# Kyle Fung

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## TECHNICAL SKILLS

**Languages:** C/C++, Java, Python, JavaScript
**API/Platforms:** OpenGL, DirectX, WebGL
**Tools:** Git, GDB, Visual Studio, Valgrind, RenderDoc
**Interests:** Computer Graphics

## WORK EXPERIENCE

**Epic Games (current)** – *VR Rendering intern (C++)* *June 2018 – present*
- Contributed VR rendering code to Unreal Engine 4
- Developed new features in C++, using RenderDoc and Visual Studio for graphics debugging
- Shipped an unreleased rendering feature and currently finishing up another in Unreal Engine 4.21

**SideFX Software** – *3D Software Developer intern (C++)* *September 2017 – December 2017*
- 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

**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

**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 programming intern (C++)* *August 2014 – December 2014*
- 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 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
- 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

**Bachelor of Computer Science** – *University of Waterloo* *September 2013 – June 2018*
- Graduated on Dean’s Honors List with Distinction (87.9% 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