

Personal Details

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Education & Awards

- 2007, Ph.D. Computing Science: Newcastle University. Thesis title: "*A Domain Specific Language for Dynamic Interest Management within Virtual Environments*". Supervisor: Professor Paul Watson, external examiner: Professor Chris Greenhalgh.
- 2001, Software Engineering BSc with First Class Honours, Newcastle University. Graduated with prizes for academic excellence and best dissertation
- 2000, European ERASMUS distributed computing summer scholarship, UPV (Universidad Politécnica de Valencia), Spain.
- Gold Duke of Edinburgh Award

Research Focus & Objectives

I see software primarily as a form of communication. One that is not just limited to a conversation between a programmer and the computer but between many participants all of whom have an interest in understanding parts of the software system. My research is based around this notion which, when made an explicit focus, I call communicative programming. Related research topics include programming language aesthetics, domain specific languages and language oriented programming.

Having already applied these techniques to great effect for the communication of interests within virtual environments, transport research tool specifications and the description of the pertinent entities and relationships of a large pharmaceutical company's ERP system, I am currently exploring their potential impact for the creation of musical devices with a high capacity for improvisation. I plan to build a number of domain specific languages with which to communicate and share musical ideas with a variety of collaborators with little or no technical background.

I am inspired to improve our ability to communicate, helping people gain a greater freedom to express themselves in order to collaborate and share their ideas.

Employment History

Postdoc Researcher, Improcess, Cambridge University: Sept 2010 -

Currently leading a research project, Improcess, under the supervision of Dr Alan Blackwell, involving collaborators in the Cambridge Computer Laboratory and Music Faculty, the Anglia Ruskin Digital Performance Lab and Microsoft Research Cambridge. This research aims to combine both tactile and highly abstract linguistic user interfaces with state-of-the-art real-time synthesis software in order to build new forms of musical device with a high capacity for improvisation.

Lead Architect, Innovation Factory, Amsterdam Jan 2008 - Aug 2010

Architected and developed a wide variety of sophisticated web applications and deployed them both into standard hosting environments and also large secure internal enterprise virtual machine clusters. The main suite of online tools were developed in order to increase the potential for collaborative innovation within large companies in areas such as idea management and community development and growth. Initiated and championed a variety of Agile methodologies within the programming team and project leaders. Also designed, implemented and deployed a sophisticated online ERP mirroring system which included client-readable domain specific languages as a core component for the critical aspects that required both absolute precision and a high tolerance for change. Now that this system has processed 40 million Euro worth of sales, this core technology is now being deployed by the company in other products internationally.

Writer, InfoQ 2007-

Commissioned by InfoQ to write news articles surveying current Ruby and Agile news.

Technical Research Consultant, School of Transport, Newcastle University 2006-2007

Built a decision support tool to aid the creation of new transport services. Used agile development practices and the Ruby on Rails framework. Represented business logic with a client-readable domain specific language.

Researcher & Developer, The Amazing Group, Newcastle 2005-2006

Worked as a researcher, designer and developer. Built conceptual designs and working prototypes for a variety of projects. Initiated testing, version control and ticketing techniques for in-house development. Communicated directly with development teams, management and clients.

Technical Research Consultant, School of Transport, Newcastle University 2003-2004

Worked with a team of developers on a European funded project which combined a variety of SOAP-based web-services using a database-driven web application. The resulting product matched available jobs with available transport routes for a given person and location.

Communities

I love participating in communities. I have either founded or co-founded a number of local user groups and meetups. These groups have grown to become remarkably successful and enjoyed and appreciated by members from many backgrounds.

- 2011, **camb-sc** - Cambridge SuperCollider User Group
- 2011, **cemsoc** - Cambridge Electronic Music Society
- 2010, **Cambridge Clojurians** - Cambridge Clojure User Group
- 2008, **amsterdam.rb** - Amsterdam Ruby and Rails User Group
- 2006, **open-coffee-newcastle** - Newcastle Open Coffee Meetup
- 2005, **ncl.rb** - Newcastle Ruby and Rails User Group

Speaking & Teaching

I enjoy speaking at, helping organise and attending conferences. I am attracted by the concentration of interesting, interested and enthusiastic people and the energy that produces.

I have been invited to present my ideas on themes such as *Aesthetic & Communicative Programming* at local events as well as highly prestigious and international conferences including QCon and JA OO. In addition, I have enjoyed giving tutorials at these major events which have enabled me to share my passion and knowledge in a teaching environment. Highlights of these presentations and tutorials are as follows:

- **Clojure/conj**, Raleigh NC USA, 2011 - Talk "*Making Music with Overtone*"
- **Functional Programming Day**, Cambridge 2011 - Talk "*Making Music Functionally with Overtone*"
- **London Clojure User Group**, London 2011 - Seminar "*Hacking Music with Clojure*"
- **Darwin College**, Cambridge 2011 - Presentation "*Notes on the Synthesis of Musical Form*"
- **Cambridge Computer Lab**, Cambridge, 2011 - Seminar "*A principled approach to developing new languages for live coding*"
- **Goto CPH**, Copenhagen, 2011 - Talk "*Learn as you Play*" & Dojo "*Programming with the Stars*"
- **RubyFoo**, London, 2009 - Keynote Presentation "*Notes on the Synthesis of Ruby Form*"
- **JA OO**, Århus, 2009 - Tutorials on "*Advanced Ruby*" & "*Principles of Aesthetic Programming*"
- **QCon**, London, 2009 - Tutorials on "*Advanced Ruby*" & "*Principles of Aesthetic Programming*"
- **Amsterdam Ruby BarCamp**, Amsterdam, 2009 - Presentation "*Notes on the Synthesis of Form*"
- **JA OO Geek Night**, Copenhagen and Århus, 2009 - Seminar "*Aesthetic Programming in a Communicative Age*"
- **JA OO**, Århus, 2008 - Presentation "*Aesthetic Programming*"
- **RubyFools**, Copenhagen and Oslo, 2008 - Presentation "*Communicative Programming with Ruby*"
- **RubyEnRails**, Amsterdam, 2008 - Presentation "*Language Aesthetics*"
- **RailsConf Europe**, Berlin, 2007 - Presentation "*PhD on Rails*"

Publications & Acknowledgements

Samuel Aaron, Alan F. Blackwell, Richard Hoadley, and Tim Regan. *A principled approach to developing new languages for live coding*. In Proceedings of New Instruments for Musical Expression 2011, pages 381–386, 2011.

Contributor and Technical Reviewer for *The Rails Way*, Addison-Wesley Professional Ruby Series, Technical Reviewer for *Beginning Google Maps Applications with Rails and Ajax*, Apress, acknowledged in *The Rails Cookbook*, O'Reilly and *The Joy of Clojure*, Manning.