

I am a Software Engineer with a professional background focused on interactive, 3D and virtual reality applications and middleware. My experience includes system design: determining requirements, designing modules and inter-module communication as well as implementation. My career goal is to offer these skills to create front-end graphic systems that provide interactive user experiences.

Programming languages: C/C++ / Python / Vala / SQL
Programming APIs: OpenGL / Qt / Boost / OpenSceneGraph / VRJuggler / OpenSG / Bullet / open-DIS
OS and platforms: Linux x86_64 / graphic clusters

Working Experience

March 2011 – Present: PDI DreamWorks Animation, R&D Software Engineer

Animation Engineer for the Next-gen internal character animation software.

- Implemented movie previews for 3D animation motion clips, a new feature in the application.
- Rearchitected the parser and code generator for dependency graph nodes improving robustness and flexibility providing more stability and options for character TDs using the tool and easing a point of frustration in the tool usage.
- Architected and programmed the solution for generating Python bindings that TDs use for executing operations outside the graphic application.
- Implemented a new command system that automatically exposes commands in Python.

C++ / Python / OpenGL / Qt / Linux x86_64 / Python bindings / multithreading

April 2010 – March 2011: Fanhattan, Inc., Software Engineer

I was responsible for implementing the UI toolkit used to create the company's Media Hub product for embedded devices and as an application framework.

- Contributed to the open source project Clutter.

C / Vala / OpenGL / GLib / Clutter / gcc / Linux x86_64

December 2007 – November 2009: University of Louisiana at Lafayette, VR research scientist / developer

Member of an R&D team for a large scale virtual reality simulation framework for the Army Research Laboratory.

- My responsibilities included architecting and implementing collaborative session and physics frameworks.
- My contributions were integrated into the open-DIS open source library.

C++ / OpenGL / open-DIS / Bullet / VRJuggler / OpenSG / Linux x86_64 graphics cluster

January 2006 – December 2007: Nanyang Polytechnic (Singapore), Games programming lecturer and projects lead

I taught 3D, network and physics programming and was the technical leader for final year industry projects.

- Two teams under my supervision published articles in GameCareerGuide.com; it was the first time the school was featured in a games magazine.
- My initiative made this institution the first one in Singapore to actively use on-line 3D worlds for teaching & development.

C++ / OpenGL / Python / ODE / php / LSL / Second Life®

May 2003 – January 2006: Purdue Envision Center, Research assistant / programmer (part time)

Integrated virtual reality and visualization applications into an existing collaborative and video conferencing framework.

- My work was presented on multiple conferences (AG Retreat 2004 & 2005, SCGlobal 2004 & 2005, and SIGGRAPH Emerging Technologies 2005).

C/C++ / VRJuggler / OpenSceneGraph / Python / Boost / Linux x86_64 / Windows / Client and server programming / Multithreading / Sockets / Multicast video in 3D environment

August 2002 – May 2003: Purdue University, Computer graphics teaching assistant (part time)

I taught Computer Graphics Programming and Game Development (CGT215) including lab practicals and lectures, and Introduction to Computer Animation (CGT241).

C/C++ / OpenGL / GLUT / GLUI / Win32 / 3DStudio Max / Maya

February 2000 – June 2002: Grupo Lanka (Venezuela), eCRM consultant

I specialized in 3-tier architecture interactive web applications. The projects on which I worked included newspaper subscription and web helpdesk systems.

SQL / Pivotal CRM/ C++ / VB / COM / ASP (VBscript and JavaScript) / ADO / MS SQL Server admin / Visual Interdev / HTML / DHTML / Crystal Reports

April 1999 – February 2000: SuperCable ALK (Venezuela), Field engineer

I was in charge of setting up and administration of the system for local advertisement insertion, which was installed on a master site and 4 geographically remote head ends.

- I fixed problems and stabilized the infrastructure on all 5 nodes, which had been failing for over 6 months.
- My new ideas contributed to adding animations and a sense of real time to the company's promotional channel.
- I contributed in marketing projects developing new products for advertisement sales helping to obtain over estimated revenues for the company.

SeaChange Spot System / Video digitizing and storage / Ad Traffic and Billing System / VB / VBA

July 1998 – December 1998: ALLOY 2107 (Venezuela), Multimedia programmer

I was in charge of programming an interactive tale for children to be released on CD.

- The initial objectives for the project (integration of only 3 scenes) were satisfied several weeks earlier than expected, so by the end of the contract I had finished the whole book (12 scenes).
- The main objective was to integrate only this tale, but the library I programmed became a general framework for creating other tales that follow a similar structure.
- I introduced the company to new sound technology which allowed them to use higher quality, stereo audio for the first time.

Lingo scripting / Shockwave / Adobe Director® / Sound Forge / Sequences assembling / Sound and animations synchronization

September 1997 – April 1998: Simon Bolivar University (Venezuela), Database technical assistant (part time)

As a technical assistant in the IT & Communications Center, I was in charge of database administration, development of projects using server/client philosophy and user support.

Oracle and Sybase RDBMS admin / Unix / SQL / PL/SQL

April 1996 – July 1997: Simon Bolivar University (Venezuela), Software technical assistant (part time)

My responsibilities included software installation and configuration, error detection and fixing and user training.

MS-DOS / Windows

July 1996 – September 1996: Intevop (Venezuela), Applications programmer

This was an internship contract in the Venezuelan institute for oil technologies research to design and implement a tool for chromatography analysis.

- The tool I programmed completely automates a set of tasks that were previously done manually by the researchers.

MS Excel / VBA

Education

May 2005: Purdue University, M.S. Computer Graphics Technology

I specialized in 3D and collaborative virtual reality programming.

C/C++ / VRJuggler / OpenSceneGraph / OpenGL / Python / Boost / AG Toolkit

March 1999: Simon Bolivar University (Venezuela), Cum Laude BE Computer Engineering

A 5 years degree with specialization on 3D programming and DB architecture and administration.

C/C++ / OpenGL / SQL / PL/SQL / Oracle / Unix

Professional development

Conference presentations:

[Mar/2010] *Integrating the DIS Protocol into a Fully-Immersive Simulation Application*. SEARIS@IEEE VR 2010.

[Mar/2010] *Beyond Desktop Point and Click: Immersive Walkthrough of Aerospace Structures*. IEEE Aerospace.

[Aug/2007] *Second Life for Digital Entertainment Technology education* (poster). Second Life® Convention.

[Nov/2005] *Virtual Meeting Space*. SC Global.

[Aug/2005] *AGJuggler*. SIGGRAPH 2005 Emerging Technologies.

[Apr/2005] *Access Grid Virtual Reality*. Access Grid Retreat.

[Nov/2004] *Stereographics and Virtual Reality over the Access Grid*. SC Global.

[Jun/2004] *Collaborative Virtual Environments over the Access Grid*. Access Grid Retreat.

Conference organization:

Chair of the Student Volunteer committee for IEEE VR. March, 2009. Lafayette, LA.