TYLER WILSON

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SKILLS

Programming Languages	Python, Java, C, C++, LaTeX, MATLAB, SQL, Bash, VHDL, 8051 Assembly
Frameworks	Git, GitHub, Linux, AWS, QGIS, ROS, PyQt, Docker, MS Office
Libraries	NumPy, SciPy, Pandas, Pytest, Matplotlib, OpenCV, Scikit-Learn, TensorFlow
Electrical	Arduino, Oscilloscope, Soldering, Circuit Design, Signal Processing, Digital Logic

EDUCATION

University of British Columbia — MSc in Geophysics — Expected 2027
University of British Columbia — BASc in Engineering Physics (Wesbrook Scholar Distinction) — 2025

TECHNICAL WORK EXPERIENCE

Data Scientist — May 2024 - Aug 2024
Health Canada — *Vancouver, BC*

- Built a localized Retrieval Augmented Generation (RAG) model to extract insights from confidential Covid-19 data.
- Created an open-source Python library to streamline the development of RAG pipelines for future projects.
- Helped develop an AI chatbot using a RAG model, improving company database navigation satisfaction for 70% of users.

Instructional Designer — May 2023 - Jan 2025
UBC Physics and Astronomy — *Vancouver, BC*

- Worked with a team to improve and redesign UBC's Physics 158 course, taken by over 1000 students annually.
- Created a repository of custom-made and refurbished homework problems using LaTeX and Tikz.
- Contributed to structural changes to how the course is delivered based on student and instructor feedback.
- Compared student survey and course data to previous years to determine the effectiveness of the changes implemented.

Data Engineer — May 2023 - Aug 2023
Matt3r — *Vancouver, BC*

- Wrote an algorithm on an embedded-ML chip that classifies vehicle left/right turns in real-time with 95% precision.
- Implemented a KNN algorithm with Dynamic Time Warping to classify time-series internal measurement unit data.
- Trained the KNN on K-means clustered data to decrease size and runtime of the model without compromising performance.
- Created a cron job in AWS for continuous monitoring of the performance of the classification algorithm.
- Conducted firmware experiments to identify and rectify time drift issues between the gyroscope and system clock.
- Improved the AHRS gravity compensation algorithm accuracy through cross-comparison with Tesla's vehicle log data.

Open Education Resource Developer — Jan 2022 - Apr 2022
UBC Mechanical Engineering — *Vancouver, BC*

- Created 50 open-source mechanics problems programmed using WeBWorK for an online textbook and university courses.
- Presented at ASEE conference on benefits of problem creation in education, placing 2nd.
- Corrected issues in questions being tested in UVic and Douglas College Physics courses.

TECHNICAL PROJECT EXPERIENCE

Simulated License Plate Detecting Robot, University of British Columbia — Sep 2022 - Dec 2022

- Developed a self-driving car to navigate a parking lot setting in a ROS Gazebo environment, reading license plates on parked cars and avoiding pedestrians and other vehicles, placing 3rd in competition.
- Trained a CNN using TensorFlow to identify license plate characters with over 95% accuracy.
- Utilized SIFT and the OpenCV library to identify and extract license plates from the simulation video feed.
- Used OpenCV tools to program a state machine PID algorithm used to navigate the environment and avoid obstacles.
- Developed a reinforcement learning algorithm to train a robot to line follow in a ROS Gazebo environment.

ACHIEVEMENTS

- 3x Recipient of UBC Trek scholarship, awarded to the top 5% of students per faculty.
- 5x Academic All-Canadian and 3x National Champion in track and field.
- Represented Team Canada at the 2022 World Racewalk Championships.