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Summary

An experienced engineer with strong programming skills and a hungry brain. I am a true generalist that loves to solve problems, not obsess about technologies: I love working on web and desktop user interfaces, visualization applications, the back end of high traffic web applications, complex algorithms running on massive amounts of data and the services and communication systems that connect it all together. I have used a variety of languages, third party frameworks and built my own from scratch. I have built entire systems on my own, in a team or as a technical lead. I care about what I do and want to do it right, and would like to work with similar minded people. But life is not just work! I'm looking for teammates who enjoy a beer and a little fun after a hard day at work.

Core skills: Hard-core C/C++, Java, SQL, DB tuning (MySQL, Postgresql, SQL Server), Javascript, jQuery, CSS and HTML. Love Erlang, pretty good with C#, Perl, bash. Messed a bunch with Ruby/Rails and Python. Looking for an excuse to use Scala and learn Clojure and Haskell. Familiar with Hadoop and other NoSql/Big Data technologies. I have written my own mini-languages (lex, yacc, Javacc). I'm an **insanely** fast learner and ridiculously flexible.

On the side : Unity3D, UDK, Photoshop, Gimp, Inkscape, 3D modeling, rigging and animation (Blender), OpenGL, DirectX, HLSL/Cg shaders, Game AI, Garage Band. My little server in the Amazon cloud is my turn based multiplayer research lab.

Professional Experience

April 2012 - Present : Indie Game Developer at home

Worked on a iOS and web video game for children inspired by my little daughter's favorite game and character designs. Used Unity3D, Blender3D, Inkscape, Gimp, Photoshop, Garage Band. The project is on hold while I look for a 3D artist partner (programmers are SLOW 3D artists!). Meanwhile I'm exploring turn based HTML5/WebSocket powered games, with the first experiment being a 4-in-line online game optimized for mobile browsers. HTML/CSS/Javascript/jQueryMobile and Erlang in the back end. On the side I'm helping a friend with the programming of a small Unity game commissioned by the Department of Transportation in Puerto Rico.

September 2011 – March 2012 : Senior Software Engineer at Crimson Hexagon

Helped maintain and improve one of the (if not THE) largest Lucene deployments in the world. Crimson Hexagon has stored more than 100 billion social media posts from a variety of sources (Twitter, facebook, Internet forums, etc). The work involved improvements to the web application used by customers to analyze the vast data set and extract meaning from it, and also fixes and improvements to the infrastructure that collects and stores the data, a bit of DevOps action when things went wrong in the middle of the night, performance tuning heavily used Postgres databases to handle Twitter data (including low level tweaking of the OS virtual memory settings) and more. The work was done in Java (Hibernate, Spring MVC, Lucene) with a sprinkle of Python.

August 2010 – September 2011 : Software Mercenary at Pellion Technologies

This a continuation of my CMC gig below. With funding from [ARPA-E](#) and private investors, the group became Pellion Technologies. Pellion's cutting edge approach used the results of our massive computer simulations of materials to guide the experimental work in the search for a Lithium Ion battery replacement. In addition to my previous list of responsibilities below, I built my own custom laboratory software system comprising an electronic notebook system, task and project management, and tools to streamline the collection, analysis and visualization of experimental synthesis and electrochemical data that was fully integrated with the material simulation results coming from our cluster. I even got to play the part of a PhD student and prepared and ran computational material simulations myself (VASP, GridEngine). I was also the Google Apps administrator and first line of IT defense, dealing with very arcane and old electrochemical testing systems (Windows and freaking OLD macs). Whatever gets the job done! Work was done in ASP.NET, jQuery, C# and Java services.

November 2009 – August 2010 : Senior Software Engineer at Computational Modeling Consultants (CMC)

Worked as the software monkey for a small group of world class MIT materials science PhDs. Streamlined and automated data processing to turn their high performance Linux cluster into a lean and mean materials simulation machine. Implemented and optimized the various algorithms that compute material properties in our 256 core cluster to run incrementally, concurrently and efficiently. Reworked and optimized the Postgresql database where the data was stored making it 1 to 2 orders of magnitude faster. Built an automated email system to report on the progress of the months long simulations. Enhanced and optimized the Java Swing based application used to analyze and visualize the results coming out of the cluster, including adding the ability to easily design new materials and send them to the cluster for processing. I made previously tedious and manual work a heck of a lot of fun for them! Also system administration and security for their Wiki and Linux systems (Ubuntu and Centos). Spent long hours studying Chemistry, Math and Physics just to survive in a world of PhDs. And I did it all in my pajamas, working from home.

2009 July – October : Senior Implementation Consultant at ChoiceStream (contract)

Helping out my old employer with some challenging data processing projects for big customers (Echostar and EBay), tuning a 40h data crunching process to run in under 5h. This was a temporary, part-time position working remotely.

2009 March - July : Living the life

I quit my job and spent months learning about game development, modern graphics programming, game AI, 3D modeling and audio programming. I worked on my own open source Ogre3D C++ based game project <http://hunter.sf.net> and contributed to the indie game [Aztaka](#).

Feb 2001 – March 2009 : Principal Software Engineer at ChoiceStream, Cambridge MA

As one of the first developers to join the company, I worked on many projects and demos involving complex and ever-changing customized recommendation algorithms for big name customers on extremely tight schedules. Our architecture included a core C++ multi-threaded recommendation engine back end, Java web application layer and lots of offline user data processing to feed the online system. I worked and left my mark in every area of the system. Close collaboration with scientists, content experts and implementation services people was always required to deliver our solutions. I started and lead the data processing infrastructure team from around Nov 2007 to Feb 2008, then took over the large scale offline data processing project around Feb 2008, where I was mainly responsible for improving processing time from about 80 hours to under 3.

- Java UI apps for demos.
- High traffic java web applications running in some of the web's busiest portals.
- Complex C++ algorithms in the multi-threaded recommendations engine.
- I personally developed or lead the development of
 - A Java MVC web framework
 - The Pipeline infrastructure for the C++ high performance web service
 - Java/SQL framework for large scale data processing.

July 1998 – Feb 2001 Software Engineer at Raytheon, Marlborough MA

Worked on the display component of the STARS Air Traffic Control system fixing bugs and implementing the main toolbar UI. Coding was done in C, X11 and Motif. For about 4 months I was on loan implementing Java Swing screens for a Navy terminal project.

Education

B.A. Computer Engineering, 1998, University of Puerto Rico, Mayagüez Campus

- Undergraduate research projects
 - Visualization and processing of 3 and 4 dimensional data sets using Matlab.
 - Parallel algorithms in C for a fingerprint matching parallel embedded system.
 - Scanline rendering re-implementation of part of the OpenGL API
- Created a constructive geometry language that compiled to java and was fed to a distributed raytracing rendering system for the compilers and OS classes.
- Fried enough VGA cards programming graphic demos in 386 assembly, C and Pascal.

First place at the Dominican Math Olympiad on 1991 and 1992. Silver medalist at the Iberoamerican Math Olympiad in Caracas, Venezuela, 1992

Other

I'm always building little game prototypes or playing classical guitar, ukulele, dabbling on the

piano, playing online chess or studying Math. I wish I still had time to learn and practice my French and Portuguese. I dream of one day helping build the Matrix.