

# Alvin Lai

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📺 alvin-lai

## Skills

**Languages:** Python, C#, Ruby, Java, C++, JavaScript, R, SQL

**Frameworks/Tools:** React, Rails, ASP.NET, Git, MySQL, PostgreSQL, AWS

**Certifications:** Software Design & Architecture Specialization, IBM AI Engineering, Toastmasters International

## Experience

### Miovision - Full Stack Software Developer

Sept. 2020 - Dec. 2020

C#, JavaScript, jQuery, AWS, NodeJS, ASP.NET

Waterloo, Ontario

- Designed and implemented a customer support tool using **C#** and **ASP.NET**, performing **MySQL** operations and improving support resolve times by **40%**
- Developed an analytics library using **jQuery** and Segment API, analyzing user behavior for product improvements by capturing **20+** unique events across **500+** daily users
- Created a microservice using **React** and **NodeJS** to upload and store study videos into **AWS S3**, increasing upload file size limit from 5GB to **5TB** and improving upload performance

### Miovision - Software Developer

Jan. 2020 - Apr. 2020

C#, AWS, ASP.NET, SQL, Terraform, NUnit

Waterloo, Ontario

- Eliminated legacy application's security vulnerabilities by implementing **AWS IAM** roles and **AWS Parameter**, automating role assignments and EC2 instantiation using **Terraform**
- Developed a new event-driven monitoring service to track user activity using **AWS Lambda (NodeJS)** and **EventBridge**, sending metrics to **Datadog**
- Created automated unit tests with NUnit framework, increasing test coverage by **50%** and ensuring functionality is preserved

### Lumentum - Software Developer

May 2019 - Aug. 2019

Python, VB.NET, OpenCV, SQL

Ottawa, Ontario

- Developed a computer vision script (**OpenCV**) using **Python** to analyze tube sealing quality, eliminating manual validation of **500+** images per day
- Built an automation application in **VB.NET** to aid in the manufacturing of optical devices, reducing cycle times by **15 minutes**
- Created a database migration shell script to ensure data consistency between QA and staging environments, removing the need to manually run stored procedures

### KingTiger Technology Inc. - Junior Engineering

Aug. 2018 - Dec. 2018

C++, Python, OpenCV, VBA

Toronto, Ontario

- Automated R.A.M inspection process by detecting module's orientation using **OpenCV (C++)**, saving **10+ minutes** of manual sorting
- Programmed a barcode scanner application using **Python**, **Z-Bar**, and **dlib**, allowing users to upload over **150** company assets

## Projects

### Dungeons and Dragons SpellManager - Full Stack Web Application

- A web application for users to create and update spells that can be organized into spellbooks; developed in **Rails** using **PostgreSQL** database
- Designed and implemented the database schema, built **RESTful** API in Ruby for data access, and deployed app to **Heroku**

### Let's Talk! - Full Stack Web Application

- Developed a web application for communication between users utilizing token authentication, **RESTful** calls, and ORM (**mySQL**)
- Implemented **MVC** software design pattern; front-end generated using **React**, developed REST API using **Django** back-end

### FishAI - Machine Learning Mobile (iOS) Application

- An iOS application developed in **Swift** used to classify fish species based on a photo taken by the user
- Created and trained deep learning **neural network (CNN)** using **Keras**, deployed model to **CoreML**, and created a script to build image dataset leveraging Bing API

## Education

### University Of Waterloo

Sept. 2016 - Aug. 2021

BASc: Honours Mechanical Engineering - Artificial Intelligence Option

GPA: **3.9/4.0**

**Dean's Honours List:** Fall 2017 & Winter 2019 - **Top 10%** of class