

# William Wen



william-wen360



william-wen



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williamwen.me

## SKILLS

- **Languages:** Python // C++ // C // Java // SQL // JavaScript // HTML // CSS
- **Technologies & Frameworks:** React // Flask // Node.js // Express.js // Docker // Git // AWS // OpenCV // NumPy
- **Machine Learning:** PyTorch // TensorFlow // Scikit-Learn // SpaCy // Rasa Bot Framework // NLTK

## EXPERIENCE

### KCM Solutions Inc. | Data and Analytics Developer

Sept 2020 – Dec 2020

- Created an FAQ-answering chatbot by designing dialog flows on **IBM Cloud** (Watson), later entering production
- Wrote webhooks in **Node.js** to allow the chatbot to store user info in db2 and send email/push notifications
- Trained a license plate OCR model using **OpenCV** for a multinational security company, achieving a **92%** F1-Score
- Built a data pipeline that streams output from a **Kubernetes** cluster containing the OCR model to a db2 database

### Soapbox Innovations | Machine Learning & Backend Engineering Intern

Jan 2020 – Apr 2020

- Developed a chatbot using CRFs in **Python** to perform entity recognition, achieving a **95.2%** intent F1-Scores
- Applied transfer learning using SpaCy's word-embeddings on to-do list items to differentiate between the assigner and assignee of tasks, achieving an **82.8%** F1-Score and later entering production for **2600+ teams**
- Wrote **Flask REST APIs** to provide above ML services for a webapp with **100,000+** users across **300+** companies
- Developed a backend service to internally crowdsource training data using Flask, **Docker**, and **SQLAlchemy**

### Flatten Inc. | Software Engineer – Maps & Data Team | Visit at [Flatten.ca](https://flatten.ca)

Mar 2020 – May 2020

- Created a COVID heat map in **React** that received media coverage from [CTV](#), the [National Post](#), and [Global News](#)
- Wrote **Python** scripts to extract self-reported COVID cases from an online form filled by **500,000+** participants
- Performed analysis on acquired data to extract insights to display to users or repurpose for ML using **Pandas**
- Built backend REST APIs to create cookies and track IPs with **Express.js** to maintain form data integrity

### Hikedu Inc. | Software Engineering Intern

May 2019 – Aug 2019

- Designed an information collection process via online forms to automate the international exchange approval process for **~17,000** Lanzhou University students using **React**
- Created a dashboard for teachers to track their students' academic performance with Ant Design, a React Library
- Coordinated with backend developers to create REST APIs to handle all requisite student / university information

### Vision and Image Processing Lab | ML Research Assistant

May 2020 – Aug 2020

- Trained and optimized a U-Net in **PyTorch** to perform semantic segmentation on the PascalVOC dataset according to Brox et al.'s [U-Net: Convolutional Networks for Biomedical Image Segmentation](#) paper
- Wrote scripts to evaluate differences in performance for each class when 1 or 2 classes are removed
- Experimented with different segmentation models and provided recommendations for model design

## PROJECTS

### Manga Colorizer | [doc](#)

Apr 2020

- Built an encoder-decoder convolutional neural net to automatically color Japanese Comics (Manga) using **PyTorch**
- Created a data collector web app that accepts greyscale and ground truth images from users using React and Flask
- Optimized the net using a **discriminator (GAN)**, the CIELAB color space, and correct identification of character tags

## EDUCATION

### University of Waterloo | Candidate for Bachelor of Software Engineering

Sept 2018 – Apr 2023

- Relevant Courses (C++): Data Structures, Algorithms (in progress), OS (in progress), OOP, Compilers