

Kyle Fung

Email: kyle_fung@outlook.com Website: kylefung.github.io

TECHNICAL SKILLS

Languages: C/C++, Java, Python, JavaScript

API/Platforms: OpenGL, DirectX, CUDA

Tools: Git, GDB, Visual Studio, Valgrind

Interests: Computer Graphics

WORK EXPERIENCE

SideFX Software – *3D Software Developer intern (C++)*

September 2017 – present

- Contributed rendering code to Houdini, a 3D animation application and Mantra, its renderer
- Added direct rendering of subdivision surfaces to Mantra using OpenSubdiv
- Made new vector data types to leverage AVX SIMD intrinsics for x86 platforms
- Implemented several variations of Voronoi noise for terrain and texture generation
- Optimized a bottleneck routine using multithreading and efficient use of OpenVDB data structures

LinkedIn Corporation – *Infrastructure Developer intern (Java)*

August 2016 – December 2016

- Contributed to Azkaban, an open source Hadoop job scheduler
- Integrated Azkaban's logging system with Elasticsearch to enable searchable logs
- Fixed issues with parsing and handling server requests and responses
- Maintained and deployed LinkedIn's Azkaban clusters for internal and production uses

Mozilla Corporation – *Graphics engineering intern (C++)*

May 2015 – August 2015

- Contributed rendering code to Firefox, an open source web browser
- Fixed conformance issues in the behavior of Firefox's WebGL implementation
- Added WARP device support for WebGL using ANGLE
- Debugged and fixed general rendering issues in Firefox

TransGaming Inc. – *Graphics programming intern (C++)*

August 2014 – December 2014

- Wrote over 70 HLSL shader programs to test sanity of an HLSL to GLSL compiler
- Set up more than 1000 rendering tests using the OpenGL ES2 conformance suite

PERSONAL PROJECTS

Jiggle – *(C++, OpenGL, Eigen)*

- An interactive 3D demo of non-rigid body physics with continuous collision detection
- Wrote a semi-implicit Euler method (Baraff and Witkin) for dynamics of mass-springs
- Implemented oct-trees to accelerate intersection tests via bounding volume hierarchies

ShallowWater – *(JavaScript, WebGL)*

- An interactive 3D demo displaying and simulating moving water created with a friend
- Uses ray tracing in GLSL shaders to implement refraction, caustics, and lighting

FluidCanvas – *(JavaScript)*

- An interactive 2D liquid and smoke simulator based on numerical techniques
- Solves the Navier-Stokes equations using a Jacobi solver, with solid wall boundary conditions

WasteEngine – *(C++, OpenGL)*

- A toy 3D rendering engine that supports loading of meshes and textures

EDUCATION

Undergraduate – Computer Science at University of Waterloo

September 2013 – present

- 90.5% major average (Computer Science) and 88.0% cumulative average

Research – Undergraduate research assistant

January 2016 – April 2016

- Studied fluid simulation and rendering part-time with Dr. Christopher Batty during the school term