

Patrick Lai

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Profiles

Website: patlai.github.io

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

Education

McGill University, Montreal, QC

B. Eng: Software Engineering

September 2015- May 2019

CGPA: 3.35/4.0

Marianopolis College, Westmount, QC

DEC: Pure and Applied Sciences

August 2013 - May 2015

Lower Canada College, Montreal, QC

High School

September 2008 - June 2013

Skills

Programming Languages:

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

Software:

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

Frameworks:

.NET, React.JS

Knowledge:

Object-oriented programming

Data structures and algorithms

Design patterns

Software testing (QA)

Agile development

Test-driven development

Spoken Languages: Fluent in English,

French, and Vietnamese

Professional Experience

Sensequake, Montreal, QC: Software Developer

Intern: May-September 2016, Part time: September 2016 - Present

- Implement Signal Processing, Structural Dynamics, and Building Health Monitoring algorithms in C# using the .NET framework and open source libraries
- Develop application interface using Windows Presentation Format in Visual Studio
- Improved 3D animation of buildings and seismic visualizations from 12 to 60 FPS
- Optimized analysis algorithms to reduce runtime of test case from 2.5 min. to 40s
- Optimized calculation and visualization of imported sensor data by about 200%
- Collaborate closely with a team of five professional engineers

Projects

- **What Should I do today?: AngelHack Montreal 2016 - 2nd place:** Web app built using javascript, jquery, Google maps API, Expedia API, Photoshop and Dreamweaver
- **Gift Card System (DeCODE MTL 2017):** Collaborated with engineers from LightSpeed Labs and six other university students to develop an open source gift card system for an online ecommerce platform using React.JS, Express.JS and PostgreSQL
- **Anime Suggest (McGill CodeJam 2016):** Recommendation Engine built in Java using MyAnimeList's API and the Open Natural Language Processing library (OpenNLP)
- **Cat Simulator (McGameJam 2017):** First-person simulation game built using Unity (C#)
- **Myo Eye Bleacher (ConU hacks 2017):** Chrome extension that interacts allows a user to replace images on a webpage using motion controls. Built using javascript and C++
- **Accelerometer controlled Fan:** Cardboard fan built using an Arduino UNO, two servo motors, a DC motor and a DRV8833 motor driver. Programmed with C++ in Arduino IDE
- **Grubbr (Software Engineering Team Project):** Cross platform (desktop, Android and web) store management app built using Java (Android Studio) and PHP

Extracurriculars

Dragon Boat:

- U24 Canadian National Team, McGill Team Captain, Marianopolis College Coach, Dragon Boat Canada university representative

McGill Robotics Team: Software division: September 2015 – April 2016:

- Stimulated competition environment using Gazebo and ROS in Linux and wrote AUV simulation plugins in C++

Marianopolis Mobile Orchestra: Music Leader, September 2013-May 2015

- Arranged over 100 pages of music for over 10 different instruments to perform for residential homes, hospitals, fundraisers and various college events

Awards

- NSERC Industry Undergraduate Student Research Award – 2016
- Marianopolis College Student Life Award – 2015
- Euclid Mathematics Competition: top 2% in Canada – 2015
- Most Valuable Player: Cross Country Running - 2013
- Lower Canada College Mathematics Award – 2012, 2013
- Canadian Open Mathematics Challenge: 2nd in Quebec (gr. 11) - 2012
- Canadian Intermediate Mathematics Competition: 1st in Montreal - 2011