

Joe Eyles

Programmer and Mathematician, with a passion for problem solving through creative, logical, thinking.

Mobile: 07968 718 815 **Skills**

Email: joe@eyles.co.uk

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Mathematics (PhD Mathematically modelling tumour growth).

HTML/JavaScript/CSS, building and maintaining websites and web apps.

Node.js/Ruby on Rails/SQL, writing and maintaining web servers and databases.

MATLAB/C/C++/C#/Java programming, learned through private study and at work.

Android Studio/Microsoft Visual Studio, used extensively at work and privately.

Linux/Ubuntu/Raspbian, extensive use at work and privately.

Documentation/Communication/Teaching, teaching Judo and Mathematics, writing my thesis, documentation and technical papers.

Git for version control.

Work

September 2018 to present, Engineer at the BBC R&D Department

Experimenting with new technologies to create novel experiences. Duties include

- Creating an object-based weather forecast for 5G-Xcast, an EU funded project. This includes demoing the app, as well as writing and publishing documents for the project, see bbc.in/2N3dxIc.
- Analysing data from a 5G trial - bbc.co.uk/rd/blog/2019-03-5g-rural-first-network-orkney
- Writing code for a Raspberry Pi connected to custom hardware. Working with an Arduino.
- Creating attractive Android apps for public facing demos.
- Hacking the Android and iOS versions of BBC iPlayer, and the Android version of BBC Sounds.
- Writing documentation and blog posts for both technical and public audiences.
- Attending conferences, meetings and conventions. To demo work and meet collaborators.
- Collaborating on projects in which each team member has distinct and unique skills.
- Fixing bugs in Dash.js, an open source JavaScript MPEG-DASH player.

I have greatly developed my understanding of multicast and IP networking.

October 2014 to early 2019, Mathematics PhD student at University of Sussex

Simulating tumour growth using Finite Element Methods. Duties included

- Performing numerical analysis on the tumour growth model, and the finite element scheme.
- Writing simulations in C using 3 different approaches, and performing simulations.
- Teaching undergraduates.

I wrote my thesis and a paper in LaTeX.

July 2013 to September 2014, Programmer at Matchbox Mobile

Projects included

- Creating a loyalty app generator and accompanying website, server and database (i.e. smart phone equivalent of coffee shop loyalty cards)
- Fast image processing app
- Building a robot using a LEGO NXT with custom Windows Phone controller app
- Spent time learning new skills in order to contribute to projects (for example clean code).

Duties have included writing and maintaining Android and Windows phone apps, web servers and websites.

Websites have been written using ASP, as well as AngularJS and Bootstrap.

June 2012 until September 2012, Researcher in the Intelligent Systems & Biomedical Robotics Group at the University of Portsmouth

Researching eye tracking in computer-human interactions. Developing C++ and MATLAB programs that tracked gaze using laptop cameras, and wrote a paper detailing the use of eye tracking for computer game play analysis (published in IEEE International Conference on Systems, Man, and Cybernetics).

Publications

- Joe Eyles (2019) *Numerical analysis and simulations of a tractable model for tumour growth*. Doctoral thesis (PhD), University of Sussex.
- Joe Eyles, John King, Vanessa Styles (in review) *A tractable mathematical model for tissue growth*. <https://arxiv.org/abs/1907.06590>.
- Joe Eyles, et al. (2019) *D6.2 Development of showcase and demonstrators*. <https://5g-xcast.eu/documents/>.
- Alexander Kadyrov, Hui Yu, Joe Eyles, Honhai Liu (2013) *Explore New Eye Tracking and Gaze Locating Methods*, IEEE International Conference on Systems, Man, and Cybernetics, pp. 2866-2871.

Notable personal projects

- Website detailing a five month campervanning trip (eyles.co.uk/campervan/).
- App development, including a differential geometry inspired shooter (preview.tinyurl.com/y7t6uevz), and a tree simulator.
- Hardware using raspberry pi – I have built a time-lapse camera, Gameboy, and have hosted a personal ad blocker and written a music streaming website (eyles.co.uk/spotajoe/).

January 2011 until May 2013, Maths Tutor

Online tutoring (A level and GCSE) using Skype and a bespoke application. Being a maths tutor developed teaching, communication and customer service.

July 2010 until September 2010, promotion team for a nightclub

Being in the promotion team greatly improved interpersonal skills, both with members of the public and with team members.

Education

University of Sussex 2009 – 2013

MMath Masters Degree in Mathematics. First Class (89% average).

Topics covered include: Modelling with and solving PDES, Finite Element Methods, Linear Algebra, Differential Geometry, Advanced Analysis, Calculus, Probability and Statistics, Cryptography, C++ and Coding Theory.

Tauntons College 2007 – 2009

A in Maths, Further Maths, and Physics, A at AS level in Art.

Belle Moor school (now called Upper Shirley High) 2002 – 2007

13 GCSEs achieved, 3 A*s, 8 As, and 3 Bs.

Hobbies

- Judo - used to compete and ran a judo club (including teaching).
- Brazilian Jujitsu - learning a new martial art while having a black belt in Judo is humbling!
- Games - enjoy most genres of videogame, including RTS, RPG, MMORPG and FPS, playing on PC and a range of consoles and hand holds. Also have played quite a lot of Magic CCG and Pokemon CCG!
- Many personal projects, predominantly software/games.