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OBJECTIVE

Seeking a position at a software/hardware engineering, entertainment or multimedia production company. Looking for a firm which will offer a challenging environment and which *thrives* upon creativity and cutting edge technology.

EMPLOYMENT HISTORY

Aug 2017 - Present   **TANZLE**
                              SCOTTS VALLEY, CA
                              Principal Systems Architect

Designing and engineering Tanzle's distributed hardware and software visualization platform, employing technologies such as spatial tracking, 3d rendering, Infiniband networking, OpenGL, OpenCV, CUDA, etc.. Brought up company's cross platform (Linux,MacOs,Windows) build and development environment.

Mar 2015 - Aug 2017   **MZ (aka MACHINE ZONE)**
                               PALO ALTO, CA
                               Lead Rendering Engineer

Working on MZ's new engine. I work closely with the graphics team in Germany defining requirements for the rendering engine. I am also responsible for bringing up the ECS (Entity Component System) simulation layer that acts as the liaison between Lua and the rendering engine.

Oct 2014 - Mar 2015   **NVIDIA**
                               SANTA CLARA, CA
                               Sr. SW Engineer

Worked on bringing up the Linux Graphics Debugger.

Oct 2013 - Sep 2014   **BLUESCAPE**
                               REDWOOD SHORES, CA
                               Principal SW Engineer, Architect : Wall Systems

Continued work on the Bluescape wall platform started at Obscura.

Jul 2012 - Oct 2013   **OBSCURA DIGITAL**
                               SAN FRANCISCO, CA
                               Head of Software Engineering

Lead software engineer and software architect of the Bluescape wall platform, a multi-user and multi-touchscreen cloud enabled collaborative operating system. (see www.bluescape.com).

Apr 2010 - Jul 2012 **APPLE INC**
CUPERTINO, CA
GPU Developer Technologies Software Engineer

Worked on internal OpenGL command stream processing tools for OpenGL/OpenGLes driver/hardware testing and validation on OSX and iOS platforms. Also worked on the OpenGLes Debugger and performance analyzer that is integrated into Xcode4. Speaker at the 2012 WWDC.

Jul 2009 - Feb 2010 **TWEAKOZ (Self Employed)**
NICKELODEON/MTV/VIACOM : Full Time Contractor
SANTA CRUZ, CA
Many Programming Roles

Projects: Jul2009-Feb2010 : XBLA/PC Spongebob GravJet Racing : Lead Engineer

GravJet/XBLA: Continued work done at SCG, but directly for the client…..

Oct 2005 - Jul 2009 **TWEAKOZ (Self Employed)**
SANTA CRUZ GAMES : Full Time Contractor
SANTA CRUZ, CA
Many Programming Roles
Part-Time System Administrator

Projects: Oct2005-Jun2006 : Superman Returns (Nintendo DS/Sony PSP) : Lead PSP Engineer
Jul2006-Jun2007 : Godzilla Unleashed (Nintendo DS) : Tools/Engine Programmer
Jun2007   : Unannounced "CodeName Noke" (Nintendo DS) : Tools/Engine Programmer
Jul2007-Oct2007 : Tomb Raider Underworld (Nintendo DS) : Part-Time Tools/Engine Programmer
Jul2007-Jan2008 : Wii Miniork R&D : R&D Engineer
Jan2008-Jul2008 : Igor PC/Wii : Lead PC/Wii and Tools Engineer
Oct2008-Jul2009 : XB360/PC/Wii Spongebob GravJet Racing : Lead Platform and Tools Engineer

Ported SCG's legacy engine to the PSP, Implemented autobuild system for Superman/PSP. Architected large portions of "Orkid/MiniOrk" - an integrated next-gen tool/engine which scales from Nintendo DS to high-end hardware and allows for game execution/tuning in tool. Designed Orkid/MiniOrk graphics, audio and IO devices for PC,XB360(Dx9) and Wii. Designed scene and entity layer of the MiniOrk game engine. Created heterogenous(CPU/GPU) multithreaded dataflow engines for particles, procedural textures, and audio. Integrated Maya/CgFX->Collada-> MiniOrk asset pipeline. Prototyped MiniOrk physics system using Bullet. Performed security and Subversion system administration duties.

Apr 2004 - Oct 2005 **SONY ONLINE ENTERTAINMENT**
SAN DIEGO, CA
Senior Graphics Programmer

Projects: 2004 : Unannounced PC/PS3 MMORPG title (canceled, though engine still in use in ULDK)
2005 : Sony PS3 E3 2005 Launch Event Demo
2005 : Untold Legends Dark Kingdom

Implemented WYSIWYG Maya6.0/OpenGL/CgFX based Pipeline, including hardware shader nodes, terrain blending modeling tools, a texture compression settings panel, and a shape node to override maya's poor binormal/tangent calculations. Integrated the DX9 HLSL/FX framework into the PC game engine and implemented new shaders (to match the WYSIWYG pipeline). Ported above shader pipeline to the PS3 (for E3 PS3 Launch Event). Designed/Implemented a data driven finite state machine editor for use in input->animation/action mapping, and for use in AI. Implemented audio device driver for PS3. Setup PS3 Build System.

Feb 2002 - Feb 2004   **JALECO ENTERTAINMENT**
BOULDER, CO
Senior Programmer/XBox Lead

Projects: 2002 : NightcasterII (XBox)
            2003 : Werewolf, Goblin Commander (PS2/XBox/GameCube)

NightcasterII: Updated NC 1 Maya exporters, Implemented special effects with vertex and pixel shaders, including 3D Perlin noise pixel shaders for effects like burn, freeze, poison, and electrocute on a skinned model, wrote a tcp/ip networked parameter editor for editing effects live on the XBox, added macros and templates to the nightcaster spell effects scripting system. Implemented Pak File Loader.

Werewolf: Selected as lead engineer, acted on those duties for 3 weeks until project held in order to condense resources on Goblin Commander.

Goblin Commander: Re-Architected legacy OpenGL renderer to better support cross platforms with shader support on OpenGL and XBox. Re-Architected Granny model renderer on PC, XBox and Gamecube to support hardware deformation with vertex shaders and matrix palette skinning, wrote Granny to custom format converter to support new renderer and improve memory footprints and loading times for all platforms. Optimized heightfield renderer significantly. Programmed majority of the port of Goblin Commander to the XBox.

Feb 2001 - Feb 2002   **SANTA CRUZ GAMES**
SANTA CRUZ, CA
Senior Tools, Audio Programmer,
Audio Director, System Administrator

Projects: ET - Interplanetary Adventure for Playstation and PC

Created the WorldBuilder design tool which has the following functions: Manage cel (geometry unit) instantiation, cel animations, actor placement and world attribute database editing. Wrote all Maya Exporters including Actor (Weighted, Boned-Mesh), Skeleton, Boned-Animation and Cel (Simple-Mesh) Exporters. Implemented entire ET sound system, including the conversion pipeline, provided direction for the audio content, and created some of the audio content. Also performed most system administration duties.

Jul 1999 - Jan 2001   **OSIRIS STUDIOS**
SANTA CRUZ, CA
Senior Tools, Game Programmer

Projects: HBO Boxing for Playstation

Architected and implemented ADB (Animation Database) which allows a user to graphically edit an animation state machine for character animation with hundreds of animation nodes and thousands of transitions between nodes (edges), supporting multiple animations streams concurrently on a single skeleton, animation blending control, user control mapping, collision sphere targeting, etc.. Created the Streaming Database for navigation, classification and conversion of several thousand commentator audio streams. Also created the entire sound system for HBO Boxing, including a MIDI playback engine and conversion tools for the PSX based on EMU Soundfonts/DLS, crowd simulation, and other sound effects. Most tools provided with OpenGL based GUI on Win32 for fast / precise navigation and workflow.

Dec 1997 - Jul 1999   **IDOL MINDS, LLC.**
BOULDER, CO
Tools, Game Programmer

Projects: CoolBoarders3, RallyCross2 for Playstation (MIDI Engine also used in CB4)

Duties included design and implementation of a Sony Playstation based MIDI playback engine. Frontend Menu development including tools and runtime code. GUI based File converters for Audio and 3D, Apps including Alias PowerAnimator and AliasWavefront Maya on IRIX/Win32.

Jun 1997 - Sep 1997   **SOUTHEASTERN COMMUNICATIONS SERVICE, INC.**
SARASOTA, FL
Sub-Contracted Software Developer.

SECS is a service oriented business for construction of complete cellular sites. Responsible for the development of Win32 automation software for Hewlett Packard RF test equipment communicating to the host via HPIB/GPIB. The software is used in the testing of RF signal transmission components at microwave and cellular telephone radio sites.

Nov 1996 - Present   **BINARY ARTS, aka TWEAKOZ (Self Employed)**

Began Implementation of cross platform realtime 2d/3d and audio multimedia performance engine - Orkid (which would later @ SCG get repurposed as a game engine).

Jan 1995 - Jun 1997   **MINDESIGN limited**
SARASOTA, FL
Programmer, System Administrator.

Responsible for system administration of a network of Silicon Graphics (UNIX) and Macintosh computers. Developed plugins for 3D animation and film/video editing software including Discreet Logic Flint, Newtek Lightwave, Alias/Wavefront PowerAnimator and Composer. Development of custom applications for use in audio and film/video production. Setup 32 track digital audio / MIDI production studio based on Digidesign ProTools.

Sep 1993 - Mar 1994   **SILTRON ILLUMINATION**
ONTARIO, CA (California)
Quality Assurance Technician.

Siltron is a manufacturer of emergency lighting systems. Responsible for developing test procedures and test fixtures, training and assisting the manufacturing department in the mechanical and electrical requirements needed to construct various company products.

Aug 1992 - Aug 1993   **SOUTHEASTERN COMMUNICATIONS SERVICE, INC.**
SARASOTA, FL
Cellular Electronics Specialist.

SECS is a service oriented business for construction of complete cellular sites. Responsibilities included the testing of the antenna and lighting systems after completion of construction. I was also responsible for repairing existing cellular sites for AT&T wireless.

Aug 1990 - Jun 1992   **UNITED STATES NAVY**
NTC Orlando, FL

U.S. Naval Nuclear Propulsion Program.

ACQUIRED SKILLS

Currently learning Verilog / MyHDL / Migen.

Fluent in usage of IRIX/UNIX/LINUX/OSX, and Windows.

Device driver programming for LINUX. Created MOTU MIDI Timepiece AV driver for the Advanced Linux Sound Architecture (ALSA).

Applications used include Gimp/Photoshop, Alias/Wavefront Composer, PowerAnimator and Maya, Blender, Z-Brush, Discreet Logic Flint, Digidesign ProTools, Steinberg CubaseVST, Cocos Reaper, MIT Csound, Faust DSP, among others.

Thirty years of programming experience; Primary languages include C/C++(11), Python, Lua, and various shader languages. Various assembly languages. Have also written custom scripting languages.

Fluent in programming at the systems and applications level for a variety of pre-emptive multitasking operating systems, object oriented design, automated GUI builders (Qt, X11, TCL/TK, FLTK), DSP, Simulation, 3D Graphics and Digital Audio/MIDI.

Main development environments used include Sublime Text, Visual Studio, Eclipse, Clang/LLDB, GCC/GDB, git, svn.

Main API's used include ZeroMQ, Intel/TBB, Qt, FLTK, X11/GLX, OpenGL/Direct3D, RenderMan, Steinberg VST plugin API, POSIX, unix sockets and my own library of unix/win32 C++ classes which handle things like graphical dataflow modeling, timers, Audio/Video signal processing, particle systems, physical dynamics, multithreading, event handlers, file parsing, 3D graphics, and sound/artwork file conversion among others.

System administration skills include OS/Software upgrades, TCP/IP network setup and maintenance on UNIX and Win32 systems, NFS, data storage setup for realtime digital video editing (SCSI Raid striped over multiple SCSI Busses), FlexLM Network licensing, and Web Server administration among others.

Hardware/Software design of simple microprocessor, microcontroller and FPGA based systems.

Extensive personal experience with Digital Audio / Music Systems; Consumer, Professional and otherwise.

CrossPlatform Coding - Most of the software I write easily ports onto other platforms.

EDUCATION

2005 Sony Playstation 3 Developers Conference

2000, 2001, 2003 Game Developers Conference

1996, 1999, 2000, 2003 Sony Playstation Developers Forums

1995, 1996, 1997 Silicon Graphics Developers Forums
Attended classes covering IRIX system administration, OpenGL, DSO Security, Symmetrical Multiprocessing, IRIS Performer, UNIX/Win32 portability, Image / Audio Synthesis among other topics.

1993 Commodore Amiga Developers Conference

Naval Nuclear Power School - NTC Orlando, FL
Electrical Operator Curriculum; particle physics, thermodynamics, mathematics and electrical power generation.

Nuclear Field 'A' School - NTC Orlando, FL
Electricians Mate Curriculum; mathematics, basic electricity, basic/advanced analog and digital electronics.

Lemon Bay High School - Englewood, FL
Chatfield Sr. High School - Littleton, CO
Littleton Sr. High School - Littleton, CO
Marina Sr. High School - Huntington Beach, CA
Peterson High School - Santa Clara, CA

OTHER

References and portfolio (audio, video, code, etc..) available upon request.