

# Michael Walker

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## EXPERIENCE

### Government Digital Service

#### Developer

Apr 2018–now

- Platform Health team: improving the health of GOV.UK through a combination of proactive interventions and reactive fixes.
- Maintained a distributed system formed of a large collection of **Rails 5** applications running in **AWS EC2**.
- Managed virtual machines through **Terraform** and **Puppet**.

### Overleaf

#### Software Engineer (Part Time)

Jan–Mar 2018

- Maintained a legacy **Rails 5** application.
- Maintained a legacy **Java 8** / **JGit** application.
- Analysed use of git and GitHub integrations by Overleaf and ShareLaTeX users.

### University of York

#### Postgraduate Teaching Assistant

2014–2017

- Marked assessments and assisted students during practical sessions. Modules:
  - Mathematical Foundations of Computer Science (1st year)
  - Theory and Practice of Programming (1st year)
  - Implementation of Programming Languages (2nd year)
  - Software Testing (masters)

### Overleaf

#### Software Engineering Intern

Jul–Sep 2017

- Fixed numerous security issues, ranging from **CSRF** and **XSS** vulnerabilities to working around a bug in Heroku's router.
- Ported a large **Rails 4** application to **Rails 5**.
- Designed and implemented a distributed message bus using **Node** and **Redis**.
- Analysed the Overleaf and ShareLaTeX user and subscription data to help inform the business model of the post-merger company.

### Pusher

#### Software Engineering Intern

May–Aug 2016

- Contributed to the implementation of a distributed system using **Go** and **Raft consensus**:
  - Rewrote the storage subsystem, improving benchmark performance by a factor of 30.
  - Integrated with **Stagger**, an open-source, in-house, metric reporting service.
  - Reduced maximum garbage collector pause time by a factor of 200.
  - Implemented **m-of-n sharding**.
- Implemented a tool for **fuzz testing** Go interfaces ([github: pusher/go-interface-fuzzer](https://github.com/pusher/go-interface-fuzzer))

### CoreFiling

#### Software Engineering Intern

Jul–Sep 2014

- Refactored an extensively used in-house wiki program, fixing numerous long-standing bugs.
- Built a parser/renderer for a Creole-like markup language using **ANTLR** in **Java**.
- Wrote a **JIRA** plug-in enabling the use of this markup in issue descriptions and comments.

London – England

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## EDUCATION

### University of York

Computer Science (Ph.D)

2014–now

Expected to submit in March 2018.

### Computer Systems and Software Engineering (M.Eng)

2010–2014

Received first-class honours for dissertation on the formal verification of stop-the-world garbage collectors. Achieved 2:1.

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## PUBLICATIONS

### Cheap Remarks about Concurrent Programs

Michael Walker and Colin Runciman, 2018. In *ACM SIGPLAN Symposium on Functional and Logic Programming*.

### Déjà Fu: A Concurrency Testing Library for Haskell

Michael Walker and Colin Runciman, 2015. In *ACM SIGPLAN Symposium on Haskell*.

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## OPEN SOURCE

### Déjà Fu

2015–now

[github: barrucadu/dejafu](#)

A library for testing concurrent **Haskell** programs. Has some commercial users.

### CoCo

2017

[github: barrucadu/coco](#)

A tool for discovering properties of concurrent Haskell programs with shared state.

### logdb

Aug 2016

[github: barrucadu/logdb](#)

A Go general-purpose log-structured database. Can be used as a storage backend for the **hashicorp/raft** library.

### Arch Hurd

2010–2015

[www.archhurd.org](http://www.archhurd.org)

A port of the **Arch Linux** platform to the **GNU/Hurd** kernel.

### Uzbl

2009

[www.uzbl.org](http://www.uzbl.org)

A small web browser written in **C** following the UNIX philosophy of “do one thing well”.

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