Last updated: October 9, 2020

Original copy (in case broken): `https://mullikine.github.io/cv/`

1 Shane Mulligan; BSc (Computer Science)

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Platform Engineering · Software Engineering · Test Automation · Natural Language Processing

1.1 Shane Mulligan [Cover Letter]

Dear Hiring Manager,

Please consider me for this role.

I'm passionate about developing tooling and automating software development processes.

In 2020 I contracted for FMG in Australia developing CI/CD infrastructure their vehicle autonomy team on AWS. I enjoyed creating productivity tools for the developers, working with GitLab CI and AWS EC2. I have returned to New Zealand since and been involved with with my friend's project in realistic avatars (URL: `http://otagoai.com/`). I've also been through the Facebook interview process for a platform engineering job, so have completed this primer `https://github.com/donnemartin/system-design-primer`.

In 2019 I automated a pipeline to scale a platform for automating pull requests to GitHub. The pipeline scripts I made touched on everything from GCP, kubernetes, GitHub and AWS and utilised shell, golang, python and common lisp.

In 2018 I studied Information Retrieval and Deep Learning at the University of Otago. I developed a GitHub search engine as my project.

From 2016 to 2017 I maintained CI infrastructure for Crown Equipment Corporation for their autonomous forklifts.

I really enjoy emacs, chatbots, NLP and lisp. I work entirely within a terminal environment I have been automating since 2011. I have 10+ years experience in the workforce as a linux-based software developer and tester. I can research, create quality documentation, design and automate experiments. Please take a look at my blog (`http://mullikine.github.io`) I am very capable and hard working.

Thank you for your consideration,

Shane Mulligan

1.2   Links

- Blog: http://mullikine.github.io - Daily Blog

- Startup: TakaheAI - Ultra-realistic avatars and chatbots for the enablement of humanity.

- GitHub, gists, List of most active users in GitHub - GitHubStats

1.3   Past CVs

This is here to communicate my background but not my direction.

- CV and written reference - 2015 - Application for C++ Development

1.4   Presentations

- *<2020-10-06 Tue>* CodeCraft: Creating UIs for CLI programs with Docker and Emacs // Bodacious Blog

1.5   Relevant blog articles for Platform Engineering / DevOps

- `GCP`

  - Tremendous Task: Searching for code on GitHub with BigQuery and GHTorrent // Bodacious Blog
  - CodeCraft: Stacklet - Save Money on the Cloud // Bodacious Blog

- `NLP`

  - Generating poetry with GPT-2/

- Deployment and `IaC`

  - `https://mullikine.github.io/tags/iac/`
  - CodeCraft: Stacklet - Save Money on the Cloud // Bodacious Blog
  - Deployment with IaC and Octopus // Bodacious Blog/
  - Automatic, interactive handling of build files and IaC // Bodacious Blog
  - Review of 'Terraform code quality - CloudSkiff' // Bodacious Blog
  - Terraform // Bodacious Blog/
  - OS-agnostic program installation with Ansible // Bodacious Blog
  - Review of 'Ansible and Terraform: Better Together' // Bodacious Blog
  - HashiCorp: Terraform, Vault, Vagrant, Packer // Bodacious Blog/
  - Provisioning with IaC // Bodacious Blog/
  - Ansible // Bodacious Blog/

1.6   Summary of FMG work (*TBD*)

1.7   Work experience

1.7.1   Fortescue Metals Group (contract)

job title Senior Software Tester and Tooling

Job Application   Application to Fortescue Metals Group // Bodacious Blog

Area	Task
Point of failure analysis	FMEA
CI/CD	GitLab Runner, Docker
Tooling	ROS2, C++
Deployment	Shell, Octopus
Platform Engineering	EC2, Terraform
Research	AWS RoboMaker

- Relevant blog articles

  - Review of 'AWS RoboMaker - Amazon Web Services' // Bodacious Blog

started Jan 2020

 ended May 2020

1.7.2 CodeLingo Ltd

job title Software Engineer (contractor)

Development / automation

Golang, bash, kubernetes

1. Examples of pull requests generated and made automatically

   These pull requests were generated by the automated CodeLingo platform.

   `https://gist.github.com/1860bfea2a9e1e3b3bbb96b95a11bdd0`

   started Sep 2018

   ended May 2019

2. Languages used

language	context
golang	Built the Gometalinter lexicon
shell	Pipeline
python	GitHub API
ElasticSearch Lucene	Debugging
BigQuery standard SQL	GHTorrent / Bigquery for Github
JavaScript	Unit testing
emacs lisp	Building an environment for a new language (CLQL)

3. Highlights

   - 0 to 1000 automated github pull requests over 8 months.
   - Pipeline outreach scaled the platform from 10 to 300 app installs.

1.7.3 Crown Equipment Corporation

job title HIL (hardware-in-the-loop) Test Engineer

Continuous integration.

Embedded c/c++.

started Jan 2015

ended Sep 2017 (2 years 8 months)

1. primary languages used

   - C++13
   - python

2. Responsibilities

   - HIL (hardware-in-the-loop) rigs / integration tests
   - Implement driver for 3D Basler Camera

3. Highlights

   - Built a platform for correlating error messages with logs and code using the the Sphinx open source search engine.

1.7.4 TracMap

job title Software Engineer

 Embedded programming

 Full-stack web development

started Jan 2011

ended Mar 2013 (2 Years 2 months)

1. primary languages used

   - C++
   - python
   - javascript
   - postgresql

2. Highlights

   - Ported the firmware from the older TM4 head units to the then prototype TM5 headunit.

3. Images

   - 2012: TM4 needs love
   - 2019: First TM5 returns home

1.8 Open-source Projects

1.8.1 Age of Kings Trigger Studio

http://aok.heavengames.com/blacksmith/showfile.php?fileid=12103

   The most popular Age of Empires II scenario editor. Downloaded 11,000 times since 2014. Used in making campaigns for Age of Empires II HD edition and expansions.

Software	Purpose
IDA Pro	Reverse engineering
Visual Studio 2005	Compiling
emacs/vim	Programming

1.9   Skill set

- Natural Language Processing

- emacs

- Language agnostic / polyglot

- Self-management

- Continuous learning

- Automation

- Functional Programming

1.10   Education

Degree	Field	Insitution	Status
BSc	Computer Science	University of Otago	Finished 2010
PGDip	Information Retrieval	University of Otago	Started 2018

1.10.1   Highlights

- Won the COSC343 robot competition

- Completed a GitHub search engine using GHTorrent and BigQuery.

1.10.2   Interest papers

- Health science 1st year

- Chemistry (200 level)

- Anatomy (200 level)

- Information Retrieval (400 level)

- Neural Networks (400 level)

1.10.3   Books read

Coherence in natural language. Data structures and applications.

1.11   Volunteer work

1.11.1   School of Computer Science

Ongoing. Tutoring junior school and high school students.

started 2018

ended Dec 2019

1. proud moments

   (a) portfolio gallery (circa. 2018) Guided 2 high school students in building an interactive portfolio gallery for the Otago Settler's Museum.
      - Taught CSS, javascript, php.
      - Used Google Cloud NLP for transcribing spoken queries
   (b) built a bot that can play the board game codenames (circa. 2018)
      - Taught the concept of 'word vectors'.

1.11.2 Experience

	Company	Context	
Containerization	FMG	Docker, docker compose, docker swarm	5 months (2020)
Orchestration	CodeLingo	Making tooling for K8s, EKS, minikube	8 months (2018, 2019)
Software deployment, AWS	FMG	AWS, GitLab CICD, Octopus.	5 months (2020)
GitLab CI/CD tools	FMG	Automating Build and Deployment	5 months (2020)
AWS	CodeLingo	Platform Automation CodeLingo	8 months (2018, 2019)
GCP	CodeLingo	Searching for github code	8 months (2018, 2019)
Golang	CodeLingo	Go application development	8 months (2018, 2019)
Test automation (Hardware)	Crown	Localisation, smoke, integration tests.	2 years (2016, 2017)
Test automation (Hardware)	TracMap	Prototype traceability matrix	2011
C++ testing	TracMap	C++ application testing	2011
Test automation (JavaScript)	TracMap	SAAS testing	2012
Python testing	TracMap	SAAS testing	2013
C++	Crown	C++ application development	2015, 2016
C++	TracMap	C++ application development	2011, 2012
Python testing	Crown	Selenium, HIL	2016, 2017
Test automation (Golang)	CodeLingo		2018
Point of failure analysis	Crown	Test logs	2016
Web Development			2006-2020

1.11.3 Programming languages

I support many languages in my environment.

`https://mullikine.github.io/posts/emacs-languages-supported/`

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Language strengths

Language	Work Experience
Python	yes
Clojure	yes
Shell (POSIX, bash, zsh)	yes
c	yes
c++ (98)	yes
c++ (13)	yes
SQL (BigQuery)	yes
Go	yes
Haskell	
Common Lisp	
TCL (expect)	yes
emacs lisp	yes
scheme / racket	
problog	yes
Perl	yes
PerlRE and PCRE	yes
sed	yes
awk	yes
JavaScript	yes
Java	yes
JQ	yes
GraphViz	yes
Latex	yes
VimScript	yes
Rosie RPL	
Prolog	
Cloud-Native Language	Work Experience
CLQL	yes
CodeQL (GitHub / LGTM)	

1.12   Citizenship

- Australia
  Eligible for an E-3 visa in the USA.

- New Zealand

1.13   References

1.13.1   Dr Zhiyi Huang

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1.13.2   Jesse Meek

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1.14.1   Linkedin

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1.15   Colophon

If there are missing pages or the formatting is off, you can find an original here:

Online version: https://mullikine.github.io/cv/

PDF version: https://mullikine.github.io/ox-hugo/cv-newest.pdf

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