

Cal Paterson

CONTACT

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INTENTION

I am a **contract senior software engineer**. My main skills and interests are:

- **Software development**, primarily with Python and Javascript
- **Agile software development methods** including test-driven development
- **“DevOps”-style infrastructure automation for Linux and Unix**
- **Database design and optimisation**, particularly with relational databases

PROFESSIONAL HISTORY

- Contract DevOps at Citigroup (*March 2018-June 2018*)
 - Citigroup is a large bank - I work in front office in the investment banking division on a group of applications that price debt and debt derivatives
 - Introducing continuous integration, test-driven development and other agile practices to a small front office team
- Contract software development at Bank of America Merrill Lynch (*December 2016-January 2018*)
 - BAML are an investment bank - I worked on their real time reporting engine (“Insight”) which was originally developed for MIFID2 but later was also used for FinfraG, SFTR and some internal KYC/AML reporting
 - Insight is a graph-based rule system that reports on all equity, debt, futures and options traded by the bank to the relevant regulators in “real time” (ie: seconds).
 - I was a senior developer on this project, which used BAML’s proprietary **Quartz** platform - similar to SecDB/Athena. **Python**, the **AMPS** message bus and **Apache Avro** for inter-system messaging
 - Wrote web documentation system for BAMLs newly standardised cross-asset message format with Python and **Javascript** - this was eventually used by multiple teams worldwide
 - Led the release process - daily releases in a sensitive regulatory area
- Senior Python Developer at Youview (*May 2016-November 2016*)
 - Youview are a television set-top box maker owned by BT, ITV, TalkTalk, the BBC and others.
 - Implemented a fault tracking and reporting system for internal set-top box regression tests (both hardware and software defects) using **Python** and **PostgreSQL**. Developed diagnosis application using **HTML**, **Javascript** and **Matplotlib**
- Senior Python Developer at Onefinestay (*September 2015-April 2016*)
 - Onefinestay are a venture-backed startup that let people rent out their luxury apartments to paying guests while providing hotel style service (cleaning, greeting, maintenance, etc)
 - Implemented bi-directional synchronisation between their internal microservices architecture and Salesforce with **Python** and **RabbitMQ**
 - Performance optimised their microservice platform
 - Delivered training on the internals of their chosen database system (**MySQL - InnoDB**) and followed up with coaching and code review to help them improve query performance and data quality
- Lead Python Developer at Inplaymaker (*June 2014-August 2015*)
 - Inplaymaker was a small startup building a mobile fashion app with some additional agency work

- Lead development of scalable ReST APIs using **Python** and relational database design using **PostgreSQL**
- Lead development of custom machine learning platform with **Scikit-Learn** and natural language processing to classify e-commerce products by gender, colour and category
- Infrastructure automation in **Ansible**
- Web Operations Engineer at Government Digital Service (*April 2014-June 2014*)
 - The Government Digital Service are a unit within the Cabinet Office tasked with IT reform. They are best known to the public for the GOV.UK website
 - Infrastructure automation in **Puppet** supported by **Python**
- Consultant Software Developer at ThoughtWorks (*January 2012-April 2014*)
 - ThoughtWorks are a software consultancy focusing on agile software development
 - I worked as a software development consultant on customer sites. ThoughtWorks' main business is development of custom software and helping traditional organisations benefit from agile methods
- Consultant to the Redundancy Payment Service (*November 2013-May 2014*)
 - The Redundancy Payment Service are a unit of the civil service that makes severance payments if an employer becomes insolvent
 - Worked on software development and system administration as part of an “alpha”-phase project to digitise the application process
 - Attended user research sessions and worked closely to implement recommendations
 - “Alpha” phase was very successful and team was retained for “beta” phase
 - Software development in **Python** using **Flask**, **PostgreSQL** and progressive enhancement with **Javascript**. Infrastructure and deployment automation in **Puppet** and later **Ansible**
- Consultant to the Government Digital Service - GOV.UK Verify Project (*March 2013-October 2013*)
 - GOV.UK Verify is a project to let UK citizens prove their identity to the state while online via a third party such as a bank or a utility company
 - Planned and wrote modularised infrastructure and deployment automation codebase, parts of which are reused in other parts of Cabinet Office
 - Infrastructure automation in **Puppet** and **Python** (Fabric). Assisted with **Java** microservice development
- Consultant to Springer Science+Business Media - Springer Link Project (*June 2012-January 2013*)
 - Springer is a Science, Technology, Engineering and Maths publisher that now does the majority of their business online
 - Developed online publishing backend in **Scala** and **Java**
 - Developed custom analytics system for tracking usage and billing of institutional customers using **Scala** and **Cassandra**

EDUCATION

- BSc in **Computer Science from Aberystwyth University**
 - Dissertation on *Using Decision Tree Learning to Reconstruct Post-Flop Decision Making in Texas Holdem Poker*
 - Dissertation involves large SQL database with hundreds of millions of poker hands
 - Experience with: **Haskell**, **Python**, **SQL**, **Java**, **Prolog**, **C**, **L^AT_EX** and others
- Awarded Nuffield Science Undergraduate Research Bursary (*June-November 2010*)
 - Worked on research project: *Optimisation of automated biological sample preparation using SAT solvers*
 - Developed custom optimisation system using **Haskell** and SAT solvers
- Universiteit Utrecht (Netherlands): “Advanced Functional Programming” course (*Summer 2009*)
 - Graduate-level summer school on **Haskell**, functional programming and related theory
 - Youngest participant by three years (gained admission as a first year undergraduate)
 - Won scholarship of £800

SIDE PROJECTS

- Flatnik (defunct), an online tool for finding a flat (and showing extra statistical info) in London Summer 2013, available on Github
 - Wrote backend code from scratch to try to solve user problem with **Python**, **SQLAlchemy**, **Flask**, **PostgreSQL** and **PostGIS** (geographic extension to PostgreSQL) and several Python geography/geometry libraries
 - Wrote frontend code in **Javascript** with **JQuery** and the Google Maps API
- The High Seas, an easy-to-use bittorrent tracker in **Python**, available on Github