



Alexander Lee Tobias

US/Canada Dual Citizenship

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Education

University of Toronto

B.S. Computer Science, 3.95/4.0 GPA

Expected May 2022

Toronto, ON

Experience

FlyFarm Agritech

May 2020 – Jul 2020

Software Engineer

Hong Kong

- Designed and deployed proprietary edge device network for live IoT sensor data aggregation & reporting.
- Results included 150% improvement in environmental stability and 100+ hours of operational labor saved.
- Created production tracking tools using computer vision (OpenCV) resulting in 20% increased production rate.
- Developed management application for network operations on React.js + Flask + MySQL stack, defined and implemented RESTful API in backend for managing sensor network.

Bionik Laboratories, Inc

Jan 2019 – Apr 2019

Software Engineering Intern

Toronto, ON

- Developed embedded RTOS software for ST Microcontrollers in C in therapeutic-assistive robotic system.
- Increased system graphics cost-efficiency over 50% by analysing and automating rendering tests.
- Implemented systems communications using CAN and I2C protocols, decreased accelerometer latency by 10%.
- Created internal tools to test AMQP protocol, WebRTC and other experimental system features.

University of Waterloo, Vision & Image Processing Lab

Jan 2018 – Apr 2018

Research Student

Waterloo, ON

- Worked with Dr. Rob Amelard in development of a novel heart arrhythmia detection method.
- Wrote Python program to convert waveform data into readable CSV format using NumPy and WFDB.
- Program efficiently gathered, sorted and organized over 30 million ECG samples for analysis.

Projects

Tweet Sentiment Predictor | JavaScript, WebAssembly, Python

Apr 2021

- Trained a sentiment analysis model on the 1.6 million tweet Sentiment140 dataset.
- Compiled fastText to WebAssembly to run classifier model in browser, optimized model size from 250MB to 2MB.
- Created web tool that uses model to perform sentiment analysis (positive or negative) on supplied text.

Jammify: Bringing Artists Together | MongoDB, Express, React, Node (MERN Stack)

Dec 2020

- Created a social media platform for independent artists to promote themselves and offer collaboration.
- Users can create a profile and match with other artists they'd want to collaborate with.

xGrid: Front-end JS Grid Library | JavaScript, HTML/CSS

Oct 2020

- xGrid is a front-end DOM manipulation library that simplifies creating flexible and adaptive grid structures.
- It combines the best features of CSS flexbox and grid without having to compromise on either.

Rake Language Interpreter | Racket

Jul 2020

- Implemented a non-trivial interpreter for a new language, Rake.
- Supported language features include lambda functions, closures, function contracts and error reporting.

Relevant Coursework

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|---------------------------|----------------------|-----------------------|-------------------------|
| • Operating Systems | • Algorithm Analysis | • Databases | • Programming Languages |
| • Artificial Intelligence | • Data Structures | • Systems Programming | • Computer Architecture |

Skills & Interests

Languages: Python, C, C++, JavaScript, Haskell, Lisp/Racket, Java

Technologies/Frameworks: Linux, git, React, Flask, Express, MongoDB, PostgreSQL, MySQL, AWS IoT, Elasticsearch

Technical Interests: Linux Kernel, Functional Programming, Artificial Intelligence

Personal Interests: Improv, Mixology, Mountain Biking