

1 Shane Mulligan (BSc)

specialisation scripting, domain specific languages, natural language processing

1.1 Links

1.1.1 Personal blog - <http://mullikine.github.io>

- A few of the things I have written:
 - <https://mullikine.github.io/posts/github-search-with-bigquery/>
 - <https://mullikine.github.io/posts/macro-tutorial/>
 - <https://mullikine.github.io/codelingo-vs-linters/main/>
 - <https://mullikine.github.io/posts/practical-macros-in-racket-and-how-to-work-with-them/>

1.1.2 GitHub

- <https://github.com/mullikine/>

1.2 Education

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

1.2.1 Highlights

- Won the COSC343 robot competition
- GitHub search engine using GHTorrent and BigQuery
- <https://mullikine.github.io/posts/github-search-with-bigquery/>

1.2.2 Interest papers

- Health science 1st year
- Chemistry (200 level)
- Anatomy (200 level)
- Information Retrieval (400 level)
- Neural Networks (400 level)

1.3 Volunteer work

1.3.1 School of Computer Science

- <https://techweek.co.nz/whats-on/2019/dcbc-school-of-computer-science-open-day-174/>

Ongoing.

started 2018

1.4 Work experience

1.4.1 CodeLingo Ltd

job title Software Engineer

Scaling / automation.

Lexicon development.

started 2018

ended 2019

1. Languages used

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

2. Highlights

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

1.4.2 Crown Equipment Corporation

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

Continuous integration.

Embedded c/c++.

started 2015

ended 2017

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.

1.4.3 Tracmap

job title Software Engineer

Embedded programming

Full-stack web development

started 2011

ended 2013

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.

1.5 Open-source Projects

1.5.1 Age of Kings Trigger Studio

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

The most popular Age of Empires II scenario editor. Downloaded 10,000 times. 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

1.6 Skill set

- Language agnostic
- Can self-manage
- Continuous learning

1.6.1 General knowledge / skills

Area	Context
Scripting / pipelines / automation	CI, bash, jq, python, haskell, expect
Building terminal user interfaces	golang, semantic highlighting, real-time feedback, fzf, emacs
Building debugging tools	tracing, automated git bisect
Metaprogramming	code generation, emacs lisp, racket
Preprocessing	rosie lang, pcre, sed, awk
Algorithms	Information retrieval / NLP
Information retrieval	Google automation, bigquery, sql generation
Documentation	report/blog writing, latex, org-mode
Web development	html, css, ajax, progressive enhancement
Deep learning	word embeddings, Keras, pytorch, 'GPT-2/the transformer'
Continuous Integration	Jenkins, JenkinsX, CodeLingo, CloudBees
Natural language processing	Spacy, word vectors <-> words, BERT (transfer learning)
Functional programming	racket, haskell
Microservices / Kubernetes	logs, searching, automation, debugging, scripting
Bayes	problog
Building editing environment	building emacs modes, fixing bugs in emacs
Research / learning	automated Arxiv search, hacker news search, presentation

1.6.2 Tools

tool / skill
emacs
vim
Deep TabNine
GPT-2
ctags
Google search automation
Code generation
Code snippet search

1.6.3 Programming languages

Table 1: legend

key	
OOP	object-oriented
FP	functional programming
Exp.	experienced

Language	Strong	Exp.	Advanced skills
Python	yes	yes	code-gen, reflection, own library, OOP, FP
bash / zsh	yes	yes	code-gen, own library, FP
c	yes	yes	code-gen
c++ (98)		yes	code-gen
c++ (13)		yes	code-gen
SQL	yes	yes	code-gen
Go	yes	yes	own library
CSS	yes	yes	code-gen
Haskell		yes	reflection, own library, FP
common lisp	yes		code-gen, FP
tcl/expect	yes	yes	code-gen, own library
emacs lisp	yes	yes	code-gen, own library, metaprogramming
scheme / racket	yes	yes	code-gen, own library, metaprogramming
problog		yes	code-gen
perl	yes	yes	
sed, PCRE	yes	yes	code-gen
awk	yes	yes	code-gen, own library
clojure			
javascript		yes	
java			
jq	yes	yes	code-gen
graphviz	yes	yes	code-gen
latex	yes	yes	code-gen
vimscript	yes	yes	code-gen, own library
rosie			
CodeLingo Query Language	yes	yes	code-gen, own library, metaprogramming
prolog			code-gen
rust			
typescript			
scala			
smalltalk			

1.7 References

1.7.1 Dr Zhiyi Huang

email `zhuang@cs.otago.ac.nz`

Associate Professor
Department of Computer Science
University of Otago
Dunedin, New Zealand

1.7.2 Jesse Meek

email `waigani@gmail.com`

CEO
CodeLingo
Dunedin, New Zealand

1.8 Contact details

phone +64 3 4777 071

mobile +64 21 146 2759

mobile +64 22 589 5536

email mullikine@gmail.com

1.8.1 LinkedIn

www.linkedin.com/in/shane-mulligan-811b942b/