JENNIFER ZHANG

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EDUCATION

University of Toronto Sept. 2021 - April 2025
Bachelor of Applied Science - Computer Engineering Toronto, ON

- Relevant courses: Algorithms & Data Structures, Object-Oriented Programming, Software Design and Communication, Applied Fundamentals of Deep Learning, Software Engineering
- UTWind: control subsystem software member (Sept 2023 - present)

SKILLS

Programming Languages: Python, C++, C, MATLAB, ARM Assembly. Verilog, Javascript, HTML, CSS
Frameworks: PyTorch, Pandas, Numpy, scikit-learn, OpenCV, Matplotlib, Arduino, GTK, Node.js, Flask
Programming Tools: Git, Github, VSCode, NetBeans, PyCharm, Jupyter Notebook, Google Colab, Docker, Jenkins

RELATED EXPERIENCES

Student Researcher Sept 2018 - May 2021
Future Science Leaders at Science World Vancouver, BC

- Led DNA barcoding group project for 3 different salmon species to enhance molecular biology lab techniques
- Conducted individual research projects about common effective sound absorption material and factors of sound absorption, both published in **eSTEAMed journal**

CDL (Creative Destruction Lab) **Apprentice Program**

- Completed five available modules: Artificial Intelligence, Agriculture, Oceans, Matters, and Health
- Received small group mentorship from mentor for each respective module
- In UBC's Sander School News for involvement in the health module

PROJECTS

MapMate GIS | C++, GTK, Git

- Developed a **C++** navigation GIS targeted towards food couriers on bike to fulfill the market's gap on biker users
- Used **Git** as version control and wrote documentation to achieve agile development across different aspects
- Implemented single source-destination A* algorithm to output optimal navigation route by **less than 10 seconds** in GUI (**GTK**) through using effective data structures storing streets and intersections from OpenStreetMap database
- Expanded to multi-destination Dijkstra, capable to visit up to 255 places, to output an effective route in **30 seconds**

Fruits/Vegetables Fresh and Stale Classification Model | Python, PyTorch, NumPy, Pandas, Scikit-learn

- Developed a **ResNet18** model with **PyTorch** to categorized **4** fruits'/vegetables' freshness through transfer-learning
- Assembled the inputs to train a **scikit-learn's** Random Forest Classifier baseline model for analyzing trends using **Pandas's** confusion matrix
- Established the basis of the model such as writing the training code and its helper functions on top of the transferred architecture, utilizing **Numpy and Matplotlib**, which achieved **88% accuracy** and **0.86** F1 score on testing

arPEGio (MakeUofT Hackathon) | C++, Arduino, Git

- Prototyped an instrument with **Arduino UNO** in a team of **3** by using potentiometer as input for frequency, Piezo buzzer and LCD as output for sound and specification respectively
- Utilized **C++ and Arduino libraries** to implement buzzer tone functionality, specifically the I/O devices software mapping and hardware testing aspects that achieved a range of **2 octaves**

Shopping Assistant - Scraper | Javascript, Node.js

- Utilized **Javascript and Node.js** to create a **REST API** for fetching product related information from Amazon
- Easily accessible from own localhost with the help of **ScraperAPI** to complete all actions in **less than 3 seconds**