David Tran

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Technical Skills

- OpenGL/WebGL (three.js), GLSL/Cg Shaders
- C/C++11, Qt Framework, C#
- Wordpress, HTML5, CSS3/LESS/Sass, Javascript (ES6)
- Node.js, Webpack, AngularJS, Vue.js
- Gulp, Grunt, Browserify, Handlebars, Bootstrap, jQuery
- PHP, Google API Client, Apache/IIS, Git
- Java, Android SDK/NDK, ARCore, ARKit, AR Foundation
- VR (Oculus Rift, HTC Vive, Cardboard, A-Frame)
- Unity: HDRP/URP, ShaderGraph, VFX Graph
- Blender, Maya
- iOS Development, Electron, Cordova
- Leap Motion, Kinect, Socket.io
- GameMaker Studio, OGRE, Bullet Physics
- Linux (Ubuntu)/Unix Shell, Windows/Powershell
- MySQL, Oracle, SQL Server, PostgreSQL/PostGIS
- Amazon Web Services

Education

Master of Science (MSc), Computer Science
Ryerson University, 2015.

Thesis: Aperio: Managing 3D Scene Occlusion Using a Mechanical Tool Analogy
(11th International Symposium on Visual Computing, Las Vegas, 2015)

Honours Bachelor of Science (BSc), Computer Science
Ryerson University, 2011.

CGPA: 4.264/4.33
(Governor General Academic Medal)

Publications

Aperio: A System for Visualizing 3D Anatomy Data Using Virtual Mechanical Tools
Springer, Lecture Notes in Computer Science *(Advances in Visual Computing, 11th International Symposium, ISVC 2015).*
Authors: David Tran, Tim McInerney.

> An application allowing users to break apart a complex scene of 3D models using virtual metal tools (rings, rods and cutters) to visualize and understand how parts are spatially connected; 3D anatomy data is used for demonstration. (Implemented using C++11, Qt, OpenGL/GLSL shaders) https://github.com/eternallite/Aperio

Experience

AXS Studio, Developer   *Sept 2017 – Present*

- Developed an interactive website for Howard *Hughes Medical Institute* (HHMI) exploring how *CRISPR-Cas9* gene-editing technology works and the many ways in which scientists are using it in their research.
- The site is a **2019 Webby Award Nominee**, **2019 BioImages winner** for **Best of Show** and has received an **Award of Excellence** from the **Association of Medical Illustrators (AMI)**.
- Technologies used: HTML5, CSS3 (Sass), Javascript, Babel, GSAP, Webpack, Node.js, ScrollMagic, Vue.js.
- An iOS app is also available. (https://www.biointeractive.org/classroom-resources/crispr-cas-9-mechanism-applications)
- Developed a Virtual Reality (VR) app explaining the biology of migraines; implemented in Unity with SteamVR, Leap Motion and the HTC Vive headset. Collaborated with 3D animators writing custom shaders to aid look development.
- Developed an Augmented Reality (AR) app to raise awareness of osteoporosis; implemented in Unity with AR Foundation, ARKit and ARCore.

Art & Science, WebGL Developer   *Feb 2016 – July 2017*

- Worked on an interactive documentary, *The Space We Hold*, for the National Film Board (NFB) which focuses on victims of militarized sexual slavery during World War II. The interactive documentary won a **Canadian Screen**

Award for **Best Original Interactive Production** and is a **2018 Webby Awards Nominee**. (https://www.nfb.ca/interactive/the_space_we_hold_en/)
- The data visualization component of the site (comments left by users represented as a panning 3D starfield of orbs) was implemented using WebGL and three.js. Site navigation is controlled by scrolling, with content animating in a storybook-like manner; this was implemented using ScrollMagic.

Jam3, Graphics Developer   *March 2015 – Jan 2016*

- Worked in a team of developers, designers, and producers to create the 2015 Ford Mustang 3D Car Customizer app on iOS, Android and Web. (https://thefwa.com/cases/ford-mustang-customizer)
- Implemented 3D projection mapping to apply decals onto the car using WebGL (three.js)
- Users could generate GIFs of their customized cars to be shared on social media. These were generated in real-time on the GPU, using shaders and a tonemap to create an optimized 8-bit palette.
- Cordova and CocoonJS was used to port the app to Android, iOS and Web.
- Addressed Javascript memory issues on mobile devices by improving memory footprint of base64-encoder
- Implemented GPU-based supersampling in multi-pass rendering to reduce anti-aliasing of cars
- The website won a **2016 Webby Award** in **People's Voice** and garnered a **Favourite Website Award (FWA) of the Day** on June 24, 2016.
- Technologies used: Javascript, Node.js, Gulp, Grunt, Browserify, LESS, Handlebars, WebGL/three.js, CocoonJS, Cordova.

MapYourProperty, Software Developer   *Dec 2012 – June 2014*

- Built a web application providing land-use and development analytics for properties across Ontario
- Overlaid different GIS layers on top of Google Maps using the Web Map Service (WMS) in Geoserver.
- Worked on responsive design and front-end of the application using Javascript and AngularJS.
- Developed an automated report generator to analyze a property's development value by querying open government data combined with property data using PostgreSQL/PostGIS
- Produced an automated Word and PDF score report using PHPWord and MapFish
- Deployed the application to Amazon AWS servers (Ubuntu/Linux)
- Technologies used: Javascript, AngularJS, Amazon AWS, Bootstrap, PHP, Apache, PostgreSQL/PostGIS

Digital Media Zone, Software Developer   *May 2011 – Jan 2012*

- Prototyped an indoor-navigation system to locate gates in Toronto Pearson and Vancouver airport using Augmented Reality markers. (Java, OpenGL, Android SDK/NDK, Eclipse, Vuforia Augmented Reality SDK)
- Helped develop Flybits' backend, a platform pushing cloud-based services to users (C#, LINQ, SQL Server)

Projects

- Coin Island (2015) An island sim game developed in Unity for Global Game Jam 2015. Chop down trees, build shelters and bring in residents to the island; Keep residents happy and they'll make you money! Gain achievements and purchase/upgrade tools (tractor, assembly line, etc.) to be more efficient and bring in more coins. (CookieClicker-esque) http://globalgamejam.org/2015/games/coin-island

Awards and Distinction

- Digi Awards - Graduate of the Year Finalist (2015), nextMEDIA
- Nominated for Governor General Gold Medal (2015) - Master's level
- Honourable Mention at Angelhack Competition (2012), Toronto (Team Environmaps)
- Governor General Academic Medal Recipient (2011): Highest CGPA across university upon graduation
- Faculty Awards for Excellence (2008): Top returning full-time degree student
- Queen Elizabeth II Aiming for the Top Scholarship (2007 - 2011)
- Top 3 Groups in Canadian Computing Competition Stage I (2006)