JOE HALLIWELL

System architecture ◇ Machine learning ◇ Big data
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EDUCATION

University of Edinburgh   1999 – 2007
· MSc in Artificial Intelligence
· PhD in Artificial Intelligence

University of Oxford   1995 – 1999
· MA in Mathematics and Philosophy

EXPERIENCE

Winterwell Associates Ltd   2008 – 2014
Winterwell is a machine learning and data analysis consultancy doing a mix of for-hire and internal R&D. As a co-founder and lead developer, I delivered umpteen R&D projects across finance, media, security, the public sector, education and agriculture. Some recent examples are described overleaf.

· Sensible projects included work for the Home Office, Mott Macdonald, the BBC, Edinburgh University
· Other projects included work for ourselves, Tern Digital, Coney, InSpace, Battersea Arts Centre
· Raised £300k in innovation funding, grew to 10 staff

SoDash Ltd   2010 – 2014
SoDash is a social media monitoring tool which combines best-in-class coverage with a unique text classification engine. SoDash helps big brands make sense of social media: segmenting traffic, finding leads and routing messages to the right people. As a co-founder, I helped build and maintain this complex product and manage the associated teams.

· Spinout from Winterwell based on original research/IP
· Raised £125k seed capital, grew to 20 staff in Edinburgh, London and San José
· Clients include Harrods, Virgin Trains, HSBC, PepsiCo, University of Sunderland, Everest

Edinburgh Robotics Ltd   2005 – 2008
As co-founder and CTO, I led a wildly ambitious project to develop a complete stack for mobile robotics from a Linux-based operating system through a peer-to-peer UDP-based network protocol and middleware library up to a 3D simulation environment built on the Open Dynamics Engine.

· Core libraries in C, plus C#, Python and Java bindings, plus amazing documentation
· Raised £200k venture funding, £75k SMART innovation award, £125K SPUR commercialisation award

University of Edinburgh, School of Informatics   2001 – 2005
I taught several courses at the School of Informatics which helped fund my seemingly interminable thesis write-up. It involved a lot more Prolog that you might expect.

· Taught AI2 (TA), Knowledge Engineering (Tutor), Knowledge Representation (Tutor), Prolog (Tutor and demonstrator), Third Year Large Practical (Tutor and TA), Operating Systems (TA)
· Static site generator for the AI2 website and a fun, interactive demonstration of the Festival speech synthesis system

RECENT PROJECTS

Ad server
Lead engineer   2012 - 2013
Java, Scala, Hadoop, HBase, PostgreSQL, Play, Bootstrap

· High-performance, distributed, rule-based ad server built on the Akka actor framework
· Self-service management portal for campaign management, reporting, and analytics
· Probabilistic record linkage store and update algorithm built on Hadoop and HBase
· Immutable data artefacts and versioning to support on-line experimentation
· See `http://joehalliwell.com/online-hadoop`

The Thirty-Nine Steps
Lead engineer   2012 - 2013
C#, Unity 3D

· John Buchan's incredible espionage thriller was the debut — and the first ever — digital adaptation: a new form of interactive entertainment that merges literature, cinema and gaming. "Whether you know The Thirty-Nine Steps inside out, or have never heard of Richard Hannay, this is the classic story as it has never been told before."
· Platforms: iPad, PC & OSX boxed, PC, OSX & Linux Steam; 20,000+ installs
· See `http://thestorymechanics.com/digital-adaptations/the-thirty-nine-steps`

Buddhify
Lead engineer   2012
PhoneGap, Javscript, PHP, Java, Objective-C

· The original version of the popular urban meditation app. "Practical, playful and beautifully-designed, Buddhify increases your well-being by teaching you mindfulness-based meditation on the go."
· Platforms: iPhone, iPad, Android; 15,000+ installs
· See `http://buddhify.com`

TECHNICAL SKILLS

Programming Languages	Bash, C, C#, Java, Javascript, Lisp, PHP, Prolog, Python, Scala
Dev tools	git, Ant, Make, Maven, Doxygen, JUnit, Jenkins, Github3
Distributed computing	Hadoop MapReduce, HDFS, HBase, YARN, ZooKeeper, Akka
Data analysis	Weka, SciPy, SciKits, gnuplot, MATLAB, R
Data storage	PostgreSQL, MySQL, SQLite, HBase, ZooKeeper, Hibernate
Web frameworks	J2EE, Play, vRaptor, Twisted, Node.js
Web client side	HTML, CSS, LESS, jQuery, Bootstrap, AngularJS, HighCharts, D3
Mobile & gaming	PhoneGap, jQuery Mobile, Unity 3D, iOS, Android
Operating System	Linux, GNU userspace, Apache, Cherokee, Ngingx, Exim, Postfix

PUBLICATIONS

J. Halliwell and Q. Shen, *Linguistic Probabilities: Theory and Application*, Soft Computing, 2008.

J. Halliwell, *Linguistic Probability Theory*, PhD Thesis, University of Edinburgh, 2007.

J. Halliwell, J. Keppens and Q. Shen, *Linguistic Bayesian Networks for Reasoning with Subjective Probabilities in Forensic Statistics*, Proceedings of the Ninth International Conference on AI and Law (ICAIL'03), 2003.

J. Halliwell and Q. Shen, *Towards a Linguistic Probability Theory*, Proceedings of the 11th International Conference on Fuzzy Sets and Systems (FUZZ-IEEE '02), 2002.

J. Halliwell and Q. Shen, *Towards Temporal Linguistic Variables*, Proceedings of the 10th International Conference on Fuzzy Sets and Systems (FUZZ-IEEE '01), 2001.

J. Halliwell and Q. Shen, *From fuzzy probabilities to linguistic probability theory*, Proceedings of the 2001 UK Workshop on Computational Intelligence, pp. 129-135, 2001.