**Dr Michael Grant**

Nationality: British

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[Address and contact details removed from online version of CV]

**Summary**

A software engineer with fifteen years’ experience creating pioneering interactive TV services, I am comfortable working both in a team and by myself. I strive for high software standards, through the use of Extreme Programming and Agile Development, to ensure robust systems with low requirements for maintenance.

My main languages are: **Java**, **Perl** and **MHEG-5** (used on set-top boxes throughout the world). Recently I have also been using: **JavaScript** (both in **HTML** pages and on **Node.js** servers) and **HbbTV** (an interactive TV development environment based around HTML, CSS and JavaScript). I am at home in both Linux and Windows; and am familiar with Subversion, CVS and Microsoft SourceSafe for version control.

**Employment**

**[Strategy and Technology, Ltd](http://www.s-and-t.com)** (London)

2009–2015: **Principal Software Engineer** (Senior Software Engineer for the first year), working in Java, MHEG-5, HbbTV, Node, JavaScript

* Designed, implemented and delivered client-side and content production/management code for interactive TV services including:
* Electronic programme guides for Freeview Australia and Freeview New Zealand.
* Portal services on Freeview (UK) offering access to online channels, including [VuTV](http://www.vutv.com/) (channel 238), [TV Player (channel 241)](https://tvplayer.com/freeview/), [Vision TV](http://www.visiontv.co.uk/about/) (channel 244).
* [Planet Knowledge](http://planetknowledge.tv/how-to-watch/) documentary access portal (Freeview channel 245).
* Created tools for MHEG-5 authoring, slashing the time required to construct and deliver new services for clients.
* Designed and implemented, using Swing, tools for WYSIWYG development of systems such as Airwave’s [AirCAST](http://www.airwave.tv/418/Information-System-AirCast-for-Hotels) hotel TV, enabling them to develop customised services with minimal turnaround for each of their clients.
* Collaborated with colleagues and customers on system design issues.
* As well as training team members in design, coding and testing standards and techniques, and documentation, I was also sent to Johannesburg to teach the South African Broadcasting Corporation how to write MHEG‑5.

[**BBC**](http://www.bbc.co.uk) (London)

2000–2009: **Senior Software Engineer** (Senior from 2003), working in Perl, MHEG-5, Java, C++

* Designed, implemented and delivered interactive services on digital terrestrial and digital satellite set-top boxes used by up to fourteen million people, including:
	+ Implemented the audio/video switching which was the core of Pyramid (the world’s first interactive TV adventure and [BIMA](http://www.bima.co.uk) award winner), Spooks Interactive ([BAFTA winner](http://www.bbc.co.uk/pressoffice/pressreleases/stories/2005/03_march/03/ibaftas.shtml)) and Walking With Beasts ([BAFTA winner](http://news.bbc.co.uk/1/hi/entertainment/new_media/1620383.stm), EMMA winner), since rebroadcast in [Australia](http://www.abc.net.au/beasts/).
	+ Created the functionality enabling TV viewers to take part in the Test the Nation series of quizzes ([EMMA winner](http://www.bbc.co.uk/pressoffice/pressreleases/stories/2009/12_december/15/button.shtml)), and to feed their results back to the BBC.
	+ Worked on Perl code to retrieve scores from IBM database for the Wimbledon tennis tournament, for display as part of the interactive TV service.
	+ Genericised the team’s code to allow it to be reused for a diverse range of services, including sports events with multiple video streams and live results, such as Wimbledon or the Six Nations rugby tournament.
* Contributed to these services’ server-side code for data entry and management, including creating CGI scripts for web form processing.
* I was the main driver behind the development and implementation of [MHEG+](http://www.bbc.co.uk/blogs/bbcilabs/img/MHEG_Player_and_editor.html), a toolkit for [MHEG‑5](http://en.wikipedia.org/wiki/MHEG-5) development, including a compiler, emulator/step-debugger, [Eclipse](http://www.michael-grant.me.uk/www.eclipse.org) editor, and [FitNesse](http://www.fitnesse.org/) fixtures for automated acceptance tests of interactive TV services. Use of this and a test-driven development approach significantly cut the number of bugs in services delivered to QA, saving considerable time and money in debugging. Partially under my initiative, this toolkit was [made open-source](http://sourceforge.net/projects/mhegplus/http%3A/www.bbc.co.uk/blogs/bbcilabs/img/MHEG_Player_and_editor.html), allowing both my subsequent employer to benefit from its use, and the BBC to benefit from my continued work on it.
* Devised, at a time before such were commonplace, a continuous integration and testing server, along with other tools to aid the development and deployment of services, and to ensure their robustness. This ensured bugs could not creep into the codebase, saving time fixing them later.
* Technical management:
	+ Helped manage projects by liaising with producers and planning technical work for my team, using Agile practices, in consultation with them.
	+ Oversaw assignment of tasks to member of my team of eight, supervising their execution and ensuring deadlines were met.
	+ Helped train and mentor new members of multiple teams, and co-presented internal courses.

[**Heriot-Watt University**](http://www.macs.hw.ac.uk/cs/) (Edinburgh)

1996–2000: Teaching

* Tutored undergraduates in Artificial Intelligence, including setting and marking work.
* Assisted in undergraduate labs on 68000 assembly language and C++ programming.

**Academic Record**

* 1996–2000: Ph.D. in Computer Science, [Heriot-Watt University](http://www.hw.ac.uk), Edinburgh, UK, working in C++: “An Investigation into the Suitability of Genetic Programming for Sensor Planning in Machine Vision.” The research process involved:
	+ designing languages and implementing simple parsers for them, along with functions to execute evolved programs and assess their quality;
	+ extending the public-domain core code used to add the facility for strong typing to these languages; and
	+ designing and implementing a graphical user interface for the system, in Tcl/Tk.
* 1995–1996: M.Sc. in Information Technology (achieving a Distinction), [Aston University](http://www.aston.ac.uk/), Birmingham, UK
* 1992–1995: M.A. in Natural Sciences, [Peterhouse](http://www.pet.cam.ac.uk/), [Cambridge](http://www.cam.ac.uk/), UK