

# walterschulze

programmer

## contact

Stellenbosch  
South Africa

awalterschulze at gmail  
[awalterschulze.github.io](https://github.com/awalterschulze)  
[linkedIn profile](#)

## languages

bilingual in Afrikaans  
and English

## programming

Expert:  
Golang, Protocol  
Buffers

Proficient:  
Git, BNF, Latex

Learning:  
[Haskell](#)

Hackable:  
Javascript, Bash,  
Bootstrap, Docker,  
PEG, RelaxNG,  
JsonSchema

Past:  
Python, Java, Matlab,  
XSLT, PHP, SQL, C

## employment

2011 ...

### Vastech

*Programmer*

Since 2011 I have been working at Vastech, a company that develops and sells hardware and software that is used for massive passive surveillance of communication networks. I have been part of a team that is developing a distributed database from scratch. This database was focused on fast writing of time series data. We developed this all in Go.

Amongst other things I have:

- Designed and developed the query language and matching algorithm.
- Refactored and redesigned the metadata serialization scheme.
- Initiated and developed the company's open source policy.
- Redesigned our schema and index configuration from a compile time to run time configurable dependency.
- Coordinated a design with the team and developed the update mechanism for metadata in the write fast distributed database.
- Developed and lead the intern program. This consisted of more than 20 unique interns over a period of 2 years and a maximum of 12 at one time.

Stellenbosch, South Africa

2010 – 2011

### Entersekt

*Junior Developer*

Developing a Java and J2ME code generator in Python while assisting on various other projects involving PHP, SQL, XML-RPC and Network Security.

Stellenbosch, South Africa

before 2010

### more

*Part Time Consultant, Teaching Assistant and Intern*

[Please see my LinkedIn Profile](#)

South Africa

## education

2007–2009

### Masters of Computer Science (cum laude)

Stellenbosch University

*A Formal Language Theory Approach to Music Generation*

We investigate the suitability of applying some of the probabilistic and automata theoretic ideas, that have been extremely successful in the areas of speech and natural language processing, to the area of musical style imitation. By using music written in a certain style as training data, parameters are calculated for (visible and hidden) Markov models (of mixed, higher or first order), in order to capture the musical style of the training data in terms of mathematical models. These models are then used to imitate two instrument music in the trained style.

2006

### Honours of Computer Science

Stellenbosch University

Year project (passed with distinction): A bridge type card game which is played on mobile phones against each other. This included the implementation of a J2ME Client, Java Server, Database and Artificial Intelligent Players. Included courses on: Advanced Algorithms and Data Structures, Pattern Recognition, Artificial Intelligence, Simulation, Applied Automata Theory, Embedded Systems Programming and Concurrent Programming.

- 2003–2005 **Bachelors** of Computer Science Stellenbosch University  
 Included courses on: Operating Systems, Low Level, Cryptography, Networks, Coding Theory, System Design, Algorithms and Data Structures, Databases and Formal Language Theory.
- 2011 ... **Various Online Certificates** Coursera and Edx  
 Please see my CV repository

## publications

- 2010 **Music Generation with Mixed and Higher Order Hidden Markov Models** IEEE Multimedia  
 Walter Schulze and Prof Brink van der Merwe

## awards

- 2013 **Developed and Lead Intern Program** Vastech  
 We started with about 2 interns per year. I developed and lead the intern program up to the point where we now take up to 17 interns per year. I was given one of the three awards Vastech gives out every year.

## open source projects

- 2015 **Katydid** Go, Serialization Formats, PhD  
 Validation Language for Trees
- 2013 **gogoprotobuf** Go, Protocol Buffers, 200+ Stars  
 Protocol Buffers for Go with Gadgets
- 2015 **LetMeGRPC** Go, Javascript, Protocol Buffers, GRPC  
 Generates a web form GUI from a GRPC specification
- 2012 **GoGraphviz** Go, Graphviz, Parser Generator  
 Go Parser for Graphviz's Dot Format
- 2015 **git-anchor** Git, Go, Bash  
 Anchors the versions of your git dependencies

## interests

**professional:** Automata, Programming Language Design, Computational Neuroscience  
**personal:** Guitar, Music Production, Music Technology