

# Alvin Lai

✉ ah2lai@uwaterloo.ca

🏠 ah-lai.github.io

📄 github.com/ah-lai

📺 alvin-lai

## Skills

**Languages:** Python, C#, Javascript, C++, Java, SQL

**Databases:** MySQL, MongoDB

**Tools/Frameworks:** ASP.NET, React, Django, TensorFlow, Keras, AWS, Git, Docker

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

## Professional Experience

### Miovision - Software Developer - TDO

Sept. 2020 - Dec. 2020

Javascript, C#, AWS, ASP.NET, SQL, jQuery

Waterloo, Ontario

- Designed and developed new analytics feature to track user events over legacy project using **jQuery** and Segment API; captured over **25** unique track events
- Analytics solution is loosely-coupled, isolated, and reusable; allowing it to be implemented into 3 other company products
- Refactored over **20** controllers and scripts to improve maintainability; applied the **SOLID** principles and proper **OOP** design

### Miovision - Software Developer - DataLink

Jan. 2020 - Apr. 2020

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

Waterloo, Ontario

- Developed an event-driven service to monitor user login activity using **AWS Lambda** and **EventBridge** to send metrics to Datadog
- Implemented new factory pattern method for AWS SDK in a legacy application (**ASP.NET**): applied **LoD** using **AWS Parameter** and **IAM Roles**, significantly improved scalability and eliminated security vulnerabilities
- Added automated tests with NUnit framework, increasing test coverage by **20%**

### Lumentum - Software Developer (Automation)

May 2019 - Aug. 2019

Python, VB.NET, OpenCV, SQL

Ottawa, Ontario

- Designed and developed a computer vision script (**OpenCV**) using **Python** to automatically calculate soldering percentage in tubes, eliminating manual validation of over 500 images per day
- Implemented and built an automation software in **VB.NET** to guide the workflow of the sealing process during the manufacturing of WSS packages, thereby improving process cycle times and reducing manual inputs
- Wrote a database migration shell script to ensure consistency between local and QA database, 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 testing process by developing a **computer vision** software in **C++** using the **OpenCV** library to identify and locate the orientation of a R.A.M module, saving 10+ minutes of manual sorting
- Programmed a barcode scanner application in Python using the **Z-Bar** and **dlib** libraries to manage and upload over 150 company assets to the database

## Projects

### Messenger - Full Stack Web Application

- Developed a web application for communication between users utilizing token authentication, RESTful calls, and ORM (**mySQL**)
- Software design pattern is based on **MVC** model; front-end generated using **React**, **HTML**, and **CSS** to call RESTful API, which communicates with a **Django REST** back-end

### FishAI - 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

Waterloo, Ontario

Candidate of B.ASc: Honours Mechanical Engineering 2021,

Artificial Intelligence Option

Sept. 2016 - Present

**GPA: 3.9/4 & Dean's List:** F2017, W2019