Ross Spencer, MA, BSc Hons   **Email:** allalongthewatchtower2001 [at] gmail.com

Profile

Digital Preservation Analyst and software developer. Master's Degree in Digital Culture and Technology and a Bachelor of Science in Software Engineering. M_o_R Practitioner, qualified for five years from July 2012. I have UK Security Check clearance valid for 10 years from 3 July 2012.

Education / Qualifications

Kings College London 2004 - January 2006:

MA Digital Culture and Technology: Merit

Keele University 2001 - 2004:

BSc (Hons) Software Engineering: 2:2

Stafford College 1998 - 2001:

GNVQ: Advanced Information Technology: Distinction

A-Level: Psychology

Walton High School 1993 - 1998:

GNVQ: Intermediate Information Technology: Distinction

GCSE: Six GCSE's Grade B

Skills

Programming Languages: C/C++, Python, PHP

Web Based Languages: XML, XSD, XSLT, HTML/XHTML, CSS, AJAX

Scripting: JavaScript, MS DOS Batch Files, Bash

Semantic Web: RDF, Turtle, SPARQL, sparqllib, ARC2

IDE: Visual Studio, NetBeans, Eclipse, Gel, Dev-C++, Programmer's Notepad

Operating Systems: Windows, Linux, DOS, Windows Server 2003

Installation Systems: NSIS, Install Shield

Network Analysis: Wireshark, Cain & Abel, WinPcap

Employment History

Employer: Archives New Zealand

Job Title: Digital Preservation Analyst

From: 4 March 2013

To: Present

Digital Preservation Analyst at Archives New Zealand whose primary role is to support the System, Strategy, Standards team (SSS) formerly Digital Continuity; in making preservation decisions and providing digital preservation guidance. Having worked with colleagues to help enable Archive New Zealand's first born-

digital ingests of legacy accessions from the past decade, my current responsibilities include the furthering of those tools and solutions to see solutions applied more broadly to additional accessions from the same era. Other roles I have within the organization require me to work closely with digital preservation colleagues at National Library New Zealand and the Alexander Turnbull Library to develop Digital Preservation Policy. The role also has a high requirement for outreach and helping government departments and councils outside of the Department of Internal Affairs to understand their digital preservation, and continuity needs, providing guidance and support where possible. I maintain strong personal links with the wider digital preservation community an try and ensure progress within the organization is shared outside for its potential benefit, as we also benefit from the larger community effort.

Employer: The National Archives
Job Title: Digital Preservation Researcher
From: 1 June 2009
To: 7 September 2012

The main focus of my role at The National Archives was the research and provision of solutions to the end of preserving government's digital records. The main requirements of this role include researching file format specifications and developing binary signatures based on the internal representation of the format for the organization's DROID tool. Based on this research I also produced guidelines for internal and external consumption documenting digital preservation best practice. My research has allowed me to write solutions and proof of concept tools in C++ and Python. I developed a tool to validate JPEG2000 headers and custom metadata stored within JP2 XML elements. I provided input to projects outside of The National Archives including being part of the JPEG2000 working group for the Wellcome Trust. Further, I was involve with the Planets Project, contributing to and reviewing reports. I was part of initial reviews and discussions surrounding the Unified Digital File Formats registry (UDFR).

My primary research focus before leaving The National Archives was the conversion and release of our online file format database PRONOM as linked open data. This work looked at converting legacy table based data to RDF triples for delivery; the development of a PHP user interface for browsing and maintenance of data; and the development of legacy SOAP web services, connected to a SPARQL endpoint, for integration with existing systems at The National Archives. I worked with external stakeholders and projects outside of the organization to align efforts to connect multiple sources of information together; because beyond the technical solutions we develop for digital preservation and the semantic web, the communication and sharing of ideas is key.

Other development opportunities at The National Archives saw me write a JPEG2000 correction tool to fix an XML transcoding error in LuraTech CLT software in C++. I saw my JPEG2000 validation scripts embedded into the primary ingest workflow. I wrote an open source tool in PHP to output standalone DROID signature files for development and testing.

Employer: Origin Data Realisation LTD / Red Box Recorders
Job Title: Junior Analyst Programmer

From: 11 November 2007
To: 15 May 2009

Junior Analyst Programmer developing VOIP recording solutions, primarily in C++. Areas of focus included improving existing solutions for recording Avaya, Nortel, Cisco, Ericsson and SIP VOIP calls, and implementing new solutions for VOIP providers such as Panasonic. Some other important protocols I focused on included, H225, Q931, and MGCP. I was also involved in back end development for our web front-end maintaining an ISAPI DLL. Front-end development required JavaScript and XHTML skills to add functionality to primarily a form based interface. I spearheaded a move to a more dynamic web based solution where possible by introducing the use of AJAX to the recorder front-end. The code produced in this role adhered to C++ Standards as strictly as possible and where possible using VC6.0 SP6.

At Red Box I saw through a number of important projects including the implementation of a number of new features such as the dvelopment of a search filtering mechanism; and a recording as a service based solution for a new Cisco protocol at the time. I was also involved in a number of bug fixes large and small in numerous areas. Through my work at Red Box Recorders I developed greater problem solving abilities and a better grasp for meeting deadlines. The contributon of this role to my knowledge of digital forensics is immeasurable. I picked up a working knowledge of Wireshark and WinPcap. Interpretation of network protocols and standards was central to producing successful solutions. Where protocols hadn't been made available by a supplier it was important to discover reliable signalling patterns directly from the network traffic through reverse engineering.

Employer: Risk Decisions LTD
Job Title: Technical Support Assistant
From: 22 May 2006
To: 7 May 2007

First and Second line support for a software suite providing a set of enterprise risk management solutions to organisations. Dealing with clients ranging from the Ministry of Defence to the utilities and construction companies. Required to give support ranging from installation issues to the usage of the software and risk management best practice. At times I was required to discuss possible system architectural solutions for running various versions of the software in different operating environments. Internally I provided software QA, testing the software at various stages of development as part of the release cycle or part of the support process. As part of the QA process I was asked to provide solutions that the users could implement themselves.

- First and second line technical support
- Technical Authoring
- Software QA (Primary tester for Predict! Risk Controller Lite)
- Oracle Installation, Support and Development
- Internal I.T. Support

- Central focus of communication between clients, sales and development teams
- Knowledge of software release cycle and the software development process

Further Employment History

Jagex LTD (Work Experience)	HMV Trocadero, London
Games Content Developer	Shop Floor Assistant
18th April 2006	13th February 2006
20th April 2006	13th April 2006
HMV Selfridges, London	Kings College London
Seasonal Temporary Staff	Exam Invigilator
16th November 2005	10th January 2005
1st January 2006	14th September 2005
HMV, Hanley	Poundstretcher LTD, Stoke-On-Trent
Shop Floor Assistant	Shop Floor Assistant
14th May 2003	16th October 2001
29th February 2004	29th March 2003
Poundstretcher LTD, Stafford	Shugborough Shooting School, Rugeley (Casual)
Shop Floor Assistant	Trap Operator/Referee
8th September 1999	25th September 1997
12th September 2001	10th March 1998

Publication Record

Spencer, R. (2010). The Digital Image. In: Bülow, A. and Ahmon, J. Preparing Collections for Digitization. London: Facet Publishing. 33-45.

Spencer, R. (2013). Generation of a Skeleton Corpus of Digital Objects for the Validation and Evaluation of Format Identification Tools and Signatures. Volume 8, International Journal of Digital Curation.

McKinney, P. Knight, S. Gattuso, J. Pearson, D. Coufalb, L. Anderson, D. Delve, J. De Vorsey, K. Spencer, R. Hutař, J. (2014) Reimagining the Format Model: Introducing the Work of the NSLA Digital Preservation Technical Registry. New Review of Information Networking, Volume 19, Issue 2, 20, 96-123.

Talks at Conferences

- 8th European Conference on Digital Archiving, Geneva, Switzerland, 2010. The risky business of digital preservation. The application of risk models to digital file format obsolescence

- The Future of File Format Identification, PRONOM and DROID User Consultation, Kew, UK, 2011. When is a migration pathway not a migration pathway

- 7th International Digital Curation Conference, Bristol, UK, 2011. Towards the development of a test corpus of digital objects for the evaluation of file format identification tools and signatures, on behalf of Andrew Fetherston and Timothy Gollins

- Future Perfect 2012, Wellington, New Zealand, 2012. Survival of the bits...

- THATCamp, Wellington, 2013. What can a SPARQL endpoint do for you

- Born Digital and Cultural Heritage, Play It Again Project, Melbourne, Australia, 2014. Fly Away Home: Pilot Transfer of Born-digital Records at Archives New Zealand

- Connecting: Past, Present and Future, ARANZ ASA Conference, Christchurch, 2014. Legacy digital and outreach @Archives NZ

- Footprints in Space and Time, ARANZ Conference, Auckland, 2015. Time travelling analyst: the things only a time machine can tell me

Blogs

http://blog.nationalarchives.gov.uk/blog/author/rspencer/ - Articles written while working for The National Archives, UK

http://openpreservation.org/blog/author/ross-spencer/ - Articles written for the Open Preservation Foundation

http://www.exponentialdecay.co.uk/blog - Articles written for my own Blog on technical subjects, including digital preservation.

Websites

https://github.com/ross-spencer, https://github.com/exponential-decay – GitHub repositories. My approach to development is to be open source by default. GitHub offers that and adequare source control out of the box.

http://the-fr.org – An RDF based linked data application stack, and website written in PHP. Based on PRONOM data, and vocabulary designed at The National Archives UK.

www.exponentialdecay.co.uk - A portfolio website I have created to exhibit a number of sample applications and university work.

pidgeracer.tumblr.com – Computer game developed in C++ in my spare time in 2007 and released online in 2009.

Interests

My professional and intellectual interests include digital preservation techniques, linked open data and programming. The preservation of born digital collections provides me with unique challenges, and often forces me to think of solutions not just within the digital realm. Developing better methods of accessing data and associated metadata for researchers is an area I'd like to investigate further. My personal interests

include music and film; playing and watching sports; reading, and video games. I enjoy the design and development of ideas across a broad spectrum of areas. I am a keen road cyclist and have taken part in the Three Capitals in Three Days cycling challenge for the Mines Advisory Group (MAG). I am also seeking to take up piano lessons again after a two year hiatus.

References

References can be provided on request.