

# Michael Heasell

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I'm an ambitious software developer with a drive to produce quality work. I've won programming competitions and have exposure to a huge range of technologies. I work methodically and with attention to detail to deliver software you can count on.

## Education

### University of Bath

2009–2013

#### Degree

BSc (hons) in Computer Science with Industrial Placement

#### Classification

First Class

#### Placement grade

Distinction

#### Final Year Modules

Advanced Algorithms  
Advanced Computer Graphics  
Computer Algebra  
Intelligent Agents  
Intelligent Control and Cognitive Systems  
Networking  
Parallel Programming

#### Dissertation

Investigating Motion Planning Techniques for a Mobile Robot in 2D Space

## Technology Skills

### Primary

F#  
C#  
Perl  
JavaScript  
TypeScript  
HTML  
CSS  
Linux  
AWS  
MySQL  
Git

### Secondary

Java  
Kotlin  
Python  
Sass  
Apache  
nginx  
SaltStack  
Jenkins

## Experience

### G-Research, F# Developer

2017–2018

Worked on a variety of tools and services to support research at the company. I am required to keep the details of this work confidential.

### Move GB, Software Developer

2015–2017

Worked on Move's website, mobile app and back-end systems with a team of local and remote developers. Expanded role to include managing Move's AWS account. Primary technologies included Perl, Mojolicious, MySQL, JavaScript, Cordova/Phonegap, Angular 2 and TypeScript.

Reduced AWS bill by 20% while adding capacity and new services including continuous integration (Jenkins), monitoring (StatsD/Graphite/Grafana), configuration management (SaltStack), a replica database (RDS/MySQL) and an additional demo/staging environment. Improved resilience by automating server configuration and establishing disaster recovery procedures.

Dramatically improved code quality by introducing unit testing, static analysis, continuous integration, crash reporting and monitoring to Move's code base. Fixed a number of severe security vulnerabilities and worked to increase security awareness throughout the team.

Led development of Move's mobile app after advising on key architectural and security decisions.

Refactored core billing and back-end code to allow Move to offer a much wider variety of memberships. Developed an interactive map showing available Move venues and which membership tiers include them.

### IPL, Graduate Software Engineer

2013–2014

Worked as part of an agile team to deliver web-based software for the Operational Riskdata eXchange Association (ORX), completion of which was critical to their continued success. Primary technologies included C#, ASP.NET (Web Forms and MVC), SQL Server, HTML/CSS/JavaScript, jQuery and knockout.js. Also provided estimates and assisted in breaking down tasks as part of the agile process. This was an important component as the project was under high pressure to complete.

### Netcraft Ltd., Internet Services Developer

2011–2012

Undertook a one year placement as part of my undergraduate degree programme, with an overall grade of distinction. Primary technologies included Perl, MySQL, HTML/CSS/JavaScript and jQuery.

Worked in a small team improving Netcraft's automatic phishing site classification system. Modernised Netcraft's phishing email reporting system and migrated it to a new server. Helped set up a Git hook to automatically deploy server configuration changes via Puppet.

## Activities

### City Academy

2016–2017

Played Prince Charming in City Academy's Christmas pantomime, Cinderella. Played Harvard student Aaron Schultz in City Academy's performance of Legally Blonde.

### Musicals Society

2009–2013

Performed on stage in a number of musicals (including *Footloose*, *The Wedding Singer*, *Fame*, *Little Shop of Horrors* and the society's annual revue show, *Encore*). Worked closely with others as part of a team to perform scenes, songs and dance routines. Played lead roles in *Fame* (Schlomo Metzenbaum), *Little Shop of Horrors* (Audrey II) and *Encore* (various solo songs). Was a guitarist in the band for *Encore 2010*. In *Fame*, assisted the musical director in teaching the cast to sing chorus numbers.

### University Chamber Choir

2009–2010

Sang bass, performing at Bath Abbey and other local venues. In 2010, maintained the choir's PHP-based website.

## Skills and Achievements

### Competitions

In February 2017, placed 67<sup>th</sup> in the Halite competition, out of over 1500 entrants.<sup>1</sup> The task was to develop an AI player for a game in which players fight for control of a 2D grid. Learned Kotlin specifically for the competition.

In October 2015, won a month-long programming competition held by CodeCombat with 1345 entrants.<sup>2</sup> The task was to develop the strongest AI player for a new game called Ace of Coders, in which two players fight for control of strategic points by summoning and commanding armies. My solution scored 1532 victories and 3 losses.

In April 2015, won a 10 day programming competition held by CodeCombat with over 180 entrants.<sup>3</sup> The task was to develop an AI player for a game called Zero Sum, in which two players attempt to kill the other player's avatar by collecting resources, using abilities and summoning and commanding troops. My solution scored 163 wins and only 1 loss.

In July 2014, won a three-week programming competition held by CodeCombat with over 500 entrants.<sup>4</sup> The task was to develop an AI player for a game called Greed, in which two players attempt to destroy the other player's base by collecting resources and summoning troops. In addition to winning the overall competition, my solution was entirely undefeated after simulations against over 200 opponents.

### Projects

Developing Robot War Engine, an open-source real-time strategy game engine compatible with Total Annihilation data. Total Annihilation is a widely acclaimed RTS game released in 1997 with a still active player base thanks to extensive modding. RWE will be capable of running existing mods for TA, extending their life and allowing mod makers to take advantage of new improvements.

Developed a map editor for Total Annihilation, called Mappy. Mappy is a complex Windows Forms application with undo/redo and image processing abilities. Mappy uses a library I developed, called TAUtil, to read and write Total Annihilation file formats. TAUtil is published separately and includes class/method documentation. Two additional projects, CheckTdf and SnappyMap, also use TAUtil to read and write data files.

### Miscellaneous

Functional programming enthusiast familiar with immutability, higher order functions, monads and more. Keen to employ functional techniques to improve software architecture, applying lessons learned from my professional work in F#.

Interest in internet security supported by experience at Netcraft. Excellent awareness of common security problems and how to defend against them.

Proficient Git user who values good commit messages and appropriately isolated changes. Good understanding of the the Git data structure, allowing effective use even in complex branching scenarios.

<sup>1</sup><https://halite.io/user.php?userID=3372>

<sup>2</sup><http://blog.codecombat.com/the-true-ace-of-coders>

<sup>3</sup><http://blog.codecombat.com/kings-of-zero-sum-strategies-from-the-ai-wars>

<sup>4</sup><http://blog.codecombat.com/a-31-trillion-390-billion-statement-programming-war-between-545-wizards>