OLIVER XU

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OVERVIEW

- Well rounded full stack developer in areas, including web, mobile, native, and game development
- Developer who is mindful of code quality, safety, and software architecture.
- Full stack web app and website development, both front end and back
- Mobile application development using web and native frameworks
- Experienced in game engine development, foundation for performance optimization and graphics
- Proficient in use of Linux/Unix for development uses and general uses
- Strong mathematics, algorithms and combinatorics background
- Resourceful and able to rapidly adapt to new tools and environments

EDUCATION

University of Waterloo
B. Math Computer Science and Combinatorics/Optimization Double Major, Minor in Psychology
Expected Graduation: Winter 2018

WORK EXPERIENCE

Capcom, Vancouver
Gameplay Engineer Intern   Winter 2016
- Optimized memory access to be more cache coherent, by writing algorithm that traverses entire game data tree, computes required optimizations and reparations, and commits changes to game data
- Reduced execution time by 1 ms (3% of maximum acceptable time) per frame as a result of the optimization
- Reduced memory usage by hundred of megabytes by finding obscure errors like unexpected integer overflow
- Built small multiplayer prototype using Unity in a week
- Participated in 2 game jams with Capcom
- *C, C++, C#, .NET, Visual Studio, Perforce*

Axiom Zen, Vancouver
Software Developer Intern   Summer 2015
- *(Context: NED is the machine learning problem of differentiating Michael Jackson from Michael Jordan when only "Michael" or "MJ" is mentioned in the text)*
- Generated statistics and data required for a machine learning algorithm to perform Named Entity Disambiguation (NED) by doing research on various topics and designing/implementing the solution
- Increased NED accuracy by implementing various existing lexical and semantic techniques, using public data sets such as WordNet, and customizing them to suit our needs
- Designed and developed methods for parsing and indexing the texts of Wikipedia using just 32 GB of memory by manually inspecting the official dumps and understanding its structure
- Showed that our NED product outperforms current solutions by at least 5% by developing a graphical application that visualizes the NED database using a graph and calculates the accuracy of the data.
- *Java, OrientDB, Wikipedia, WordNet, AIDA, NLP*

Blackberry, Waterloo
Software Developer Intern   Summer 2014
- Designed and implemented feature that records and plays back 3D motion of the device emulator
- Implemented features to help collect data about battery usage of Bluetooth and music
- *C, C++, Python*

PROJECTS HIGHLIGHTS

Personal Website, https://oxu.design/#/home — Winter 2017

This website was an endeavour to learn various aspects of web development. I set up the website completely from the ground up, including installing and configuring a webserver on a linux instance, purchasing a domain name, purchasing and installing an SSL certificate, and building both the front and back end of the website itself using Meteor.js.

Shooter Engine 2.0, https://tinyurl.com/m0dernr00mdem0 — Fall 2016

This more serious project is a fast and extensible shooter entity component game engine, version 2 of the original shooter engine which is now deprecated. It is a complete port from hxsl to glsl, which means now the game can be compiled to mobile platforms and Windows/OSX/Linux just by using a different command.

- Improved lighting performance by $O(n)$ by designing algorithm that takes advantage of the stencil buffer
- Implemented cheap breadcrumbs AI that allows thousands of agents chasing smoothly, simultaneously
- Implemented custom collision engine based on the separating axis theorem

Foodie App, https://oxu.design/screenshot_foodie.png — Winter 2016

This is an Android app that was inspired by our constant needs as students to run out and get food. Instead of going alone, you use this Tinder-like app to hit up a friend. The real-time matchmaking algorithm is a simplistic version of what multiplayer online games use, accounting for distance and food preference. Made in Meteor.js. I only have a screenshot for the project, I temporarily cannot find the project files.

GhostGear Hunter App, https://github.com/oxue/meteorfish2016 — Fishackathon 2

Me and a couple other hackers put together this app to help fishermen report lost fishing hear and report dangerous ammunition and nuclear dumps. This was made in an effort to help protect ocean wildlife and fishermen alike. Despite the name of the repo, we used React Native and ParseDB.

Genetic Algorithm Avoidance AI, http://tinyurl.com/genaiavoid — Summer 2015

Hold the left mouse button to move, and tap the right mouse button to shoot. The other ships will attempt to dodge (albeit not very successfully). Each ship has a dodging algorithm encoded as a string in their "genes". Successful genes get passed down to the next generation for breeding and mutation.

OpenGL Sprite Batcher, https://bitbucket.org/worldedit/qbatch/src — Summer 2015

A fast opengl framework to draw sprites in 2d games, aimed to have a simplistic api but be very customizable.

Flash Games

A collection of old flash games; hope you can have fun playing them as I had fun making them

- http://www.ologames.com/Free_Games/Pastel---Shooter
- http://www.kongregate.com/games/qwerber/find-the-exit
- http://www.kongregate.com/games/qwerber/neon-bounce

HOBBIES AND INVOLVEMENT

University Clubs

- UW Breakers President
- UW Tricking Club Founder
- Mathematics Society CS Representative
- Computer Science Club Office Staff
- Visual Arts Club Vice President

Art

- Drawing, painting, sketching
- Woodworking
- Gastronomy
- Guitar playing