

Patrick Lai

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Education

McGill University

B. ENG IN SOFTWARE ENGINEERING

- Overall GPA: 3.33/4.00
- GPA in Computer Science Courses: 3.93/4.00
- NSERC Industry Undergraduate Research Award: 2016, 2017

Montreal, QC, Canada

Expected December 2019

Skills

Programming: Proficient: C#, Java, JavaScript, Python, MATLAB, HTML/CSS

Prior Experience: C, C++, SQL, PHP

Software: GIT, Visual Studio, REST APIs, Linux, MongoDB, Unity Engine

Frameworks: Node.JS, React.JS, .NET, WPF, Windows Forms

Knowledge: Data Structures and Algorithms, Object-Oriented Programming, Machine Learning, NLP

Experience

CAE

SOFTWARE ENGINEER, INTERN

- Developed an application to automate testing of flight simulation software and 3-D models using C#.
- Reduced validation time of vehicle models from 2-3 days to overnight through integration into the automation software.
- Wrote scripts to allow the automation software to remotely connect to different servers without user configuration.
- Designed a GUI using Windows Forms to give QA engineers easy access to information about test packages.

Montreal, QC, Canada

September 2017 - Present

Sensequake

SOFTWARE DEVELOPER

- Implemented signal processing and building health analysis algorithms in C# after prototyping them in MATLAB
- Designed a desktop application interface using Windows Presentation Format in Visual Studio
- Built a web application to submit and view analysis results using Node.js and MongoDB
- Improved 3D animation of largest building case from 12 to 60 FPS by implementing a modified dictionary data structure
- Reduced runtime of average test case from 2.5 min. to 40s by applying dynamic programming principles
- Transformed desktop software from a proof of concept to a product to be used by researchers, engineers and university professors

Montreal, QC, Canada

May 2016 - September 2017

McGill Robotics

SOFTWARE DIVISION MEMBER

- Stimulated competition environment using Gazebo and ROS in Linux
- Wrote AUV simulation plugins in C++ to mimic events and object movement

Montreal, QC, Canada

September 2015 - May 2016

Projects

Open Source Gift Card System

- Collaborated with engineers from LightSpeed and six other university students to build a gift card system for an ecommerce platform
- Created a responsive front-end UI using React.JS that allows users to purchase, validate, and add funds to cards

March 2017

Autonomous Block Stacking Robot – Software Lead

- Divided tasks amongst members, managed GIT repository, report software team's progress with other division leads
- Designed and implemented detection and avoidance algorithms in Java to help the robot find blocks on a grid
- Produced code to maneuver lifting claw designed by the hardware team to collect blocks

October - December 2016

Anime Suggestions

- Built a recommendation engine in Java that suggests Anime to users based on a list of ones they currently enjoy
- Used the OpenNLP library to parse synopses from MyAnimeList's API for keywords to formulate suggestions
- Designed a simple ranking algorithm based on number of related items, similarity factor and internet ratings

October 2017

What Should I do Today? – 2nd place at Angel Hack

- Built a web app in JavaScript that allows users to explore tourist attractions around the world by clicking on a map
- Used Expedia's API to retrieve information and Google Maps API to show interactive panoramas of each destination

June 2016