, and cut the codebase size by half.
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<b>FAA / Kenrob</b>	<b>Software Support &amp; Developer</b>	<b>1994 – 1999</b>
	<b>Student Intern</b>	<b>1993 – 1994</b>

<b>Developer</b>	I helped write and maintain <a href="#">SATORI</a> , which replays prerecorded air traffic flow; <a href="#">SIGNAL</a> , a simulator for teaching Air Traffic Controllers; and an OpenGL modeling tool to create virtual airports and runways for immersive ATC training simulation.
<b>Teacher</b>	I wrote lesson plans and taught programming classes to university interns.

<b>Education</b>	Bachelor of Science in Computer Science University of Oklahoma, 1994
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<b>Publications</b>	Stumph GJ, Filiaggi MT, Magsig MA, Hondl KD, Stephan BS, Toomey R, Kerr C. Status on the Integration of the NSSL Four-Dimensional Stormcell Investigator (FSI) into AWIPS. 2006
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Vaughan T, Toomey R, Lakshmanan V, Hondl KD, Brogden J, Kerr C, Song L, Smith T, Stumph G, Scharfenberg K. The Warning Decision Support System – Integrated Information (WDSS-II) Display. OU Disclosure No. 04NOr047C

Rodgers MD, Manning CA, Kerr, CS. Demonstration of Power: Performance and Objective Workload Evaluation Research. Proceedings of the Human Factors and Ergonomics Society Annual Meeting, Vol 32 Issue 15, pp 941.. Oct 1 1994.

