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## Summary

An experienced engineer with strong programming skills and a hungry brain. I am a true generalist: 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 frameworks and built my own from scratch when needed. I have built entire systems on my own and 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. Pretty good with C#, Python, Perl and bash. I have messed enough with Ruby (and its rails) to become fond of it. I have written my own mini-languages (lex, yacc, Javacc). I'm an **insanely** fast learner.

**Hobby skills :** Game programming (Unity, UDK). Graphics creation and editing (Photoshop, Gimp, Inkscape). 3D modeling and animation in Blender. Audio processing and sound synthesis in Pure Data. Realtime 3D graphics and GPU programming (OpenGL, DirectX). Game AI.

## Professional Experience

### **August 2010 – Present : 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. In addition to my previous list of responsibilities, I am building their laboratory software system by extending an electronic notebook system (Labtrack) to collect and analyze the data from the synthesis and electrochemical experiments. Using jQuery, C# and Java services, ASP.NET. All of their data from the lab as well as related data from our materials simulation cluster is available through a portal website built from scratch. I've learned the ins and outs of life in the lab to continue building and refining all the data organization and analysis tools needed to develop a groundbreaking new energy technology, and even worn a science hat running complex materials simulations used to guide the lab work. I'm also the Google Apps administrator and first line of IT defense, dealing with very arcane electrochemical testing systems.

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

Worked with 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 the cluster to run incrementally and efficiently. Reworked and optimized their Postgresql database making it 1 to 2 orders of magnitude faster. Built an automated email report system. Enhanced and optimized their data analysis and visualization Java Swing based application, including adding the ability to easily design new materials and send them to the cluster. 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 messing with game development, graphics programming, game AI, 3D modeling and audio programming. I worked on my own open source 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.
- 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**

When not working or chasing after my young daughters I can be found working on my personal software projects, playing my nylon acoustic guitar, dabbling on the piano, playing online chess or studying Math, Physics and Chemistry. One day I want to help build The Matrix.