

Sam Roberts

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Software developer with 20+ years of experience in a variety of industries, languages, and platforms.

Multi-language: C; C++; JavaScript (server side); Lua; Python; Ruby; some Go.

Systems programming: event-driven and non-blocking I/O; sockets and low-level networking; Linux.

Networking and security: implement and test both networking and cryptographic protocols and formats.

Open source: Node.js TSC member; conference speaker; author or contributor to many open-source projects.

Experience

2018/10-now: Senior Software Developer, IBM Canada (Runtimes) (remote)

Contribute to Node.js project in C++ and JavaScript, primarily to crypto, security, LTS, and IBM platform support.

- **Contributor** to Node.js since 2013.
- Member of Node.js Technical Steering Committee (**TSC**).
- Add TLS1.3 support to Node.js ([nodejs/node#26209](#) and previous).
- Coordinate Node.js security releases ([nodejs.org/en/blog/vulnerability/](#)).

2016/10-2017/09: Senior Software Developer, IBM Canada (Runtimes) (remote)

Contribute to Node.js project and IBM's Node.js APM (**appmetrics**).

- Integrate Strongloop capabilities into appmetrics, replace **strong-agent** with appmetrics in **strong-pm.io**.
- Help setup Node.js' **Security Working Group**.
- **Back Pressure, or, Don't Accept Work Before You're Ready**, Node.js Interactive, Oct 2017/Nodeconf.eu, Nov 2017.
- **Node's Event Loop from the Inside Out**, Node.js Interactive, Austin TX, Dec 2016

2015/11-2016/09: Senior Software Developer, IBM Canada (APIConnect) (remote)

Lead team of 3 IBM developers to integrate Strongloop runtime technology into IBM's APIConnect using **strong-supervisor**.

- **Node.js API Pitfalls: Can You Spot Them?**, Node.js Interactive, Portland WA, Dec 2015

2013/04-2015/10: StrongOps Team Lead, Strongloop (remote)

Lead team of 4 responsible for deployment, management, and monitoring for Node.js applications (**strong-pm.io**) until Strongloop acquisition by IBM.

- Participate developing the **strong-agent** APM and metrics collector in JavaScript and C++.
- Develop process and cluster management for single machines (strong-pm.io), and distributed app orchestration (unreleased).
- Contribute to Node.js core, primarily to `child_process`, `cluster`, and documentation.

2007/05-2013/03: Senior Architect and Development Lead, Wurldtech (Vancouver, BC)

Lead a team of 8 developers developing a network protocol test appliance using Python/Twisted, Lua, and C on Linux.

- Implement Scrum, and ship product within first year of development.
- Rewrite the network protocol and test framework from Java to Lua.

- Implement tests for many network and industrial protocols in C and Lua.
- Write a protocol interceptor in C, along with a Lua rule engine for a Linux/VxWorks intrusion prevention system (IPS).

2005/11-2007/06: Senior Software Architect, Bycast (Vancouver, BC)

Implement microservice components of StorageGrid, a large image distributed data store, in C, C++, and Lua on Linux.

- Implement grid communication protocols in Ruby, for QA team to automate tests.
- Implement an XML RPC API for the Grid in C, and rewrite the HTTP server for standards conformance and security.
- Embed Lua in the Grid, and use it to write Grid components.

2000/10-2005/10: Senior Software Developer, Certicom (Mississauga, ON)

Develop C language cryptographic toolkits on servers and mobile devices.

- Extend Crypto-C API to support 3rd party and hardware-based crypto.
- Design PKI-C toolkit, and implement BER/DER, key formats, X.509 certificates, CMS, and PFX.

1998/10-2000/10: Software Developer, Cogent Real-Time Systems (Mississauga, ON)

Develop industrial distributed systems in C and Cogent's LISP-dialect, using a microservice architecture (service discovery, hierarchical key-value store, message queueing, time-series data, etc.).

- Port microservice SDK product to Linux, after writing Linux kernel emulation of QNX4 messaging.

1995-1998/10: Development Lead, International Submarine Engineering (Port Coquitlam, BC)

Responsible for ACE, an asynchronous event-based C++ control kernel and configuration language for robotics that originally targeted embedded systems. Port to QNX4, a POSIX O/S, and support its use in all new projects.

Education

B.A.Sc., Engineering-Physics, Computer Science Option; University of British Columbia (1996)

Open source

Node.js	<ul style="list-style-type: none"> • commits to Node.js core • authored or maintained many Strongloop packages, such as modern-syslog (~9K downloads/week), debuglog (~1.2M downloads/week, weirdly!), strong-supervisor (~1.7K downloads/week),
Lua	<ul style="list-style-type: none"> • luasocket, forked, integrated multiple CVS and Mercurial forks into github, brought collaborators together, and passed project back to original author • C/Lua bindings: pcap-lua, netfilter-lua, termios-lua, bcrc-lua
Ruby	<ul style="list-style-type: none"> • vCard and iCalendar support (vpim) • ZeroConf DNS service discovery (net-mdns)
C	<ul style="list-style-type: none"> • libnet, adopted a widely used packet crafting and injection library • GNU mailutils, commits to email address decoding, file locking, SMTP
Go	<ul style="list-style-type: none"> • git-walk, recursive, parallel command execution in Ruby, Node.js, and Go • whereami, example app to explore Go programming and channels