

Patrick Lai

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EDUCATION

McGill University - Montreal, QC

B. Eng: Software Engineering

Expected December 2019

CGPA: 3.33/4.0

LINKS

LinkedIn: [/in/pat-lai](https://in/pat-lai)

GitHub: [patlai](https://github.com/patlai)

SKILLS

Programming Languages:

C#, Java, javascript, C++, Python, C, PHP, MatLab

Software:

GIT, Visual Studio, Eclipse, JetBrains IDEs, Unity Engine, REST APIs, Linux, MongoDB

Frameworks:

.NET, WPF, React.JS, Node.JS

Knowledge:

Object-oriented programming
Data structures and algorithms
Design patterns
Software testing (QA)
Test-driven development

Spoken Languages:

Fluent in English, French, and Vietnamese

EXTRACURRICULARS

Canadian National Dragon Boat Team,
McGill Dragon Boat Club,
2KSQUAD (dance crew and music band),
Marianopolis Mobile Orchestra

EXPERIENCE

CAE - Software Engineer Intern

September 2017 - Present | Montreal, QC

- Develop a tool to automate image comparison, log analysis, performance monitoring, and integration testing of Immersive Environment assets for flight simulators using C# and Windows Forms

Sensequake - Software Developer

May 2016 - September 2017 | Montreal, QC

- Implemented signal processing, structural dynamics, and building health monitoring algorithms in **C# / .NET** after prototyping them in MatLab
- Designed a desktop interface using Windows Presentation Format in Visual Studio
- Built a web app to submit and view analysis results using **Node.js** and **MongoDB**
- Improved 3D animation of buildings and seismic visualizations of largest analysis case from 12 to 60 FPS by choosing more optimal data structures
- Optimized analysis algorithms to reduce runtime of average test case from 2.5 min. to 40s by applying dynamic programming principles
- Enhanced processing and visualization time of imported sensor data by about 200%
- Transformed desktop analysis software from a proof of concept to an MVP to be used by university professors and researchers

McGill Robotics - Software Division Member

September 2015 - May 2016 | Montreal, QC

- Stimulated competition environment using Gazebo and ROS in Linux
- Wrote autonomous underwater vehicle simulation plugins in **C++**

PROJECTS

- **What Should I do today? (AngelHack Montreal 2016 - 2nd place):** Web app built using **javascript**, jquery, Google maps API, Expedia API that allows users to explore activities and tourist attractions around the world by clicking on a map
- **Gift Card System (DeCODE 2017):** Collaborated with engineers from LightSpeed Labs and six other university students to develop an open source gift card system for an ecommerce platform using **React.JS**, Node.JS and PostgreSQL
- **Anime Suggest:** Recommendation Engine built in **Java** using MyAnimeList's API and the Open Natural Language Processing library (OpenNLP)
- **Cat Simulator (McGameJam 2017):** First-person action game built using C#, Unity Engine and Blender that simulates the daily life of a house cat
- **Myo Eye Bleacher (ConU hacks 2017):** Chrome extension that allows a user to replace images on a webpage using motion controls. Built using javascript and C++
- **Grubbr (Software Engineering Team Project):** Built a cross platform store management app using Java (Android Studio) and **PHP**. Implemented MVC design pattern and practiced test-driven-development and continuous integration

AWARDS

- NSERC Industry Undergraduate Student Research Award – 2016, 2017
- Marianopolis College Student Life Award – 2015
- Euclid Mathematics Competition: top 2% in Canada – 2015
- Lower Canada College Mathematics Award – 2012, 2013