

# Riley Evans

SOFTWARE ENGINEER • LONDON

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## Summary

A functional software engineer, with interests in Python and strongly-typed languages such as Haskell. With experience designing and developing micro-services and infrastructure to deploy them, such as K8s and Terraform. Keen to learn new technologies.

## Experience

### Five AI (Bosch)

London, U.K. / Remote

#### SOFTWARE ENGINEER

Sep. 2021 - Present

- Designed and developed a FastAPI micro-service to allow of efficient transfer of car data between Azure and AWS. Communicated with teams within Bosch and Five to ensure it integrated with existing systems and met the requirements of users.
- Set out a plan for improving the developer experience of a mono-repo used for data pipelines shared amongst multiple teams.
- Optimised SQL several queries, providing a 100x improvement in the runtime of some queries.
- Developed and deployed a FastAPI micro-service to visualise simulation data in Foxglove — a robotics data visualisation tool.
- Mentored an intern, planning their work and providing technical guidance to ensure they successfully completed their project.
- Proactively identify and diagnose software bugs and issues within the team's codebase using a combination of tools such as Sentry, OpenTelemetry, and logging, often being the first to investigate and troubleshoot. Shared expertise in debugging techniques by delivering a presentation to other developers within the team.
- Optimised the data transfer for in-car 3D visualisations, allowing lidar point clouds to be visible at 4.5x the resolution.
- Contributed to a tooling redesign to provide a single unified method for launching self-driving stacks, with docker-compose. Including re-architecturing the component launching stacks in 10,000 simulations a day.
- Championed and implemented type-checking with pyright in Python projects to enhance code quality and maintainability.

#### SOFTWARE ENGINEER INTERN

Jun. 2020 - Sep. 2020

- Created a front-end dashboard with React and Material UI to help triage issues occurring on the self-driving car.
- Used WebAssembly tools to encode RAW images to a webm video in the browser.

### University of Bristol

Bristol, U.K.

#### TEACHING ASSISTANT

Sep. 2019 - Jun. 2021

- Lead Teaching Assistant for the 2nd year module Computer Systems A. Helped the lecturers to redesign the Concurrent Computing module to include distributed systems. Assisted in labs teaching students how to use Golang to build concurrent and distributed systems. Built an auto-marker for students submissions using Luigi.
- Taught 2nd year students about compilers and semantics with Haskell for Language Engineering.
- Assisted in 3rd year labs for High Performance Computing, teaching different techniques such as MPI, OpenMP, and OpenCL.

### CricViz

London, U.K.

#### INTERN

July. 2019 - Sep. 2019

- Developed XGBoost models to detect repeated patterns in real-time during a live match. For example "Jason Roy is the second English batsman to hit 3 6s in a row in an ODI against Australia".
- Constructed an SQL query able to search sequential rows in the database for patterns occurring in a column.
- Compared real-time ball tracking data against historic values for each player to detect key statistics. For example "Jofra Archer just bowled the fastest over by an English bowler".
- Built a Slack bot to send interesting statistics to the team chat when important games were being played.

### Jaguar Land Rover

Coventry, U.K.

#### TECHNICAL ANALYST

Jun. 2018 - Sep. 2018

- Used the Python library Luigi to prototype a new data pipeline for generating engineering parts reports. This involved creating a system to move data from the current systems into the Google BigQuery. Increasing the reliability of report generation.
- Wrote SQL queries to help search for redundant old data, to improve database performance.
- Created a Git repository of frequently used tools within the team, allowing the team to share work, and reduce duplication across scripts with similar tasks.

## Publications

### CircuitFlow: A Domain Specific Language for Dataflow Programming

RILEY EVANS, SAMANTHA FROHLICH, MENG WANG

Jan. 2021 - Jan. 2022

- Published my undergraduate thesis at 24th International Symposium on Practical Aspects of Declarative Languages (PADL) 2022
- Used Monoidal Resource Theories as a basis for constructing data workflows.
- Leveraged the latest dependently typed programming features in Haskell, such as DataKinds and Type Families, to create a strongly typed implementation.
- Implemented several examples, including a build tool for lhs2TeX to compile the thesis.
- Built a GitHub Actions CI to verify unit tests and deploy the latest documentation to Github Pages.

# Projects

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## Money Manager

PERSONAL PROJECT

Jan. 2022 - Present

- Envisaged and designed a microservices system to manage budgets using Open Banking APIs.
- Implemented in Haskell using Servant to build REST APIs with Persistent to manage PostgreSQL databases.
- Constructed Kubernetes infrastructure with Terraform to allow for continuous deployment of services.
- Implemented Haskell client libraries for Starling Bank and TrueLayer.

## University of Bristol Library App

SOFTWARE PRODUCT ENGINEERING - UNIVERSITY OF BRISTOL

Sep. 2018 - May. 2019

- Worked in a group of 4 students to produce an Android application for the university library.
- Met regularly with the library staff to update them on progress and to get feedback on how to improve our product.
- Communicating with the team through Slack, which enabled us to work remotely with ease.
- Created a feature that was able to read RFID tags in books to allow users to take books out on loan from a mobile application. This included reverse engineering Bibliotheca's RFID standard.
- Worked with library APIs to access user data.

# Education

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## University of Bristol

Bristol, U.K.

COMPUTER SCIENCE MENG (1ST CLASS)

Sep. 2017 - June. 2021

- Averaged 75% across all years.
- Some standout assessments are: Thesis (91%); Advanced HPC OpenCL Coursework (90%); Applied Cryptography Coursework (92%); Advanced Topics in Programming Languages (80%); Language Engineering (85%);
- Took the Cloud Computing & Big Data unit and created a scalable submission marker on AWS, using S3, SQS and ECS.

## Tudor Grange Academy Solihull

Birmingham, U.K.

A LEVELS & GCSEs

Sep. 2015 - June. 2017

- A Levels: Mathematics (A\*); Further Mathematics (A\*); Computer Science (A\*); Physics (A);
- 13 GCSEs including English (A) & Mathematics (A\*)

# Skills

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**Languages** Python, Haskell, Golang, TypeScript, C

**DevOps** Git, Kubernetes, Terraform, Docker, AWS, Azure, GitLab CI, GitHub Actions

**Databases** PostgreSQL, MongoDB, Redis, Google BigQuery

# References

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References are available on request.