AUSTIN ENG

SOFTWARE & GRAPHICS ENGINEER

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EDUCATION

UNIVERSITY OF PENNSYLVANIA · AUGUST 2014 - MAY 2018

B.S.E COMPUTER SCIENCE · M.S.E. COMPUTER GRAPHICS AND GAME TECHNOLOGY

EXPERIENCE

UNIVERSITY OF PENNSYLVANIA · AUGUST 2015 - NOW

COMPUTER GRAPHICS TA · C++ · OPENGL · GLSL

DREAMWORKS ANIMATION · JUNE - AUGUST 2016

DEPARTMENT TECHNICAL DIRECTOR · PYTHON

- Developed **tools and plugins to improve workflow** for the lighting department with PyQt.
- **Optimized execution** of render submissions and **improved error reporting and logging** of jobs.
- Designed and built more **flexible and powerful tools for comparing arbitrary projects**.

WALT DISNEY ANIMATION STUDIOS · JUNE - AUGUST 2015

ART AND PRODUCTION INTERN · PYTHON · HOUDINI · MAYA

- Learned the entire animation pipeline through the **production of a short film**.
- Specialized in procedural modeling, effects, and technical animation in Houdini.
- Assisted in writing **scripts to solve pipeline problems** with animation and rig transfer.

ARTSICLE · JANUARY 2014 - MAY 2014

FULL STACK WEB DEVELOPER · RUBY · JAVASCRIPT · CSS · HTML

- Developed **MVC architecture** for new features to assist artists in promoting their work
- **Improved caching efficiency** with modifications to the Cashier gem
- Rewrote portions of the test suite to **minimize external API calls for speed improvements** and protection of credentials

PROJECTS

BOIDS · SEPTEMBER 2016

GPU FLOCKING SIMULATION · CUDA · C++

- **Crowd simulation algorithm** which executes almost **entirely in CUDA kernels** and easily handles **half a million agents** at over **60fps**

FLIP/PIC FLUID SOLVER · APRIL 2016

PHYSICALLY-BASED FLUID SOLVER · C++ · OPENGL

- Highly **concurrent and scalable fluid solver** built for class implementing the FLIP/PIC fluid simulation method
- Capable of simulating **over one million fluid particles**

BIOCROWDS · MARCH 2016

CROWD SIMULATION ENGINE · JAVASCRIPT · WEBGL

- **Realtime, 60fps, crowd simulation engine** which computes **on-the-fly, collision-free trajectories** for hundreds of agents in a web browser
- Optimized by formulating computations as **constant-time shaders** executing over a uniform grid

MONTE CARLO PATHTRACER · DECEMBER 2015

PHYSICALLY-BASED RENDERER · C++ · OPENGL

- Highly **concurrent Monte Carlo pathtracer** built for class from scratch.
- Supports BVH spatial acceleration, multiple importance sampling, progressive rendering, sobol sampling

MINI-MAYA · APRIL 2015

3D MODELING PROGRAM · C++ · OPENGL

- 3D Modeling program built for class as an introduction to fundamental computer graphics principles
- Supports mesh data structures, subdivision, dual quaternion skinning, spatial acceleration, GPU-accelerated selection

SKILLS

C++ · **PYTHON** · **JAVASCRIPT** · **OPENGL** · **WEBGL** · **UNIX** · **HOUDINI**