

JOE HALLIWELL

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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

TECHNICAL SKILLS

Programming Languages

Bash, C, C#, Java, Javascript, Lisp, PHP, Prolog, Python, Scala

Dev tools

git, Ant, Make, Maven, Doxygen, JUnit, Jenkins, Github

Distributed computing

Spark, Hadoop MapReduce, HDFS, HBase, YARN, Akka

Data analysis

Weka, SciPy, SciKits, gnuplot, MATLAB, R

Data storage

PostgreSQL, MySQL, SQLite, HBase, Hive, ZooKeeper, Hibernate

Web frameworks

J2EE, Play, vRaptor, Node.js

Web client side

HTML, CSS, LESS, jQuery, Bootstrap, AngularJS, HighCharts, D3

Mobile & gaming

Unity 3D, PhoneGap, jQuery Mobile, iOS, Android

Operating System

Linux, GNU userspace, Docker, Nginx, Exim

SUMMARY

Experienced Lead Engineer with a focus on building robust, performant and maintainable systems. Background in Artificial Intelligence, with practical experience of machine learning and analytics at scale. Strong technical skills in Java and Python amongst others but not wedded to any particular stack. Used to juggling business, tech and personnel requirements. Able to mentor a team of developers or work alone. Wide computer science knowledge. Strong problem-solving and analytic skills. Entrepreneurial, institution-building approach.

RECENT PROJECTS

Client Profitability

2015 - present

EMEA Lead

Apache Spark, HDFS, Java, Scala, J2EE, AngularJS

- Reworking a 300,000 line SQL process as a faster, more maintainable Apache Spark application
- Decommissioning Oracle, Informatica, Subversion, and Flex
- Rearchitecting and modernising three associated web applications
- Driving adoption of modern libraries, tooling and agile development practices

Project Ginsberg

2014 - 2015

Lead engineer

AngularJS, ASP.net, C#, D3, Docker, HAProxy, Redis, SQLServer

- Scottish Government/NHS Scotland-backed project to develop wellbeing tools
- Rich single page application in AngularJS and D3, deployed via Docker and Sinatra
- Backend aggregating data from Jawbone Up, Fitbit and other quantified self apps
- Statistical analysis to generate behavioural insights for users
- See <http://ginsberg.io>

Ad server

2012 - 2013

Lead engineer *Java, Scala, Hadoop, HAProxy, HBase, PostgreSQL, Play Framework, 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

The Thirty-Nine Steps

2012 - 2013

*Lead engineer**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; 50,000+ installs
- See <http://thestorymechanics.com/digital-adaptations/the-thirty-nine-steps>

Buddhify

2012

*Lead engineer**PhoneGap, Javascript, 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; 30,000+ installs
- See <http://buddhify.com>

EXPERIENCE

JP Morgan

2015 –

JP Morgan is one of the world's largest financial institutions. As EMEA technical lead for client profitability and sales analytics, I'm currently driving two major programmes of activity both of which lean heavily on Apache Spark.

- Replatforming and modernising a very large, very visible, back-office system, decommissioning legacy components, and driving the adoption of best practices.
- Collating, analysing and visualising data about institutional clients, both transactional and behavioural.

Winterwell Associates/Sodash 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.

- Research projects for the Home Office, Mott Macdonald, the BBC, Edinburgh University
- Proof of concept and media projects 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 than 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

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.