

# Chris Seaton



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Researcher and software engineer with a proven ability to generate and follow through with his own research projects, to ship finished products to non-technical end-users, to collaborate on open-source projects, and to lead and build teams. Looking for genuinely challenging roles using systems, languages, compilers, virtual machines, parallelism, concurrency and related technologies.

## Current Work

Research Manager, Oracle Labs Virtual Machine Research Group

- First developer and principle investigator on the JRuby+Truffle project.
- Implementing a very high performance Ruby interpreter using Java on the JVM using Truffle and Graal – a next generation language framework and dynamic compiler.
- Implementing a zero-overhead debugger for Ruby using dynamic deoptimisation.
- Implementing high performance C extensions for Ruby by interpreting C.
- Strong emphasis on open-source community collaboration
- [github.com/jruby/jruby/wiki/Truffle](https://github.com/jruby/jruby/wiki/Truffle)

## Former Work

Founder, Medicapps Ltd

- With two surgeons developed a novel iPhone app for burns treatment.
- Pioneered submitting the app for regulation as a medical device, becoming the first regulated medical app in the UK.
- Generated national media interest and interviewed by BBC TV, radio and a national newspaper.
- Won an NHS Innovation Awards prize of £5,000 and over £40,000 of funding from the NHS.
- Established a limited company consultancy to pass on our unique experience.
- [merseyburns.com](http://merseyburns.com)

British Army Officer, 2007 – 2011

- Led teams of up to forty people in the UK and around the world often in very difficult situations dealing with extreme time and resource pressures.
- Coordinated medical care to an infantry battlegroup of over a thousand soldiers on operations in Afghanistan.
- Ran a recruit training troop and then was second-in-command of an officer-training unit attached to the University of Manchester.

## Awards

- Winner, Excellence in Mobile Healthcare and overall winner, eHealth Awards 2013.
- Best Paper Award, MULTIPROG, 2012.
- Highly Commended, eHealth Awards, 2012.
- Excellence in Innovation, NHS North West Health Innovation Awards, 2011.
- Hele Shaw Prize, faculty prize for academic and social record, University of Bristol, 2007.

## Education

- 2015 PhD, University of Manchester, ‘Specialising Dynamic Techniques for Implementing The Ruby Programming Language’, supervisor Mikel Luján.
- 2007 MEng Computer Science, University of Bristol, 1<sup>st</sup> Class and awarded the faculty prize for academic and social achievement.

## Publications and Presentations

- M. Grimmer, C. Seaton, R. Schatz, T. Würthinger, H. Mössenböck. *High-Performance Cross-Language Interoperability in a Multi-Language Runtime*. In Proceedings of 11th Dynamic Languages Symposium (DLS), 2015.
- B. Daloze, C. Seaton, D. Bonetta, H. Mössenböck. *Techniques and Applications for Guest-Language Safe-points*. In Proceedings of the 10th Implementation, Compilation, Optimization of Object-Oriented Languages, Programs and Systems Workshop (ICOOOLPS), 2015.
- M. Grimmer, R. Schatz, C. Seaton, T. Würthinger, H. Mössenböck. *Memory-safe Execution of C on a Java VM*. In Proceedings of the 10th Workshop on Programming Languages and Analysis for Security (PLAS).
- S. Marr, C. Seaton, S. Ducasse. *Zero-Overhead Metaprogramming: Reflection and Metaobject Protocols Fast and without Compromises*. In Proceedings of the 36th Conference on Programming Language Design and Implementation (PLDI), 2015.
- M. Grimmer, C. Seaton, T. Würthinger, H. Mössenböck. *Dynamically Composing Languages in a Modular Way: Supporting C Extensions for Dynamic Languages*. In Proceedings of the 14th International Conference on Modularity, 2015 (to appear).
- A. Wöß, C. Wirth, D. Bonetta, C. Seaton, C. Humer, and H. Mössenböck. *An object storage model for the Truffle language implementation framework*. In Proceedings of the International Conference on Principles and Practices of Programming on the Java Platform (PPPJ), 2014.
- C. Seaton. *Implementing Ruby Using Truffle and Graal*. At the European Conference on Object Oriented Programming (ECOOP) Summer School. 2014.
- C. Seaton, M. L. Van De Vanter, and M. Haupt. *Debugging at full speed*. In Proceedings of the 8th Workshop on Dynamic Languages and Applications (DYLA), 2014.
- C. Wimmer and C. Seaton. *One VM to Rule Them All*. At the JVM Language Summit. 2013.
- D. Goodman, S. Khan, C. Seaton, Y. Guskov, B. Khan, M. Luján, and I. Watson. *DFScala: High level dataflow support for Scala*. In Proceedings of the 2nd International Workshop on Data-Flow Models For Extreme Scale Computing (DFM), 2012.
- C. Seaton, D. Goodman, M. Luján, and I. Watson. *Applying dataflow and transactions to Lee routing*. In Proceedings of the 7th Workshop on Programmability Issues for Heterogeneous Multicores (MULTIPROG), 2012.
- S. S. Sofos, R. Pritchard-Jones, C. Seaton, J. Dingley, P. McArthur, and K. Shokrollahi. *Medical innovation—a starting point for plastic surgeons*. Annals of Plastic Surgery, 69(3):225–7, Sep 2012.
- C. Seaton. *A programming language where the syntax and semantics are mutable at runtime*. Master’s thesis, University of Bristol, 2007.

## Other Information

- British nationality.
- UK Security Clearance holder.