JASON ERB | Senior Software Developer & Architect

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SUMMARY

25+ years of professional experience delivering desktop/mobile/embedded/web software in a wide range of platforms/languages/technologies/domains, including robotics, geospatial analysis, brain-computer interfaces, and distributed computing. Creator of the Om programming language.

SKILLS

Modern C++ (22+ years, along with STL, Boost, Qt/QtQuick/QML, and others), C, CMake/CPack/CTest, JavaScript, internationalization, creative problem solving and complexity reduction, elegant architecture/code/UI design, and fast proficiency in whatever is required to ship a high-quality product.

EXPERIENCE

Distributive | Kingston, Ontario, Canada

Senior Software Developer (Contract) | August 2019 - September 2024

- **Used:** C++, CMake, CPack, CTest, Boost, Google V8, Google Dawn, Google Omaha, JavaScript, Node API, WiX Toolset, Win32 API, Bash, Batch Script, Sockets, Linux, Windows, MacOS, Docker, Git, GitLab CI
- **Contributed to:** Google Dawn, Google Omaha, Google V8, Uncrustify
- Architected, developed, and owned DCP Native, the native layer of the Distributive Compute Protocol, enabling users to install/configure/run workers for a distributed computer on x64/arm64 variants of Ubuntu, MacOS, Windows, and Docker (via multi-architecture image).
- Created a cross-platform, multithreaded, multiprocess, socket-based native V8-embedded JavaScript evaluation server with WebGPU capabilities.
- Devised a screensaver to perform distributed work, along with a graphical configuration application.
- Managed releases: established a CI process that built graphical installers/containers and deployed to alpha/beta/release channels for manual/automatic download on all platforms.
- Mentored junior developers, pair-programmed, and reviewed code.

Suitable Technologies | Palo Alto, California, United States (Remote)

Senior Software Developer (Contract) | May 2013 - January 2020

- **Used:** C++, CMake, Qt, QtQuick, QML, Python, Linux, Windows, MacOS, Android, iOS, Objective-C++, Git
- **Contributed to:** Qt
- As the first developer hired after spin-off from Willow Garage, joined the team responsible for both the embedded and client ("pilot") software for the acclaimed Beam remote presence robot.
- Played a key role in porting pilot software to iOS and Android, including successfully realizing a mobile driving model and UI that achieved both safety and usability.
- Took the lead in the addition of a high-definition point/tilt/zoom camera and laser pointer: delegated tasks, collaborated on the design, and wrote code.
- Internationalized code (including RTL support), instituted i18n best practices, and oversaw translations.
- Authored a network diagnostics tool and accompanying UI.
- Assumed ownership of pseudo-TCP implementation and relay-related code.
- Fixed bugs, wrote unit tests, reviewed code, and conducted technical job interviews.

PrintFleet Inc. | Kingston, Ontario, Canada

Senior Software Developer | July 2012 - May 2013

- **Used:** ASP, ASP.NET, C#, SQL, JavaScript, HTML, CSS, Windows
- Worked on an asset management web software team.
- Internationalized code, automated text extraction/substitution, and oversaw translations.
- Redesigned and rewrote a distributed scheduling architecture for device notifications.
- Authored much of the public REST API.

Endetec (Veolia Water Solutions & Technologies) | Kingston, Ontario, Canada

Software Developer | March 2011 - July 2012

- **Used:** C++, CMake, Boost, Python, XML, XSLT, HTML, CSS, wxWidgets, Linux
- **Contributed to:** Boost, CMake, wxWidgets
- Constituted half of the embedded software team for a touch-screen water-testing device, taking it through its first several production releases.
- Internationalized code, automated text extraction/substitution, and added Korean support to the touch-screen keyboard (requiring a crash course on the Hangul alphabet and combining character logic).
- Provided HTML reporting via XSLT transforms on XML data.
- Fixed all resource leaks.

PYXIS Innovation | Kingston, Ontario, Canada

Software Developer | September 2006 - October 2008, September 2009 - January 2011

- **Used:** C++, Boost, C#, SWIG, Windows
- Helped develop a geospatial grid technology, browser, and SDK.
- Co-wrote the core of a peer-to-peer geospatial data sharing service.
- Fixed memory usage bugs when marshalling between managed and unmanaged code.
- Reduced large dataset import time from minutes to seconds, and added point feature dataset support.

Dunne and Associates | Kingston, Ontario, Canada

Senior Software Developer | November 2008 - September 2009

- **Used:** C++, Boost, TTL SDKs, MFC, C#, XNA, WCF, Lidgren, ActionScript, Windows, Xbox
- Created the BrainModder neurofeedback training software system.
- Developed networked games for BrainModder, controlled by the brain via real-time EEG and EMG data.

Hummingbird | Kingston, Ontario, Canada

Software Developer | April 2002 - September 2006

- **Used:** C++, MFC, OLAP, Windows
- Maintained much of the code for a BI reporting product.
- Completed a multi-dimensional OLAP reporting and interaction feature.

Hilton Consulting Group | Kingston, Ontario, Canada

Software Developer (Team Lead), Product Development Manager | September 1998 - April 2002

- **Used:** SQL Server, Microsoft Analysis Services, OLAP, SQL, MDX, XML, ASP, JavaScript, HTML, CSS, Visual Basic, COM, XML, XSLT, Windows
- Directed a team of developers: trained, delegated, instituted standards, and reviewed code.
- Produced a commercial, web-based multi-dimensional data source browser and API.
- Architected the database and web UI for an asset auditing/management application.
- Wrote and tested applications for Hotel Dieu Hospital and the Ministry of Health and Long-Term Care.

PROJECTS

Om Language | https://github.com/sparist/om

Creator of the Om Language, an experimental high-level, concatenative, functional, homoiconic programming language, written in C++, with minimal syntax (only three elements), prefix notation (whereby functions manipulate the remainder of the program itself), and a single “program” data type. A rewrite is in progress.

Om Tree | https://gitlab.com/impossibilium/om-tree

Creator of the Om Tree, an efficient associative array written in modern, portable C17 as a binary compact prefix tree with novel optimizations that allow it to significantly outperform `std::map` on most operations. It has 100% line, function, and branch unit test coverage and will be featured in the next version of the Om Language.