Linwan Song

4A Computer Science | linwan.song@uwaterloo.ca | 416-886-5892 | linwansong.ca | /in/linwan-song/

Languages: C++, C, Java, Go JavaScript, C#, Racket, SQL, Gherkin, Groovy

Technologies: Git, Qt, Kubernetes, AWS Lambda, OpenGL, Polymer, Gerrit, Gradle, OTIO

Work Experience

Software Engineering Intern | *Square Inc.* | San Francisco, CA | January – March 2020

- Designed an experiment to determine whether to move the internal QR code microservice from on premise servers to **AWS Lambda** or the Square shared **Kubernetes** cluster on **EC2**
- Re-implemented the QR Codes service in **Go**
- Set up QR Codes on Kubernetes and Lambdas, becoming an early adopter of both in Square

Intern, Media Components | *Autodesk Inc.* | Montreal, QB | May – August 2019

- Implemented track, CDL, and AngularMask manipulators in **C++** for the Shotgun Media Components API, allowing developers to manipulate these elements in an **OTIO** composition
- Designed and built an automated testing framework in **C++** and **Qt** to test the render results of the SGC Player component, filling a hole in unit testing coverage and increasing QA efficiency
- Fixed bugs assigned on JIRA

Software Developer Intern | *Google LLC* | Kitchener, ON | September – December 2018

- Linked raster tasks on the compositor threads to their respective frames in Chromium event trace
- Designed and implemented metrics that measure when the raster tasks occurred in relation with the rest of the graphics pipeline for the Chrome Graphics rendering benchmark in **JavaScript**
- Created graphic visualizations of existing graphics pipeline and thread usage metrics from the Chrome Graphics rendering benchmark using **JavaScript** and **Polymer** for Catapult

Relevant Projects

Raytracer

- Implemented depth of field, motion blur, fisheye lens, stochastic anti-aliasing, reflection, refraction, texture mapping, soft shadows, and multi-threading as features in **C++**
- Renders Constructive Solid Geometry hierarchical models with mesh, sphere, cube, cone, cylinder, and tori primitives with a Blinn-Phong lighting model

Hierarchical Modelling

- Implemented a hierarchical modelling system in **C++** and **OpenGL**
- Modelled a rat puppet with rotating joints that can be manipulated with a mouse

Other

- Wrote a rudimentary compiler in **C++**
- Implemented Settlers of Catan as a computer game played on a command line interface in **C++**

Education

Candidate for Honours Bachelor of Computer Science, 2021, *University of Waterloo*

Awards

President's Scholarship, University of Waterloo, 2016