

Keegan Liu

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TECHNICAL SKILLS

Languages: Python, C++, JavaScript, HTML/CSS, Java, Ruby

Technologies: Vue.js, FastAPI, React, Node.js, MongoDB, Git, Jinja2, TensorFlow, NumPy, pandas, OpenCV

EXPERIENCE

Software Developer in Test

May 2023 - Aug 2023

Ford Motor Company

Waterloo, ON

- Developed a **full-stack** application used to manage device inventory using **Vue.js**, **FastAPI**, and **MongoDB**
- Achieved **95%** test coverage on file-syncing **Python** application by writing unit tests using **Pytest** and **Jenkins**
- Designed and implemented various **Python-based** utilities used to automate manual and tedious processes

Software Developer in Test

Sep 2022 - Dec 2022

Ford Motor Company

Waterloo, ON

- Engineered a command-line **Python** application that parses and updates sets of repository files meeting valid criteria using **Pathlib**, **Rich**, **Pyfire**, and **Jinja2**, eliminating **hours** of work after new ECU software releases
- Validated functionality of new Electronic Control Unit software bundle releases using security tokens and **TestRail**

Enterprise Network Solutions Planner

Jan 2022 - Apr 2022

Rogers Communications

Brampton, ON

- Developed a **Python** script using **pandas** that automates the weekly manipulation and parsing of large Excel files containing the team's performance indicators, saving **2 hours each week**.
- Built interactive and robust data visualizations in **Power BI** to display the team's historical KPIs over 10+ years

Firmware Team Member

May 2022 - Dec 2022

Midnight Sun

Waterloo, ON

- Developed a **C** program that uses an FSM to relay **CAN messages** to a power select board based on pin readings
- Wrote functions that indicate test run status on **embedded systems** by generating semaphores using **FreeRTOS**

PROJECTS

🔗 Level-Up! - Esports Coach Finder | *Vue.js, Vuex, Firebase*

- Developed a responsive **web app** where users can contact and register as coaches of their favorite video games
- Implemented user authentication using **JWTs**, including auto-login and auto-logout based on token expiry
- Managed state using **Vuex** and integrated visual cues for input validation, route transitions, and loading screens

🔗 Goal Tracking App | *MongoDB, Mongoose, Express.js, React.js, Redux Toolkit*

- Engineered a **full-stack** application where users can create, read, update, and delete personal goals
- Implemented **REST API** using **MongoDB** to store/access data, **JWTs** for authentication, **Express.js** for routing, and **Postman** to test API requests
- Managed state using **Redux Toolkit** alongside **React** and enhanced page visuals using **CSS**

🔗 TraveLens - Hack the North | *Python, Google Cloud Vision API, OpenCV*

- Captured FoV snapshots based on blinking patterns using the AdHawk MindLink glasses and the **AdHawk API**
- Cropped snapshots to relevant sections based on eye coordinates by developing an algorithm that uses **OpenCV**
- Identified foreign text in images using the **Google Cloud Vision API** for **optical character recognition**

🔗 Machine Learning Pokemon Type Predictor | *Python, TensorFlow, Keras, Pandas*

- Designed and trained a **3-layer multi-label classification neural network** on > **15,000** unique sprites to determine a Pokemon's typings based on its image using **TensorFlow** and **Keras** in **Python**
- Preprocessed data sourced from **CSV** files and images using **Pandas**, **NumPy**, **scikit-learn**, and **Pathlib**

EDUCATION

University of Waterloo

Sep 2021 - Apr 2026

Candidate for Bachelor of Applied Science (Computer Engineering), 90.85 Cumulative GPA

Waterloo, ON

- Winter 2023, Spring 2022, and Fall 2021 Term Dean's Honours List 🌐

Coursera

May 2023 - Aug 2023

Professional Development (Online Course)

- DeepLearning.AI/Stanford University Machine Learning Specialization 🌐