Bruno Opsenica

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EDUCATION

UNIVERSITY OF TORONTO

B.Sc. in Physics
Jun 2012 | Toronto, ON
Final Year GPA: 3.93

LINKS

GitHub: **BruOp**
Website: **bruop.github.io**
Twitter: **@bruops**

SKILLS

LANGUAGES

C++ • GLSL • JavaScript • Python • HTML/CSS • Elixir

LIBRARIES

BGFX • Three.js • D3.js • React • Redux • Django • SQL

INTERESTS

Computer Graphics • Numerical Simulation • Data Visualization

EXPERIENCE

DELPHIA (FORMERLY VOX POP LABS) | Software Engineer

Feb 2017-Present | Toronto, ON

- Leading the front end team, designing the client application's architecture and mentoring junior team members
- Heavily involved in the design and implementation of the server API
- Developing processes that improve code quality such as test driven development, code reviews and continuous integration
- Working primarily in **JavaScript** using **React** and in **Python** using **Django**

INDEPENDENT CONTRACTOR | Web Developer

Nov 2016-Feb 2017 | Toronto, ON

- See responsibilities under Functional Imperative.

FUNCTIONAL IMPERATIVE | Web Developer

Jul 2015-Oct 2016 | Toronto, ON

- Completed projects involving web development, using **JavaScript** on the client side and **Ruby on Rails** or **Elixir/Phoenix** on the server side
- Often worked independently and was responsible for every part of the application code throughout each project
- Responsible for planning projects and communicating directly with clients

PROJECTS

BAE RENDERER Computer Grahpics

February 2019-Present

A set of examples of modern rendering techniques built in **C++** using the **BGFX** graphics library. The techniques are sourced from industry and academic literature; techniques currently implemented include:

- Physically based rendering of open source GLTF models using a microfacet BRDF and the "roughness-metallic" workflow
- Analytical lighting implemented in both forward and deferred rendering contexts
- Imaged based lighting using a multiple scattering BRDF, including generation of the BRDF LUT, irradiance map and pre-filtered environment map
- Exposure based tone mapping implemented using comptute shaders

ECHOES 3D Visualization

Aug 2017-Dec 2017

An interactive 3D visualization using **WebGL** with **Three.js** to render an interactive network graph with tens of thousands of nodes.
Producing the graph required the development of an N-body simulation in **C++**, which used an octree for spatial indexing, OpenMP multithreading and a simple **OpenGL** renderer.

SENTIMETER Classification Tool

Mar 2016-Dec 2016

A series of web applications that have been used by the Government of Canada, Sky News, ABC News and TVNZ to promote political engagement. In addition to being part of the front end development team, I was responsible for building the "Results" pages, which rendered interactive data visualizations using **D3.js** and **React**.