Shaun M. Graham
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PROFESSIONAL EXPERIENCE

Sr. Content Creation Tools Software Engineer, Aechelon Tech., San Francisco, CA - Feb 2015 - Current

- Architect/Maintain tools written in Python for automating documentation creation for global databases.
- Developed UI/UX for GIS database publishing software using PySide/Python.
- Wrote "dispatcher"/"worker" system using Python to facilitate running tasks on multiple machines.
- Developed pipeline for processing and converting raster and vector GIS data to a proprietary run-time database using Python.
- Exposed proprietary C++ classes/methods to Python using the Python C API.
- Maintain Maya plug-ins for visualizing, modifying and exporting run-time data.
- Wrote shared Python modules for simple yet robust multi-processing, progress bar, and others.

Effects Animator, DreamWorks Animation, Redwood City, CA – Feb 2008 - Jul 2014

- Created art-directed computer generated visual effects and solved 3D problems for feature animations such as sparks, smoke, fire, water, dust, snowball splats, and plant deformation.
- Wrote render-farm management UI using Python/PyQT which is now used studio wide.
- Developed Python script for traversing complex road geometry for a large city in order to produce driving lanes for traffic AI, resulting in a savings of 1.5 months.
- Added features to C/C++ studio tools such as multi-threading and new interpolation methods to improve sub-frame sampling of baked animation data.
- Discovered and fixed bug in core studio library code, where some data was not being transformed in 3D correctly.

Research Assistant, BYU Animation, Provo, UT - Jul 2007 - Mar 2008

- "Problem solver" for senior animation project. "We never would have finished this film without Shaun." – Brent Adams, Director of the Center for Animation, Brigham Young University.
- Used C++ to develop plug-ins and rendering tools to automate multi-pass render processes and improve performance in compute intensive areas such as occlusion and subsurface scattering.
- Set up custom render-farm and developed a job launching service using C++ which allowed more than 10x greater rendering throughput with 10% of the hardware.
- Wrote MEL scripts and accompanying UI to improve render workflow and reduce user error.

RELEVANT EXPERIENCE

Game Engine, long-term personal project – 2009 – 2015 (estimate)

- Written from scratch using mostly C++ with APIs/LIBs such as OpenGL, Bullet Physics, and WebP.
- Designed to be fast, cross platform, modular, and light weight. Target platform is mobile (OpenGL ES 2.0) with secondary target being desktops (OpenGL 3.1). Currently supports Android and Windows.
- Developed features such as asset security, built-in geometry algorithms (e.g. generate normals, find smallest bounding sphere, and merge transformed geometry), frustum culling, depth sorting, smallest encompassing frustum algorithm (for depth map optimization), GLSL shader support (with pre-optimizing filter for targeting specific platforms), and ability to save state and/or recover from lost context.
- Wrote Python scripts in Houdini to visually debug algorithms using point-cloud data.
- Developed world building pipeline using Blender/Python to automate the export of static geometry into optimal draw regions, generate texture-atlases, and bake textures for indirect illumination and light maps to leverage the use of offline rendering for static lighting.

Ray Tracer, DreamWorks Animation, FX Challenge Training Project

- Written from scratch in a proprietary language. A ray casting library was provided.
- Includes features such as soft shadows, radiosity, translucency, subsurface scattering, soft reflections, caustics, reflections, refractions, and textures. Many of these methods used point based caching or techniques to avoid full Monte Carlo ray tracing and improve speed.

Technical Director Intern, Pixar Animation Studios, Emeryville, CA - 2006 (Summer/Fall)

- Used Python/PyQT to update legacy scripts, developed a tool for quickly creating a UI for any command line application, and improved other lighting workflow and tools.
- Developed/Updated surface shaders for the film "Ratatouille".

Technical Artist Intern, Electronic Arts, Redwood Shores, CA - 2005 (Spring/Summer)

- Prepared light rigs for large exterior city scenes using Maya and proprietary pipeline plug-ins. Wrote MEL scripts to automate the bulk of this process.
- Consulted with lighting artists and observed pipeline inefficiencies. Wrote MEL scripts, including "Auto Light Placement Tool" to allow saving custom lighting rigs resulting in less redundancy.

Teacher's Assistant, "Shader Programming", BYU, Provo, UT – 2007 (Fall Semester)

Prepared and gave lectures for full semester, including creating and updating presentations and providing live demonstrations using CG industry standard tools Maya and RenderMan. Provided lab assistance to students.

Supervising Technical Director, BYU Animation, "Pajama Gladiator" (Emmy & Oscar winner) - 2006-08

- Established rendering pipeline, including writing and testing primary BRDF shader.
- Developed hair geometry generator and shader for lead characters which required programming with MEL, TCL, and RSL, where the core plug-in was written in C++ using the Maya API. Provided mechanism for caching generated hair data which improved iteration time.
- Wrote C++ RenderMan plug-in to pre-process expensive lighting techniques using an approximate method, which greatly reduced render time while maintaining quality.

Technical Director, BYU Animation, "The Sheriff's a Chicken" - 2007

- Wrote primary BRDF shader, which allowed lighting to take place in compositing.

Technical Lead, BYU Animation, "Las Piñatas" (Student Emmy winner) - 2005-06

- Wrote shaders using Slim, RSL, C++, and TCL, including shader plug-ins for subsurface and "Vertex Scattering."
- Responsible for rendering pipeline, including occlusion and radiosity workflow and primary BRDF shader. Incorporated geometry caching, which saved up to .5 hours per frame rendered.

Technical Director, BYU Animation, "Der Ostwind" (Best of Show at Comic-Con) - 2004-05

- Solved technical problems such as render artifacts, motion blur issues, and occlusion.
- Simulated grass animation using Maya and rendered with RenderMan fur tools.
- Animated planes and used MEL scripting to automate animation of small moving parts.
- Composited final images using Shake.

SKILLS

Proficient

Windows, Linux, DOS, C, C++, Python, RSL, OpenGL/GLSL, MEL, NDK, PyCharm, Eclipse, Visual Studio, CVS, SVN, Perforce, Qt, Houdini, Maya, RenderMan, Nuke, Shake, Photoshop, problem solving, software development, shaders, 3D modeling, lighting, animation

Currently pursuing

Unreal Engine + plugin development

Some experience with

Mac, Java, JNI, Boost, HTML, PHP, CSS, Javascript, Git, Accurev, MySQL, TCP/IP, Realflow, rigging, electronics/hardware

EDUCATION

BFA Degree, Animation, Brigham Young University - GPA 3.72 / 4.0
Computing and Information, Minor

Certificate, Multimedia, Portland Community College - GPA 3.96 / 4.0