Kyle Fung

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TECHNICAL SKILLS

Languages: C/C++, Java, CUDA C, HLSL, GLSL
API/Platforms: OpenGL, DirectX, CUDA
Tools: Bash, GDB, Visual Studio, Valgrind, Git
Interests: Software engineering, 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 ray tracing package
- Added direct rendering of subdivision surfaces to Mantra using OpenSubdiv
- Implemented several variations of Voronoi noise for terrain and texture generation
- Optimized a bottle-neck routine using multithreading and efficient use of OpenVDB data structures

LinkedIn Corporation – *Hadoop Infrastructure 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
- 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

TransGaming Inc. – *Graphics engineering intern (C++)* *August 2014 - December 2014*
- Set up more than 1000 rendering tests using the OpenGL ES2 conformance suite, rendered using ANGLE
- Wrote over 70 HLSL shader programs to test sanity of an HLSL to GLSL compiler

PERSONAL PROJECTS

Jiggle – *(C++, OpenGL, Eigen)*
- An interactive 3D demo of non-rigid body physics
- Implemented a semi-implicit Euler method (Baraff and Witkin) for dynamics of mass-springs
- Supports continuous collision detection via bounding volume hierarchies

ShallowWater – *(JavaScript, WebGL)*
- Collaborated with a friend to create an interactive 3D demo displaying and simulating moving water
- 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 (class of 2018) *September 2013 – present*
- 90.5% major average (Computer Science) and 88.0% cumulative average
- Relevant courses: Computer graphics, Computational differential equations, Numerical linear algebra

Research – Undergraduate research assistant *January 2016 – April 2016*
- Studied fluid simulation and rendering part-time with Dr. Christopher Batty during the school term