Matthew D. Robertson
149 Erb Street West
Waterloo, ON N2L 1T9

226.868.3733 (cell phone)
m33rober@uwaterloo.ca
https://github.com/matthew-robertson

Summary of Qualifications

- Proficient with Python, AngularJS, C++, Java, C, Ubuntu, Git, and LaTeX. Functional knowledge of OpenGL, SQL, PostgreSQL, Jenkins, and SVN.
- Four years experience as a core member of a small video game development team, focusing on engine design and implementation in the Object-Oriented paradigm.
- Possesses excellent problem solving, communication, interpersonal, and organizational skills developed through past work experience.

Work Experience

- **Intel Security** — Waterloo, ON
  Software Development Engineer — *January 2016 - April 2016*
  - Resolved software problems in the Intel Security product line, including one which prevented the successful installation of the product.
  - Created and repaired Jenkins jobs to ensure the accuracy of test coverage metrics and proper deployment of builds.
- **RideCo** — Waterloo, ON
  Software Developer — *May 2015 - August 2015*
  - Developed and simplified tools to allow administrators to quickly and easily create and visualize optimized vehicle schedules, for the efficient solving of custom vehicle routing problems.
  - Improved tools used by administrators to analyze user data in real-time.
- **Bayer Radiology and Interventional** — Toronto, ON
  Software Developer — *May 2014 - August 2014*
  - Developed software for estimating and tracking radiation exposure in medical imaging as well as interfaces for consumption of derived data.
  - Engineered a higher performance ActionScript scatter-plot. This reduced runtime from up to eleven seconds for datasets with upwards of ten thousand points down to under three seconds.

Projects

- **Pixel Shaders and Demoscene** — https://www.shadertoy.com/user/twitchingace
  Lead Developer — *June 2014 - Present*
  - Created a number of pixel shaders built on the concept of "two-triangle rendering." Scenes created entirely inside the shader.
  - Created a distance-field based ray marcher for the purpose of rendering and blending geometric three-dimensional shapes.
  - Created a basic ray tracer as a foray into the technique.
- **3D-Game** — https://github.com/Alec-Sobeck/3D-Game
  Lead Developer — *December 2013 - April 2015*
  - Functioned as a lead developer on a project seeking to build a 3D C++ game engine on top of OpenGL.
  - Developed much of the initial technology for transforming and rendering the game world, including tools for importing and manipulating three-dimensional models.
  - Engineered an Octree-based technique for culling collision and rendering calculations between players and the game world.

- **Terrae Rasa** `https://github.com/matthew-robertson/Terrae-Rasa`
  Lead Developer *January 2012 - September 2013*
  - Worked as a lead developer and as a lead designer on a two-dimensional side-on adventure game.
  - Designed techniques which I used to procedurally generate random worlds of arbitrary size, while still ensuring the playability and enjoyability of the game world.
  - Developed an elementary physics-based particle engine for the handling of generic particle effects and projectiles.
  - Implemented a state-based AI with functionality to chase, retreat, or attack based on its environment.

Education

- **University of Waterloo** Waterloo, ON
  Candidate for Bachelor of Mathematics in Computer Science. Honours Co-op *September 2013 - Present*
  - Current 3B student, graduation anticipated for 2018.
  - 72.1% cumulative average, 73.8% major average.

Awards

New Brunswick Computer Science Competition 2nd place. 2013

University of Waterloo Euclid Mathematics Competition top 20%. 2013

New Brunswick Computer Science Competition 3rd place. 2012

University of Waterloo Canadian Computing Competition honour roll. 2012