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# James Coglan

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## Recent work

2013–present

### Technical Author

Wrote and published two books on software development to date. Both are available from [shop.jcoglan.com](http://shop.jcoglan.com).

Most recent work is **Building Git** (2019) which leads the reader through building a Git client from scratch in Ruby, in order to show how it works internally and introduce a broad raft of computer science topics in the process.

Apr 2017–Aug 2018

### Technical Lead, FutureLearn

Technical leadership of two product teams responsible for sales and growth, providing technical input to the product planning process and day-to-day support to individual contributors delivering features.

- Supported the Product Manager and the Engineers on my team by helping to break down large projects into smaller stories, development implementation strategy to trade off technical factors with business needs to make sure we delivered value to the business sustainably.
- Ran workshops and training for other developers to grow their skills, for example teaching people how to break down large integration tests into smaller units for greater speed and reliability.
- Developed infrastructure to synchronise our user contact information database with an external CRM in real-time, handling any possible consistency and replication errors. Took weekly meetings with the vendor to work through any implementation challenges.

Mar 2014–Apr 2017

### Ruby Developer, FutureLearn

Full-stack engineering on successful online university course platform. Including work on its website, internal services, databases, build automation data warehouse and infrastructure.

- Line-managed a team of five individual contributors, giving them support and guidance in their work and helping them work through problems.
- Mentored new employees through the process of learning our technology stack, working collaboratively and providing support and training sessions on the system architecture and domain model.
- As a senior engineer, played a leadership role in the development of several new product lines transforming the company's revenue streams, including digital course certificates, paid course access, ID verification, and procurement and migration to a new CRM system.
- Led a workshop series introducing developers to the basics of using Chef to deploy web applications on Amazon Web Services. Included provisioning machines, setting up a database and web server stack, process management with Systemd and basic monitoring and alerting.
- Diagnosed and fixed security weaknesses in our product, and produced documentation, presentations and tooling guiding other developers toward better safety practices. Also developed and documented a process for auditing security practices of third party vendors, and carried out numerous data protection improvements, including automated account deletion and compliance with new data privacy and tax regulations.

Sep 2009–Sep 2013

### Software Developer, Songkick.com

Full-stack development on world's second largest live music website, its data acquisition systems, internal services and APIs, developer tools, build automation, infrastructure

and other support systems.

- Designed and built tooling to support splitting a monolithic tightly coupled codebase into many smaller modular projects, including dependency management and build/deployment tracking. Used Jenkins builds to record which versions of projects are safe to deploy together. Used this platform for a major refactoring of the codebase.
- Built and maintained internal services as part of Songkick's migration to service-oriented architecture. Researched, implemented and documented productive approaches to developing and testing internal APIs and dependent web apps.

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*Open source*

- **Jit**, [github.com/jcoglan/jit](https://github.com/jcoglan/jit) – Git client written in Ruby, for the purposes of teaching readers how Git works in my book *Building Git*. Is able to write commits, create and merge branches, display the current state and history, and fetch and push content between repositories.
- **Faye**, [faye.jcoglan.com](https://faye.jcoglan.com) – Widely used pub/sub server and client, with versions in Ruby using Rack and EventMachine, and JavaScript using Node.js and browser-based APIs.
- websocket-driver, [github.com/faye/websocket-driver-node](https://github.com/faye/websocket-driver-node), [github.com/faye/websocket-driver-ruby](https://github.com/faye/websocket-driver-ruby) – I/O-agnostic complete WebSocket protocol implementations for Node and Ruby servers and clients. Automatically supports all protocol versions deployed in browsers.
- Further work is available at <https://blog.jcoglan.com/software/>

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*Conference talks*

June 2018

**Breaking Changes** JSConf EU, Berlin

Examination of problems in providing stable JavaScript APIs that don't break between different versions. Questions how changes are categorised, and what tools and techniques we can use to avoid breakage. Also delivered at Code Mesh in London later in 2018.

**Recordings of these and other talks are available at <https://blog.jcoglan.com/talks/>**

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*Skills*

- Technical leadership, including mentoring and training skills
- Excellent written communication and documentation of technical work
- Object-oriented programming and design, unit testing and test-driven development, and scaling large web applications through refactoring, optimisation, decoupling and service-oriented architecture
- Server-side web development using Ruby (Rails, Sinatra, Rack) and Node.js, and currently gaining experience in Rust, WASM and C, some experience of Python and Java
- Experience with AWS products including EC2, RDS, S3, Elasticache and RedShift, and infrastructure management using Chef and Puppet

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*Education*

2002–2006

**Jesus College, University of Oxford**

Turl Street, Oxford, OX1 3DW

Masters Degree in Physics, 2002–06: Class 2:1

Preliminary Examinations in Physics, 2003: Distinction

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*Other qualifications*

Jan 2013

- Distinction, Compilers, Stanford University/Coursera

Jun 2012

- Distinction, Cryptography I, Stanford University/Coursera

Jun 2012

- Natural Language Processing, Stanford University/Coursera

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*References*

**Available on request**