walterschulze

programmer

contact

Stellenbosch
South Africa

awalterschulze at gmail
awalterschulze.github.io
linkedIn profile

languages

bilingual in Afrikaans
and English

programming

Expert:
Go

Pretty Good:
Latex, Git

Learning: Haskell

Hacking:
Javascript, Bootstrap,
Docker, Bash

Past:
Python, Java, C,
Matlab, XSLT

employment

2011 – Now **Vastech** Stellenbosch, South Africa

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.

2010–2011 **Entersekt** Stellenbosch, South Africa

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.

before 2010 **more** South Africa

Part Time Consultant, Teaching Assistant and Intern

Please see my LinkedIn Profile

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.

publications

2010 **Music Generation With Mixed and Higher Order Hidden Markov Models** — IEEE Multimedia
Walter Schulze and 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