JOHN NICHOLAS BILLINGS

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Nationality	British

Having recently completed my doctoral degree, I am keen to apply my diverse skills in Computer Science to real-world problems faced by industry. I wish to build a career using my foundations in the theory of Internet routing protocols and the design of distributed programming languages. I am looking to work in a challenging environment that provides opportunties for contributing to next-generation Internet technology.

Employment

May 2010 – present **MyLife.com**, **Software Engineer**

This role has involved developing OCaml/Java code to create new people-oriented search technology.

- Created distributed crawler to fetch circa one billion web pages.
- Used Hadoop to extract data from retrieved web pages.
- Implemented a Java code generator for custom interface language.

Oct 2009 – May 2010 **StarLeaf**, **Software Engineer**

For this start-up company, I was responsible for creating a high-performance media engine using C/C++ as part of a next-generation video-conferencing solution.

- Developed realtime, embedded audio and video processing code.
- Used Tilera multi-core processors for high scalability.
- Applied TCP/IP for co-ordinating distributed components.

Education

2005 – 2009 **PhD in Computer Science**

Computer Laboratory, University of Cambridge, UK

My PhD project involved extending and applying the theory of algebraic routing to the design of real-world Internet routing protocols.

- Created a compiler in OCaml for a declarative routing language
- Generalised the XORP routing platform for new routing protocols
- Developed an algebraic model of protocol inter-operation

2002 – 2005 **BA in Computer Science**, **First class with honours**

Queens' College, University of Cambridge, UK

During my undergraduate degree I obtained a broad foundation in computer science. My dissertation project involved creating a compiler for the Actue distributed programming lanauge, targetting the OCaml virtual machine.

Awards

Computer Laboratory award for outstanding final-year dissertation
Foundation Scholarship for obtaining first-class examination results
Queens' College prize for outstanding examination results

Internships and experience

2005 **Fraser Research, Princeton, USA**
Researched alternative naming system for Internet using FUSE filesystem.

2004 **The Automation Partnership, Cambridge, UK**
Designed and implemented test framework using CPPUnit for automated cell culture system.

Over the course of four years, I have tutored undergraduate students at the University of Cambridge in Java, ML, Logic and Computation Theory

Publications

2009 **Specifying and compiling Internet routing protocols**
John N. Billings
PhD dissertation

A model of Internet routing using semi-modules
John N. Billings, Timothy G. Griffin
RelMiCS/AKA 11 2009

2006 **Type-Safe Distributed Programming for OCaml**
John Billings, Peter Sewell, Mark Shinwell, Rok Strniša
ACM SIGPLAN Workshop on ML

2005 **A Bytecode Compiler for Acute**
John Billings
Undergraduate dissertation

Skills

Programming languages	C, C++, Java, OCaml, Haskell
Operating systems	Unix (GNU/Linux, OpenBSD), Mac OS X, Windows
Internet	TCP/IP, Quagga and XORP routing platforms

Activities and interests

Caving, to expedition level

Moutain biking and road cycling

Dog agility training

Referees

Available upon request