Cal Paterson

DETAILS

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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

- Contract Python development at Pollen *(June 2021-Present)*
  - Pollen are a venture capital backed travel/events startup
  - I work on the central booking system, helping migrate to a microservice architecture
  - Discovered, raised awareness of and mitigated data corruption issues causing overbookings
  - Key skills/technologies used: **Python 3**, **PostgreSQL**, **Django**

- Contract Python development at Limejump (part of Shell) *(February 2021-June 2021)*
  - Limejump are a small energy trading business acquired by Shell
  - Ported core power plant scheduler (and internal dependencies) from legacy "yield from" async style (Python 3.4) async to newer async/await style (Python 3.7)
  - Implemented integration tests for the above power plant scheduler, to allow for safe maintenance

- 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 Bulb *(April 2019-October 2019)*
  - Bulb were 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**, **numpy**

- 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 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

- 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**
  - 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 custom machine learning platform with **Scikit-Learn**/**numpy** 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 for clients such as GOV.UK, Springer and others

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 involved large SQL database with hundreds of millions of poker hands
  - Experience with: **Haskell**, **Python**, **SQL**, **Java**, **Prolog**, **C**, LaTeX 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

SELECTED SIDE PROJECTS

- `pyappcache`, a type-checked application cache library

- `Quarchive`, a "Web 1.0"-style social bookmarking site with bidirectional sync to browser bookmarks using CRDTs

- `Missive`, a work-in-progress event processing library