Daniel McIntyre

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Education

Master's of Engineering, University of Bristol

- Upper second-class honours in MENG Mechanical Engineering

RR6 Sixth Form, Merton, London

- A-Levels completed in Maths (A*), Physics (A) and Biology (A).

Core skills

- Python, Golang, C++, MATLAB
- Linux/Unix/Bash
- CI/CD (Jenkins/Rundeck/GitLab pipelines)
- Automation (Selenium/Ansible/Terraform)
- TDD (test driven development)
- Git
- Agile/Scrum
- Docker, K8s
- CouchDB/Postgres
- Virtual Machines

Work experience

Backend Software Engineer (SWE I) - Zynstra (NCR Corporation) (July 2022 – Present)

- As part of a 2-man team I implemented an image distribution system to allow customers to download custom images of our software to thousands of stores at once quickly and efficiently. As part of this project, I helped to design the backend REST API to POST JSON about the image distribution statuses to our database (CouchDB in this case) as well as implementing an image deduplication and reduplication process to minimise download times. I am one of two subject matter experts on this feature and continue to maintain and improve this feature as well as resolving production problems when they occur.
- I often assist customers as well as our delivery teams with production and lab environment problems they encounter. I am able to effectively resolve the problems and implement hotfixes when necessary.
- I regularly carry out code reviews within my team and am able to provide concise, constructive, and actionable feedback to help the team learn and ensure we deliver the best possible solution.
- I solely designed an internal tool which displayed our CI/CD deploys and test results in an easy to interpret frontend. The frontend was made with Typescript, CSS, and HTML. The backend is a REST API I created in Python utilising the Flask framework. This project is completely containerised with docker and can be run locally or accessed while on our VPN as I have hosted it on one of our internal servers. I am the sole maintainer of this project currently.

- I have given several companywide knowledge transfer sessions on areas in which I am a subject matter expert which have been very well received. I have also taken new joiners through the parts of the induction process involving my areas in one-to-one meetings.
- I co-designed our suite of automated performance tests and am the sole maintainer and code owner currently. I carry out these tests on release builds and analyse the results, raising problems as required.
- I also co-designed our Selenium frontend automated test framework using the page object model design pattern and on demand Docker containers to provide fresh run environments and record failing tests. I still maintain this project and assist some of our new QA joiners joining front end teams with getting to grips with the framework and writing their first automated Selenium tests.

Relevant Academic Projects

MATLAB structural integrity analysis (Awarded 1st)

- I collected ultrasonic profiles of several possibly cracked structures by transmitting ultrasonic waves into the materials. I used the attenuation technique and recorded the attenuation of the wave as it reached the other side of the test material.
- Using MATLAB I designed a solver to analyse the results of the ultrasonic test and detect flaws and estimate their length and width.

C++ finite difference method for 3D heat transfer (Awarded 1st)

- I was tasked with modelling the heat transfer through various objects heated at one area from a constant source and determining how their heat profiles changed over time.
- I chose to use the finite difference method to model my boundary conditions, allowing me to model the partial differential heat equation as a system of linear equations.
- Using C++, I wrote a solver which used matrix algebra to solve the system of linear equations and model the heat profile.

Other Development

- I have spent 70+ hours completing further training courses with pluralsite in my own time.
- I have specifically focussed on developing my skills with Kubernetes, Docker, Python, Golang, Ansible, and Terraform.
- I have non-production commercial development experience with Typescript, JavaScript, CSS, HTML, and React. I have developed a few internal company dashboards using these tools and have completed a React training course.