

# JOSEPH DONLAN

Back-End Developer and Data Engineer based in York, UK

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## SUMMARY

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A PhD-trained scientist and experienced technical communicator, I'm kick-starting a new career in back-end development and data engineering. I've long been fascinated by systems and how they are designed, and I've seen up-close the immense value that data can provide to businesses when it is used to its full potential. Back-end and data engineering neatly combine these interests, a realisation which motivated me to switch careers in 2023. The Data Engineering bootcamp at Northcoders has equipped me with strong technical foundations to complement my expert communication and analytical skills, and I'm excited to start applying these skills in my first role!

## EDUCATION

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<b>Hertford College, University of Oxford</b> PhD in Physical and Theoretical Chemistry.	Aug 2020
<b>Churchill College, University of Cambridge</b> BA and MSci in Natural Sciences, specialising in Chemistry. Upper second class (2:1).	Jun 2013

## TECHNICAL SKILLS

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<b>Programming Languages</b>	Python; JavaScript; SQL
<b>Data</b>	PostgreSQL; data modelling; normalisation; warehouse design
<b>DevOps</b>	Terraform; CI/CD (GitHub Actions)
<b>Cloud Services</b>	AWS (EC2, Lambda, S3)
<b>Methodology / Practices</b>	Agile/Scrum; test-driven development (TDD); pair programming

## SOFTWARE AND DATA EXPERIENCE

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<b>Northcoders</b> <i>Trainee Data Engineer</i>	Aug - Nov 2023
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Northcoders bootcamps are intensive, project-based training programmes focused on developing the skills required to launch a career in data or software engineering.

### Cloud ETL data pipeline project | Python; PostgreSQL; AWS: S3, Lambda, QuickSight | 🔄

Capstone project to create a data platform for a mock retail client which extracts data from a dynamic operational database, archives it in a data lake, and makes it available in a remodelled data warehouse.

- Python functions deployed in AWS Lambda which 1) continually ingest contents of PostgreSQL database, storing it in AWS S3 buckets; 2) remodel data into appropriate star schema suitable for an OLAP data warehouse 3) load the data into a warehouse at regular intervals.
- AWS QuickSight dashboard using custom SQL queries to visualise metrics of interest to the client.
- Cloud infrastructure deployed automatically using infrastructure-as-code (Terraform) and GitHub Actions.
- All code written using test-driven development, checked for common security vulnerabilities and PEP 8 compliant.
- Working in a team of 5 developers following Agile practices (Scrum) including: sprint planning, review, retrospective, daily stand-ups, pair programming, code reviews.

## Modules:

- **Functional Programming:** pure functions, higher-order functions, scope and closure, recursion.
- **Object-oriented Programming:** classes, abstraction and encapsulation, inheritance, polymorphism.
- **Back-end development:** asynchronous code, back-end servers (Express and Flask), MVC pattern.
- **Data warehousing:** SQL and relational databases, normalisation, warehouse design, architecture patterns.
- **Cloud:** AWS console and CLI, AWS services: EC2, S3, Lambda.
- **DevOps:** Infrastructure-as-code, CI/CD, alerting and monitoring.

## OTHER EXPERIENCE

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### Public Library of Science

Feb 2019 - Oct 2021 & Aug 2022 - Jun 2023

*Associate/Senior Editor: Physical Sciences and Engineering*

*Cambridge, UK*

Scientific editor at the multidisciplinary open-access academic journal *PLOS ONE*.

- Assessed and edited academic papers from disciplines across physical sciences (chemistry; physics; applied mathematics) and engineering (digital technologies; machine learning and AI).
- Led cross-functional projects to launch two journal special issues, collaborating closely with operations, marketing and business development teams.
- Developed and ran a structured training programme covering editorial quality-checking. Ran the programme to successfully train 8 junior editors.
- Analysed and visualised data on article submission trends and editorial board composition to inform journal strategy and recruitment.

### Riverlane

Nov 2021 - May 2022

*Scientific Writer*

*Cambridge, UK*

Marketing and technical writer at the quantum computing software start-up *Riverlane*.

- Wrote, edited and published technical and general-interest content including: white papers; technical reports; blog and website copy; social media posts.
- Designed and implemented key workflows and tools for production of content including: strategic content calendar; internal review processes; tone-of-voice guidelines; company primer.
- Effected changes in team and company-level policies by influencing senior stakeholders (including C-suite).

### University of Cambridge

Oct 2019 - Jun 2022

*Undergraduate Mentor*

*Cambridge, UK*

Mentor to third-year undergraduates studying Natural Sciences at the University of Cambridge.

- Devised action plans to help students meet goals for the academic year.
- Trained students in core study skills including reading scientific articles and scientific writing.
- Wrote reports on student progress and performance, escalating concerns to college Director of Studies where required.

## OTHER INTERESTS

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| <b>Tech</b>  | Following blogs and podcasts on latest tech and software trends. |
| <b>Music</b> | Playing piano, flute, guitar. Choral singing and conducting.     |
| <b>Other</b> | Current affairs. Cryptic crosswords.                             |