

## EDUCATION

**University of Bristol**

September 2007 to July 2011

*MEng, Computer Science and Electronics***Interests***Bayesian statistics, programming languages, formal methods, functional programming*

## WORK

**AIG**

London, United Kingdom

*Full Stack Developer*

September 2016 - Present

- Proposed and prototyped web applications for automating commercial insurance sales.
- Worked within Science team to turn machine learning models into APIs usable by the business.

**Permutive**

London, United Kingdom

*Software Engineer*

August 2015 - July 2016

- Designed a variant of SQL for unstructured JSON data. Implemented a compiler in Haskell targeting a Javascript backend, as well as an interpreter written in Haskell.
- Built initial version of a public-facing self-serve web dashboard using Elm.
- Implemented several Haskell backend REST services to support the query language, such as a compiler API and a query evaluator service. Worked with AWS services like DynamoDB and S3. Configured and managed automated deployment on AWS EC2 and ECS.

**Jagex**

Cambridge, United Kingdom

*Data Scientist*

May 2013 - August 2015

- Real-time network monitoring and DDoS attack alerting using changepoint detection algorithms, including an interactive dashboard summarising attacks and their impact on the player base for the MMO game *RuneScape*.
- Real-time interactive dashboards for game client performance metrics for the FPS *Block N Load*.
- HTML5/Javascript visualisations, including an in-game activity replay tool, and an interactive weighted flow diagram of the game economy for *Transformers Universe*.
- Bayesian model of player activity to identify AFK players in *Transformers Universe*
- Taught python to analysts for use in Hadoop streaming MapReduce jobs

**Featurespace Ltd.**

Cambridge, United Kingdom

*Analyst Developer*

September 2011 - October 2012

- Implemented machine learning algorithms in C#, including the C4.5 decision tree and a Bayesian online changepoint detection algorithm.
- Designed and implemented infrastructure for online machine learning applications
- Organised weekly reading group on new machine learning research

**New Oriental School**

Changsha, Hunan Province, China

*English Teacher*

July - August 2010

Taught english to 12-14 year-old students. Planned and taught lessons to complement a textbook. Corrected writing, held speaking practice session, and organised activities.

## PERSONAL AND OPEN SOURCE PROJECTS

**Probabilistic Programming (library)**

Haskell

An embedded domain-specific language for specifying and doing inference in Bayesian machine learning models.

**Personal Blog**

Haskell (mostly)

My personal blog, written using Hakyll, largely concerning Haskell-related topics.

**Hackage-Fu**

Javascript

A Chrome plugin for adding useful links to Hackage. Available on the chrome web store and github.

**lens-aeson**

Haskell

Original author of lens-aeson, a Haskell package using the Lens library to access JSON values in a law-abiding way.

## SKILLS

**Haskell:** Good knowledge, contributor to several open source libraries**Elm:** Good knowledge, used in building user-facing dashboard.**Amazon Web Services:** Familiar with several AWS products, including EC2, ECS, DynamoDB, and S3.**Scala:** Some experience writing and deploying backend services**Python:** Extensive use for data analysis, machine learning. Experience writing REST APIs.**R:** Experienced, especially for data analysis and visualisation.**Hadoop/Hive/Pig:** Used extensively for ETL & analysis on datasets of up to hundreds of gigabytes in size**HTML, CSS & Javascript:** Proficient, built several web apps (frontend + node.js backend).**Git:** Intermediate (github account: <http://github.com/statusfailed>).**C, C++, C#, Java:** Experienced, used in a variety of projects**Linux & shell scripting:** Good knowledge, used since 2005 on personal machines and administering personal server. Used extensively alongside AWS.