3B Computer Science, Co-op

Amy Yu

Summary of Qualifications

Java, PHP, C/C++, MySQL, JavaScript, OpenFrameworks (OpenGL), Git

Oracle Certified Java Programmer

JNI, Swing Library, Object-Oriented Programming

Full Stack Development

PHP, JavaScript, jQuery, MySQL, Twitter Bootstrap, WordPress, Ruby on Rails, AngularJS

Mobile Development

Android, Apache Cordova (hybrid mobile apps)

Low-Level Development

C/C++, Bash, Kernels, Compilers, Real-Time Programming, ARM, MIPS Assembly

Work Experience

IBM Canada - J9 Virtual Machine Developer

January 2017 – April 2017

- Worked on Project Panama, a new feature for IBM's JVM that allows Java programmers to call C/C++ functions with native method handles (a safer and more user-friendly alternative to JNI)
- Added new C++ code to the VM and new classes to the Java Core Library to implement APIs that create and invoke native method handles
- Determined how to pass arguments and return values of various data types (primitives, pointers, structures) through the stack between Java and native methods
- Developed a tool in C++ that parses a C++ program into a Java interface, containing metadata about the mangled-names of the C++ functions and the layout (field types, or argument and return types) of the structures and functions. This Java interface is used by the native method handles as a higher-level way to call C++ functions.

SAP Canada - Core Infrastructure Developer

May 2016 – August 2016

- Developed new features and fixed bugs in the SAP Kapsel Plugins for hybrid mobile development
- Added fingerprint scan functionality to the Kapsel Logon plugin that allows users to unlock apps with a fingerprint instead of a passcode. This involved code changes to the JavaScript interface and the Java native side
- Independently designed and implemented a tool that allows users to map JSON data into a HandlebarsJS template

Bank of Canada - Web Developer

September 2015 – December 2015

- Worked with PHP and JavaScript in an Agile environment to improve existing themes and plugins
- Independently developed a WordPress plugin that tracked media usages throughout the five Bank of Canada websites
- Wrote PHP scripts and MySQL queries that search and modify tables from a large database

Early-Stage Startup - Full Stack Developer

October 2014 – August 2015

- The product was a banking simulator with budgeting, credit card, and investment features, aimed at providing financial education to children before they open a real bank account
- Designed and developed prototypes with PHP, MySQL and Bootstrap
- Took charge in the development of RESTful APIs for the main web application using Ruby on Rails
- Worked with the team to improve the usability and aesthetics of the EmberJS frontend

Red Carpet Real World Realty Inc. - Java Software Developer

July 2013 – August 2013

- Automated the task of posting real-estate advertisements
- Independently developed a tool to retrieve real estate data and automatically fill in the HTML form of an advertising website with Selenium Webdriver

Education

University of Waterloo

September 2014 – present

Candidate for Bachelor of Computer Science

Awards and Scholarships

Term Dean's Honours List

Term average of 90.2%

Jessie W.H. Zou Entrance Scholarship

Awarded to a first year female Computer Science student

University of Waterloo President's Scholarship

Awarded to students with admission averages of 90-94.9%

Sir Isaac Newton Physics Contest, University of Waterloo

Ranked 27th in Canada

Projects and Activities

Vector-Based Paint Application

- A digital art software with a realistic vector-based brush engine, and the ability for users to create paintings using 3D models instead of drawing freehand.
- Developed using OpenFrameworks, a C++ toolkit built on top of OpenGL
- Currently working on drawing smooth Bezier curves:
  - Created an OpenFrameworks addon to convert a set of points into a Bezier curve: https://github.com/acmyu/ofxPathFitter
  - Created a simple application for drawing and editing vector lines: https://github.com/acmyu/SimpleVectorEditor
- Future tasks include: creating brush strokes affected by speed and pressure, learning how to simulate watercolor digitally, creating an interface for transforming 3D models, flattening 3D models into 2D vectors

Visual Arts

- Studied sketching, watercolor, acrylic and Chinese painting for five years