

Cal Paterson

DETAILS

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Last updated: 25th November 2020
First available date: 18th January 2021

INTENTION

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

- **Software development**, primarily with Python
- **Agile software development methods** especially TDD and continuous delivery
- **Messaging and event-driven systems** of all kinds
- **“DevOps”-style infrastructure automation and system administration** for Linux and Unix
- **Database design and optimisation**, particularly with relational databases

SELECTED HISTORY

- Parental leave (*June 2020-January 2021*)
- Contract Python development at Tails.com (*February 2020-June 2020*)
 - Tails.com are an online bespoke dog food manufacturer and seller
 - Worked on conversion from monolith to microservices
 - Introduced **mypy** static type checking for existing monolith codebase (~200k lines of code) which helped catch bugs earlier.
 - Key skills/technologies used: **Python 3, Kubernetes, PostgreSQL, Redis, Flask, mypy**
- Contract Python development at ECS (*October 2019-February 2020*)
 - ECS are a consultancy with two large financial groups as clients
 - Senior engineer on team bringing “serverless” cloud technologies (including **AWS Lambda functions** and **DynamoDB** and others) into these clients
- Contract Python development at Bulb (*April 2019-October 2019*)
 - Bulb are a venture-backed energy company
 - Senior engineer on Bulb’s new microservice software system for international expansion which launched in three countries
 - Initiated and lead development of Envelope, a novel Flask-style framework for message handling used throughout the new system. Likely to form the basis of an open source release in the future.
 - Key skills/technologies used: **Python 3, Kubernetes, PostgreSQL, Google Pubsub, Flask, mypy** (static typing for Python), **Restful API design**
- Contract Python development at JP Morgan (*July 2018-April 2019*)
 - Front office software engineering on a desk responsible for investable indices of credit default swaps
 - Key technologies used: **Python, Athena** (JP Morgan’s proprietary Python environment), **Test Driven Development**, JP Morgan’s proprietary table library (similar to **Pandas**)
- Contract DevOps at Citigroup ICG (*March 2018-June 2018*)
 - Worked in front office in the investment banking division on a group of applications that price debt and debt derivatives
 - This was a short-term contract to introduce continuous integration, test-driven development and other agile practices to a team of quants and traders
 - Key technologies used: **Python, Pytest** and internal pricing libraries

- Contract software development at Bank of America Merrill Lynch (*December 2016-January 2018*)
 - Worked on BAML's 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
 - 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 BAML's newly standardised inter-line-of-business binary messaging with Python
 - Led the release process - daily releases in a sensitive regulatory area
- Contract 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**, **Jenkins** and **Docker**.
- Senior Python Developer at Onefinestay (*September 2015-April 2016*)
 - Onefinestay were 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 **asynchronous** microservices architecture and Salesforce with **Python** and **RabbitMQ**
 - Performance optimised their microservice platform, running on **Amazon Web Services**
 - 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**
- 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 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

EDUCATION

- BSc in **Computer Science from Aberystwyth University**
 - Dissertation on *Using Decision Tree Learning to Reconstruct Post-Flop Decision Making in Texas Hold'em 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