

## PERSONAL DETAILS

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## PROFILE

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I am a skilled and highly motivated software developer with over 30 years of commercial design and programming experience. During this time I have been involved in all aspects of software development, from initial requirements and design through to testing and support. I have worked on a wide range of projects, from firmware to websites, on a variety of platforms, and have over 10 years of experience working in agile development teams (both Scrum and Kanban).

## SKILLS SUMMARY

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### Programming Languages/Technologies

C#/.Net (10+ years)  
C/C++ (10+ years)  
Java (5+ years)  
Kotlin (5 years)  
Swift (2 years)  
Javascript/Typescript; some experience with React/Angular 2/jQuery/KendoUI  
IoC/DI with .Net/Castle Windsor/Autofac/Unity/LinFu/Dagger (Android)/Swinject (iOS)  
Entity Framework and NHibernate ORMs (also ROOM on Android)  
Docker and Kubernetes  
  
IaC using Terraform, CDKTF and AWS CloudFormation  
  
Unit testing in C# using xUnit/NUnit/MSTest, Rhino Mocks (3.3+) and Moq (4.0+)  
Unit testing in Android and iOS development  
Unit testing in Javascript using Jasmine  
CI/CD using github actions/ Bitbucket Pipelines/ Azure DevOps//Jenkins/CruiseControl/TFS  
Source Control with Git, TFS, Mercurial and Subversion  
  
Microsoft .NET Framework 1.0 – 4.8, .Net Core and .Net 5/6/7, ASP.NET all versions  
Microsoft SQL Server, PostgreSQL, SQLite, Neo4j (graph DB), Couchbase  
Microsoft WPF and WCF  
JetBrains Rider and Microsoft Visual Studio all versions  
Android Development using Android Studio and Eclipse  
iOS Development using Xcode  
Network programming, Winsock, TCP/IP and application level protocols (eg. HTTP, FTP)

## WORK EXPERIENCE

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### March 2023 – June 2023: Atomic/PwC DAP (contract)

*Primary technologies: C#, .Net Core 6/7, Terraform, CDKTF, docker, kubernetes, Azure*

The DAP project at PwC enables large-scale data acquisition and analysis for mergers and acquisitions.

I was employed as a **senior developer** on a short contract to help setup IaC for the project, using CDKTF/Terraform to both automate their infrastructure setup (eg. to spin up new environments) and deploy their applications into Azure AKS kubernetes clusters (containerising the apps that weren't already).

## September 2021 – December 2022: UBCO

*Primary technologies: C#, .Net Core 6/7, ASP.NET, docker, kubernetes, AWS*

UBCO design and manufacture electric motorbikes. I was a **senior developer** and founder member of the software team building their intelligent vehicle platform to collect and surface bike data, handle user/bike management, etc. This was developed using a microservice architecture deployed into EKS kubernetes clusters, with a mixture of services written predominantly in C# (.Net 6/7) and AWS lambdas written in go. User facing apps were created using React and Kotlin/Swift for the native mobile apps.

The philosophy was to use the right tool for the job, so as well as more traditional application stacks we also used technologies such as Neo4j (a graph database) for modelling bike/user relationships and TimescaleDB for time-series data.

## February 2021 – September 2021: LawVu

*Primary technologies: C#, .Net 4.7+/Core/5, ASP.NET, Entity Framework, Azure*

The LawVu application consists of a RESTful API (.Net/Entity Framework/SQL Server), an Angular front-end, and various other ancillary applications/services (as well as an iOS mobile app).

As **principal engineer** I focused on architecture/design of new functionality, identifying areas of the back-end codebase that required rework, and hands-on coding to implement both of the above, as well as helping the rest of the team develop clean code, conduct code-reviews, apply unit-testing, etc.

## August 2019 – February 2021: Cucumber

*Primary technologies: C#, .Net 4.6+/Core, ASP.NET, Entity Framework, Docker, Kubernetes, AWS, Android (Kotlin)*

I worked as a **senior developer** on several client projects at Cucumber – these vary from project to project depending on requirements, but the standard stack consists of a REST API (.Net Core), a web UI (Angular or React), a PostgreSQL or SQL Server database, and Keycloak or Active Directory for authentication. These are built as Docker images and hosted in kubernetes clusters. I predominantly work on the back-end APIs and services, infrastructure, and mobile apps.

Various other technologies are utilised on some of the not-so-standard projects I worked on, eg. RabbitMQ is used for messaging between cranes and straddles at The Port of Tauranga.

I also helped transition all the hosted client projects from Cucumber's own kubernetes cluster into AWS managed EKS clusters, setup using Cloudformation templates, and became an AWS Certified Cloud Practitioner in the process.

## October 2016 – December 2018: Bluelab Corporation

*Primary technologies: Android (Java), iOS (Swift), C#, ASP.NET, MVC 5 Web API, SQL Server, Azure, Embedded C*

As a **senior software engineer** I completed a number of projects at Bluelab:

- a new Azure-hosted service that receives plant monitoring data from Bluelab devices (via a desktop app); several hundred devices reporting every 20 seconds or so
- Android and iOS apps communicating with the service to allow users to see the above data
- an Android app to provide the UI for a new monitoring device communicating via Bluetooth (I also laid the groundwork for the iOS version before I left)
- rewrote the firmware for the flagship Pro Controller device; written in C with extensive unit tests

I also provided input to the UI/UX for many of these, and collaborated on other software/firmware projects.

## May 2016 – August 2016: BitRocket (contract)

*Primary technologies: C#, ASP.NET, MVC 5 Web API, SQL Server 2014, Typescript, Angular 2, D3, HTML, Azure*

I was the **sole developer** on a new project to implement a bespoke web-based grazing planner application for a farm owner. This was a multi-farm, multi-user system, allowing farm managers to optimise the use of their paddocks by planning where and when to place their cattle/sheep.

It consists of an Angular 2 single page app, communicating with an MVC-based REST API, through to a SQL Server database. The API and database are hosted in Azure, and are deployed automatically from a Visual Studio Team Services (now Azure DevOps) CI build.

### February 2015 – April 2016: Reckon (contract)

*Primary technologies: C#, ASP.NET, MVC 5, SQL Server 2012/2014, Javascript (jQuery/KendoUI), HTML*

I was a **senior developer** on the Reckon One team, Reckon's cloud accounting product. This is a multi-tier web application, and I worked on all areas of the project stack and some of the internal services it uses – Javascript/HTML front-end, MVC/C#/WCF, Entity Framework, SQL Server Database.

Although a contractor, I quickly established myself as part of the team and became known for producing quality work – as a result I was often given some of the more tricky (and interesting) tasks. I also helped drive the adoption of unit testing (using **xUnit** for C# and **Jasmine** for Javascript) and had responsibility for maintaining the internal nuget package for shared, cross-project functionality.

### November 2013 – June 2014: Wynyard Group

*Primary technologies: C#, ASP.NET, SignalR, HTML, Javascript, Powershell*

As a **senior developer** of the *Common Modules* team I was involved in implementing cross-product functionality across Wynyard's suite of Crime Analytics applications.

I mainly worked on integrating the user logon flow between two of their products (*Financial Crime* and *Intelligence*) and improving their automated build/install processes.

### September 2012 – November 2013: MCOM/Fiserv

*Primary technologies: C#, ASP.NET, MVC, WCF, SQL Server, HTML, Javascript*

I was a **senior developer** in the *Mobiliti Advantage* team, helping to produce their mobile banking product. This is a large-scale, multi-tier solution consisting of multiple mobile/web applications, web services, database and bank integration components. This core product is then customised for individual banks by the professional services team, for whom I worked for my first 11 months at MCOM.

I worked on various aspects of a number of different projects: implementing key infrastructure modules in **C#**; integrating with internal and external services using **WCF**; building customised mobile banking websites using **ASP.NET/MVC** and **Javascript**. Unit testing was done with **MSTest**, and behavioural testing with **SpecFlow**.

As a senior member of the team I also contributed to the internal documentation wiki and helped mentor more junior developers.

### January 2010 – June 2012: Swinton Insurance

*Primary technologies: C#, ASP.NET, MVC, SQL Server, HTML, Javascript*

I was a **senior developer** on the web team at Swinton, mainly working on the customer quote-and-buy websites and the associated web service interfaces to insurance aggregators (CompareTheMarket, etc).

When I joined the company the sites were all developed in **ASP.NET** and I was a key member in the successful redesign of all the customer-facing quote websites using **MVC** and **Castle Windsor IoC**.

All development was test-driven using **NUnit** and **Rhino Mocks**, with **Continuous Integration** using CruiseControl. I helped introduce **TDD** in **Javascript** using **Jasmine**, and I integrated that into the CI builds leading to a large reduction in Javascript defects (especially regressions). I also automated most of the post-build publish/deployment steps that were previously manual processes.

I also developed a secure system for storing credit card details to enable Swinton to take continuous payments from those cards. This used **Castle Windsor** and **NHibernate**, and a **HSM** (Hardware Security Module) for secure key storage.

### February 2008 – January 2010: Cold End Services (contract)

*Primary technologies: C#, WPF, WCF, C++, Windows Embedded*

Cold End Services sell and refurbish inspection machines that work on glass bottle production lines. Their existing machines had Intel 486-based computer controllers that are over 20 years old and so, as the parts for these controllers are becoming impossible to replace, I was contracted to design and write replacement control software for a modern PC. The application is written in **C#/Net 3.5** with some **C++** at the core for low-level machine control, and tested with **NUnit** and **Rhino Mocks**.

The software is running in a number of plants worldwide and has processed millions of bottles.

### October 2006 – February 2008: Sony Ericsson (contract)

*Primary technologies: C++, Symbian*

I worked as a **software engineer** in the Messaging and Multimedia team at Sony Ericsson, on a number of different smartphones. I helped develop various applications including: MMS client; Walkman (music) Player; Image Editor; Blogging. The development was all in **C++**, on various flavours of **Symbian** (the core OS) and **UIQ** (the UI/windowing layer). I also helped the team implement a more **test-driven** approach to how they produced their software.

### December 2004 – January 2010: Lightbulb Software Ltd.

*Primary technologies: C#, C++, Windows Mobile, WinForms, ASP.NET*

I was the **owner and lead developer** of Lightbulb Software, a company I started so that I could work on some ideas I'd had for mobile devices. The main product we worked on was Worldolio, a world clock and geographical information application (<https://worldolio.azurewebsites.net/>). I eventually made this freeware and it had several hundred downloads.

### November 2000 – December 2004: VICS Ltd

*Primary technologies: C++, Windows Mobile, Symbian, COM*

VICS was a leading provider of video compression and video streaming technology (they were subsequently acquired by Zergo). They developed solutions for delivering video to a number of platforms, specifically mobile devices. I joined VICS soon after the company's inception and spent most of my time as the **lead developer** for their video player products for mobile devices.

The players were designed around a portable core for playing videos and network communication, for which I developed my own cross platform subset of Microsoft's COM architecture. As a result, I implemented player applications for **PocketPC** based PDAs, **Microsoft Smartphones** and **Symbian** mobile phones with a minimum of platform-specific development. I was also involved in the research and design of the **mobile portal** and I worked on improving the in-house video encoding tools with Microsoft **DirectX** technologies (specifically **DirectShow** and **DirectShow Editing Services**).

### February 1994 – November 2000: Surfcontrol Plc

*Primary technologies: C/C++, WinForms, ODBC, Windows sockets, Windows services/device drivers*

Surfcontrol Plc (now part of Websense) is one of the leading companies in the Content Security market. They develop a suite of internet access control and monitoring products for the education, home and business markets.

I was an **architect** of the original SurfControl product, and I co-invented some of the technology on which the application was based (US Patent #6219786), namely a method to monitor and control internet connections from an arbitrary machine on a network.

I worked on most aspects of the product including: a Windows NT device driver that 'sniffs' network packets and can block access at the packet level; a Windows NT service that logs connection information to a database via ODBC; and a number of administration user interface applications. I often acted as **team leader** for various projects.

### September 1992 – February 1994: National Computing Centre (www.ncc.co.uk)

I was employed as a new graduate at the NCC working on CentreLink, a client/server data retrieval tool. CentreLink allowed client PCs to access data from mainframe and UNIX hosts via a number of communication protocols such as TCP/IP and IPX/ODI. It was written for Windows 3.1 in C++.

## OTHER EXPERIENCE/OPEN SOURCE

In my spare time I work on my own app (GP Central) and a couple of open source projects with a friend.

### GP Central

*Primary technologies: Android, Kotlin, Java, Azure, C#, ASP.NET, MVC, SQLite*

I developed GP Central to provide everything a Formula 1 fan needs in one mobile app: race calendar, results, championship standings and news feeds (RSS). It is available on Google Play at <https://play.google.com/store/apps/details?id=com.andrewt.gpcentral>

As there are no publicly available result feeds, I also had to implement my own service to provide results to the app. This service is implemented using ASP.NET Web API, hosted on **Microsoft Azure**, and automatically updates its own local database by scraping the formula1.com website.

#### **Trailblazer** (<https://bitbucket.org/andrewandderek/trailblazer>)

Trailblazer is a simple, quick and easy to use **Android** track recorder, for hiking, running, cycling etc, written in **Kotlin**. The app was inspired by MyTracks - a Google app that is now deprecated.

It is published in the Play Store: <https://play.google.com/store/apps/details?id=com.andrewandderek.trailblazer>

#### **PodcastUtilities** (<https://github.com/derekwilson/PodcastUtilities>)

This is a set of tools for downloading and synchronising podcasts. It is not intended to compete with iTunes, but is a simple, configurable, small-footprint means of downloading podcasts onto your pc and synchronising them to your phone/mp3 player.

It is written in **C#/.Net Core**, with the **LinFu IoC** container, and uses **NUnit** and **Rhino Mocks** for testing.

## **EDUCATION/QUALIFICATIONS**

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#### **October 1989 – July 1992: University of Newcastle-upon-Tyne (UK)**

1<sup>st</sup> class BSc (Hons) degree in Computing Science and Maths

#### **September 1982 – June 1989: South Holderness School, Preston, Hull (UK)**

4 'A' levels (including Computing and Maths), 1 'AO' level (Maths), 10 'O' levels (including Maths and English)

## **HOBBIES/INTERESTS**

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I have always been interested in cars and motor racing (hence my GP Central mobile app), and I am currently rebuilding/restoring a 1967 Ford Mustang.

I also play badminton at Tauranga Badminton Club; I regularly go hiking/tramping; and I usually have a DIY project or two on the go.