# David Dudson

Software Developer

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Available to work remotely or in Cairns, Australia from 19th Feb 2018

## About me

I am a cross-paradigm, performance driven, Scala/Java Software Developer who specializes in meta-programming. With new languages and paradigms I can adapt to any team. I'm becoming increasingly aware of I am currently working on Process Systems Enterprise, London, remotely from Palmerston North, New Zealand, as well as working in the scalamet time for open source.

## Open Source

I have a passion for writing code, especially when it is consumed by a large number of users. I'm always looking for more open source community, either on Gitter or via PR's. Ideally I would like to work completely open source and believe that open source all their libraries where it is appropriate.

📅 scalagen

**Author**

WIP code generation library for Scala. Built on scalameta, scalagen supports any scalameta dialect, Scala Native/ScalaJs 2.12.4 are all supported. scalagen can completely replace all scalameta/paradise annotation macros, and *most* scalam annotations.

📅 scalameta

**Maintainer**

Meta-programming library for Scala. Built with the idea that Scala's language tree's should be easy to manipulate. This centerpoint for most recent developements with Scala's tooling.

📅 scalameta paradise

**Maintainer**

Macro library for Scala. Now deprecated in favor of scalameta/scalagen (Annotation Macros) and scalacenter/mac

📅 Elysium

**Author**

A collection of macros for scalameta/paradise. On hold until scalagen goes 0.1, then the entire API will be c

## Employment

**Company:** Electric Memory IT (EMIT)
**Contracted To:** Process Systems Enterprise (PSE)
**Time Employed:** June 2015 - Present

Based in Palmerston North, New Zealand, Contracting out to Process Systems Enterprise, which is based in London.

I am working on the gPROMS family of integrated modelling environments (IME's), designed for various engineers complex systems. The kernel is written in C++ and Fortran, with the UI written in Java. gPROMS is primarily a procedur that is used to run simulations/optimizations etc. Thus the IME's act much like an IDE would for a Software Developer. V such as Eli Lilly Pharmaceuticals and Shell Petroleum I take the quality of code I produce very seriously.

## Projects

### New Language Engine (NLE)

The purpose of this project was primarily to remove a large chunk of the remaining CORBA code in our codebase. Usir and lexer, with Scala as the language of choice, we managed to build an fast, immutable, threadsafe and storage effici

### Moving from Maven to Gradle

Our build system is rather complex, we have multiple "code generation" steps, multiple JVM languages being used, ex (obfuscation and encryption) and multiple repositories. The build was designed to be modular via Gradle plugins.

### Flowsheet Routing

Our users were generating models in other applications, with 2000+ models and connections between them. The Swings GUI Thread (EDT) and thus blocked the user from working while it happened. For user-generated projects project load and trigger up to 8 hour GUI freezes. Of course, this is not acceptable, thus I moved all routing off the EDT was undo. We had asynchronous edits that had to be managed within Swings very synchronous and sequential undo sy

## Past Employment

Dick Smith Electronics

**Role:** Salesman
**Time Employed:** 2014 - 2015

Countdown Supermarkets

**Role:** Butchers Assistant/Checkout Operator
**Time Employed:** 2009 - 2013

## Technical

### Operating System

I prefer Unix based systems for general development, usually one of NixOS, Ubuntu, Fedora or OSX.

### Version Control

I exclusively use git for version control. I am very competent with git and have written a number of internal scripts for it.

### Languages, Libraries and Skills

**Scala**
I have been writing Scala code since 2012, working with it in industry for the past 2 years. I consider myself a
and have given talks on Scala before. Most of my open source work has been creating and/or contributing to
large number of Scala libraries, but most commonly Cats, Monix, Circe and Scalameta.

**Java**
Java was the first language I learnt. Self taught while I was at high school I have been writing Java code since 2
the codebase I work in is Java and I consider myself an advanced Java user.

**Python**
I use Python mostly for scripting and web scraping. I've attended multiple Kiwi Pycons and always enjoyed t
Python community.

**Javascript**
I've written a lot of javascript, mostly during my time at university, I have experience ES5, ES6, Typescript and
written code in AngularJS, Angular and React, using tools such as NPM, Bower, Gulp and Webkit.

**Antlr 4**
A large portion of my work recently has been writing ANTLR4 Grammars, a Scala AST to go with them and ens
been optimal. Due to this, I've subclassed and replaced large portions of the ANTLR code as it was non-optim
much garbage for our uses.

**Ansible**
I have written multiple sets of Ansible scripts, for provisioning build machines and setting up dev environments.

**Gradle**
Due to being in charge of the Maven => Gradle porting of our build system at work, I have become a com
developer.

**Category theory**
Last year I taught myself basic category theory. I wanted to get a ground up understanding of category theory
with the Cats library, I could understand the reasoning and terminology. In particular, I wanted to develop an u
Monads and Natural Transformations. I still want to do far more research into this field and personally believ
every Computer Science student globally.

**Functional Programming**
I believe that Functional Programming is a far too common of a phrase these days, when a lot of people mea
functions". Functional programming is not just about having functions representable at the type level. I use p
structures and try to be as pure as possible, handling effects at the type level, where it does not affect Readab
Performance. I can proudly say that I have not deliberately used the keyword "null" in my code, for well over a y

### IDE's and Editors

**Intellij IDEA**
I use Intellij every day for most development. For Java specifically, I struggle to see a reason to use anything els

**Webstorm**
Go to for Web development, although I do not feel an IDE is anywhere near as useful for web dev as it is for Ja
use a text editor instead.

**Atom**
My usual text editor, I use it quite a bit for web development as well.

**Gedit**
I use Gedit for Git related work. Atom starts too slow and I have not yet spent enough time with Vim to use that.

### Profilers

**Yourkit**
I would recommend Yourkit to anyone, Yourkit makes optimizing code a breeze.

**VisualVM**
I stopped using VisualVM after we purchased Yourkit. Yourkit really is far superior here.

## Conferences

Attending as many conferences as possible I enjoy networking and learning how the industry is evolving. I have been t
including Kiwi Pycon, Kiwicon X and NZJSCon. One of my highlights was presenting a lightning talk on GitPython at Kiw
be attending Linux Conference Australia in Sydney at the end of January 2018.

## Community

I attend as many talks and events as possible, via Massey University, IT Professionals of New Zealand (ITPNZ) or the Palr
Development Meetup Group. Once I have arrived in Cairns I will be joining IT Professionals Australia. I have also given a
Scala to around 30 people at the meetup group.

## Education

### Massey University

**Qualification:** Bachelor of Information Science. Computer Science Major

**Status:** Compulsories complete in 2015

Started working fulltime before completion currently finishing electives via part-time study.

### New Plymouth Boys' High School (NPBHS)

**Qualification:** NCEA level 3

**Status:** Complete in 2011

## References

Personal phone numbers of references available on request.

### Duane Griffin

**Relationship:** Cofounder of Electric Memory IT
**Location:** Palmerston North, New Zealand
**Timezone:** New Zealand Standard Time (NZST - UTC+13)
**Email:** duaneg@psenterprise.com
**Phone:** ???

Duane is my current boss. He has worked for PSE for 14+ years. Currently heads on the NLE project. Ask Duane a
about my Scala knowledge and/or involvement in NLE.

## Luke Usherwood

**Relationship:** Cofounder of Electric Memory IT
**Location:** Hungary
**Timezone:** Central European Time (CET - UTC+1)
**Email:** lukeu@psenterprise.com
**Phone:** ???

Luke worked for a short time in New Zealand when I first started. He has since moved back to Hungary. Ask Luke about the flowsheeting work I have done. He also has worked on NLE and I send a lot of code reviews his way.


## Andrew Bevan

**Relationship:** Head of Software Development, Process Systems Enterprise
**Location:** London, England
**Timezone:** Greenwich Mean Time (GMT - UTC+0)
**Email:** andrewb@psenterprise.com
**Phone:** +44 20 8563 0888

Andrew is the Head of Software Development. If you wish to know any non-technical information about how I have worked well I work remotely, feel free to ask him.


## Steven Carpenter

**Relationship:** Ex Manager of Dick Smith Palmerston North
**Location:** Palmerston North, New Zealand
**Timezone:** New Zealand Standard Time (NZST - UTC+13)
**Email:**
**Phone:** ???

Steven (Steve) was my boss at Dick Smith before I started working as a Software Developer. If you would like to know retail experience, including customer interactions, feel free to ask Steve.