



Curriculum Vitae for Joshua John Lawrence

AGILE • OO • WEB • C# • JAVA • C++ • GRAPHICS

I am a software developer experienced in agile methodology, web development, C# and Java, with a particular interest in graphics. I want to find cool new projects to work on and cool new people to work with.

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Work History

2013 – present: Senior Software Engineer with Gallagher Group Ltd. Hamilton, New Zealand.

I currently work on our security product, Command Centre.

My most interesting projects in this role have been two web services to open up Command Centre functionality to enable third party integration. These SOAP web services were written using C# and WCF. Since the first use of one of these web services was in a prison to make access decisions at secure doors, robust security was of utmost importance. The web services use two-factor authentication, X509 certificates authenticating both the client and the server machines and a password to authenticate the user, and actively audit the server to ensure only strong cipher suites are used.

Another project involved integrating with a third-party security camera product, conveying event information from Command Centre to the product for display. This involved raw TCP and socket programming, with the software self-monitoring and reporting its workload in a concurrent manner.

Our development process is Kanban with rigorous peer review in a closely-integrated multi-disciplinary team.

Technologies used included C#, C++, .NET, Visual Studio, WCF, Enterprise Architect, WinForms, TFS, SQL and SQL Server.

2004 – 2013: Senior Software Developer with Rockwell Automation. Hamilton, New Zealand.

I wrote web applications for Rockwell Software, a division of Rockwell Automation. I performed the role of scrum leader in our scrum agile process, for the development group in the Hamilton office. During our last hiring cycle, I played a lead role in technical interviews, assessing candidates and updating our candidate testing.

For the last several years, I worked on a factory production line monitoring web application. My part was the design and, with the rest of the team, the implementation of a customizable dashboard framework that allows customers to see charts and numeric display of performance metrics for their factory lines. This software is written in Java, GWT and GXT, and runs on Internet Explorer and Chrome.

Previously, I worked on a performance optimization web application. My part was the design and implementation of charts that displayed variables measured in the factory, which were being optimized by a trained neural network. The charts were implemented in Flash and JavaScript, and had strict performance requirements: they could be updated in real time at a rate of once every three seconds, and more than a hundred could run in one browser simultaneously.

To implementing this, I wrote an AJAX framework in Flash using Macromedia's AMF protocol, before ever hearing about AJAX or XMLHttpRequest. This framework was later used to drive other pages in the application. I was also involved in the design of the database schema used to represent factory reporting data.

Technologies used included Java, GWT, GXT, HTML, CSS, JavaScript, AJAX, XHR, HTTP, SQL, SQL Server, Flash, ActionScript, junit, log4j, ant, Apache Commons.

2003 – 2004: Contracting for WebTex. Hastings, New Zealand.

During my time with WebTex, I worked on a number of short projects, mostly websites.

Technologies used included HTML, CSS, JavaScript, PHP, Visual Basic, VBScript, ASP, C++, SQL, MySQL.

2002 – 2003: Software Engineer with Aircraft Management Technologies, now Flightman. Dublin, Republic of Ireland.

Employed as a contractor, I worked on AMT's electronic flight log product, eTechLog. This involved requirements gathering, analysis and design of the software and database schema, as well as implementation. After returning to New Zealand, I continued to work remotely for a while, until my last part of the project was complete.

Technologies used included Java, XML, JavaScript, Mozilla Rhino, SQL, IBM DB/2.

1999 – 2001: Software Engineer with Intel (NZ). Auckland, New Zealand.

I worked on a PBX aimed at small to medium-sized businesses, on the product's dial plan. The dial plan was involved with every dialled digit from every handset, trunk line and application installed on the system, and therefore had strict performance and concurrency requirements.

Technologies used included C/C++, MSVC, Rational Rose, WMI.

Academic Record

I have three degrees, all from the University of Auckland, New Zealand:

- Master of Science with Distinction in Computer Science, completed in May 1999,
- Bachelor of Science with Honours, 2nd class 1st division, in Computer Science, completed in December 1997, and
- Bachelor of Theology, completed in December 1997.

My masters thesis was entitled "High Quality Volume Rendering" and explored rendering images from medical volume data sets. I implemented a ray-casting volume renderer using Microsoft Visual C++. The assertion I was researching was that, instead of commonly used linear approximations, a more rigorous treatment of the light transfer line integral would lead to better quality images for the same rendering time. My final grade was A-.

In my honours year, I studied computer graphics, data communication and multimedia. My stage 3 science papers included pure mathematics, algorithms, computer graphics and data communication.

I omitted stage 1 level in my core subjects, as my academic record was sufficient to permit direct entry into stage 2. This enabled me to study a wider range of subjects, such as psychology and ancient history. In mathematics, I gained entry into the accelerated stage 2 papers, gaining A grades in each. In 1994, I was awarded a Certificate of Distinction for a grade in a stage 3 mathematics paper in the top 1.5th percentile.

In my final year of high school, I was awarded Dux of School and first prize in all five subjects. My score in the NZEST Maths with Calculus Scholarship exam was the highest in New Zealand that year, 100%. Concurrently, I took one university paper extramurally through Massey University, Introduction to Calculus, for which I received an A grade.

Character

“Joshua shows good leadership skills in his role as scrum leader.”

— Ted Waetford, 2010 performance review at Rockwell Automation.

“Joshua has proved himself to be a very conscientious and hard working person. He delivered consistently on target and to the highest possible standards. Joshua was always very diligent, honest and conscientious and proved himself to be a key member of the AMT team.”

— Joe McGoldrick, CTO at Aircraft Management Technologies.

Interests

- Family. I am married with four children.
- Christianity. This is reflected in my choice of degree. I am keenly interested in the history of the Bible and biblical cultures, and in Christian theology.
- Cooking. I can make a mean lasagne and have a great herb garden.
- Science fiction and fantasy. I love JRR Tolkien, CS Lewis, Frank Herbert, Isaac Asimov, Robert Heinlein. Unfortunately, the Golden Age greats aren't really writing anymore. I do read some living authors.

Referees

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