Joel Gross

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Santa Monica, California
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Work Experience

Lightstorm Entertainment
SOFTWARE ENGINEER
NOV 2016 — PRESENT
Designed and developed a proprietary real-time particle system for use in large-scale virtual production on the Avatar sequels. The system was built using CUDA and C++ and integrated into the pipeline for use on stage during motion capture. Also responsible for developing new shaders for use in the real-time engine used for motion capture and previs. Additionally, responsible for creating and improving workflows for artists and providing support for the tools.

DreamWorks Animation
SOFTWARE ENGINEER - SHADING R&D
OCT 2015 — NOV 2016
Responsible for developing and maintaining DreamWorks' proprietary shaders on REYES and MCRT renderers. Examples include hair, fur, feathers, eyes, and a wide variety of utility shaders.

Projects

Snow Simulation
SPRING 2015
Written from scratch using CUDA, C++, and OpenGL with a partner. Simulates snow with realistic fracture using the MPM technique. Based on Disney's "The material point method for Snow Simulation" research paper which details the method used in the movie "Frozen".

Fluid Simulation
FALL 2014 — SPRING 2015
Written from scratch using CUDA, C++, and OpenGL. Simulates fluid and foam particles with realistic motion in real-time. Implemented several research papers resulting in a framework capable of running 128k fluid particles and up to 500k foam particles at 30 fps. The main resource for the fluid physics is "Position Based Fluids" (Macklin 2013). Extended this framework to support fluid-cloth coupling.

Deferred Rendering Engine
SPRING 2015
Developed a 3D puzzle-action game using C++ and OpenGL in a team of 6. Team leader and personally responsible for developing the deferred renderer used in the game. Features include screen-space ambient occlusion, point light & directional light shadow mapping, and light volumes.

Thermo
FALL 2014
Developed a puzzle-platformer using Actionscript 3 in a team of 6. Personally responsible for game direction, gameplay programming, and art. Played by over 50k people across Newgrounds and Kongregate.

Education

Cornell University — GPA: 3.78
FALL 2014 — SPRING 2015

Graduate School
M.Eng — Computer Science

SUNY Binghamton University — GPA: 3.67
FALL 2011 — SPRING 2014
GRADUATED IN 3 YEARS

Watson School of Engineering
BS — Computer Science

Harpur College of Arts & Sciences
BS — Economics

Skills

Programming
Java • FLUENT, 7 YEARS
C++ • FLUENT, 7 YEARS
C • FLUENT, 7 YEARS
Python • FAMILIAR, 4 YEARS
C# • PROFICIENT, 1 YEAR
Actionscript 3 • PROFICIENT, 1 YEAR

Design
Adobe Photoshop • FLUENT, 10 YEARS
Adobe Flash • PROFICIENT, 4 YEARS

Tools & Platforms
Linux
Microsoft Windows
CUDA
OpenGL/GLSL
Unity
Unreal Engine 4
Git

Honors

Academic Honors
Watson School of Engineering
CUM LAUDE

Harpur College of Arts & Sciences
CUM LAUDE

Dean's List • SPRING 2012, FALL 2012, SPRING 2013, FALL 2013