# CONNOR LILBOURNE

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## EDUCATION, LANGUAGES AND SKILLS

**Wilfrid Laurier University** – Waterloo, ON
Honours Bachelor of Science (Computer Science) with Mathematics and Environmental Studies Minors
Languages: C, Python, SQL, DAX, MERN Stack (MongoDB, Express, ReactJS, NodeJS), and Java
Skills: Agile Software Development, Blender, CAD, AWS Cloud Practitioner, Databases, Power BI, Excel

## WORK EXPERIENCE

**Data Analyst – LifeLearn Animal Health, ProSites,** *Guelph, Ontario* *June 2024 – December 2024*

- Applied Machine Learning/AI Recognition to profile customers improving the company's understanding on product usage across the customer base.
- Designed and implemented a convolutional neural network to analyze web traffic trends and identify bot data within Google Analytics and Matomo.
- Developed Power BI dashboards with integrated distribution models based on company needs and real-life trends, providing actionable insights and supporting data-driven recommendations.

**Logistics Coordinator – HawkHacks/Konfer,** Waterloo*, Ontario* *Sep 2023 – May 2024*

- Supported one of Canada's largest hackathons, with 900+ participants, 35+ sponsors, 30+ speakers, and $240k in combined cash and object prizes.
- Collaborated with the team to identify event requirements and manage logistics, including venue booking, catering, and food competitions ensuring smooth planning, implementation, and high-quality participant experience.
- Built and maintained relationships with external vendors to secure cost-effective, high-quality services for event execution.

**Instructional Assistant– Wilfrid Laurier University,** *Waterloo, Ontario* *January 2024 – April 2024*

- Conducting lab sessions, answering student questions, and providing additional support to help students grasp complex concepts in the CP216 Introduction to Microprocessors course.
- Assisting in the grading process for labs by providing constructive feedback to aid academic development and collaborating with the Professor in a professional manner.

**Emergency Instructor (Supply Teacher, Contract role) - BHNCDSB,** *Brantford, Ontario* *May 2022 – June 2022*

- Managed elementary school classes by teaching lessons based on curriculum standards to support continuous learning.
- Analyzed student achievement and prepared lesson plans to optimize student progress while maintaining accurate performance records.

**Inclusion Specialist and Senior Counsellor - YMCA Wanakita,** *Haliburton, Ontario* *June 2021 – August 2022*

- Provided care and companionship for special needs campers by leading activities, assisting with mealtime, and aiding with hygiene routines.
- Applied Agile thinking principles to adapt to challenges on various wilderness out trips by testing new canoeing routes and keeping track of previous mapping errors.
- Utilized problem-solving skills by becoming familiar with specific needs of campers to adjust services to support campers.

## PROJECTS

**Data Mining Projects (Data Analysis/Data Cleaning/Big Data)**

*Languages and Frameworks: Python, Jupyter Notebook, Scikit-Learn, TensorFlow, NetworkX, Keras… etc*

- BERT/LLM's, Tokenization, Stop Word Removal/Data Cleaning, Similarity Models, Pagerank.
- Developed a custom PageRank algorithm to evaluate the relative importance of web pages within a network, effectively addressing issues such as dead ends and spider traps.
- Designed and implemented a Large Language Model to analyze similarities between scientific paper titles and abstracts, enabling the clustering of research into thematic groups and revealing potential interdisciplinary opportunities for innovation.

**Machine Learning Algorithms (Data Analysis/Data Cleaning)**

*Languages and Frameworks: Python, Jupyter Notebook, Scikit-Learn, TensorFlow, Keras*

- K-NN, Linear Regressor, Neural Networks (Convolutional), Decision Tree Classification.
- Engineered machine learning models leveraging the MNIST Database as well as the Scikit-Learn library to classify authentic and fraudulent spam emails. Developed algorithms for digit recognition in images with a 98% accuracy.

**AI Algorithms (Puzzle Solving / Solution Based)**

*Languages and Frameworks: Python, Jupyter Notebook, C Programming*

- Built an A* algorithm for solving the 8/15-puzzle's by conducting a comparative analysis of heuristics.
- Created an AC-3 (Arc Consistency) algorithm built with backtracking to solve any 9x9 sudoku puzzle.
- Produced a N-Queens Constraint Satisfaction Problem Algorithm that can find the greatest number of queens to fill a 2 million x 2 million chess board so that they will not be able to attack each other based on classic chess rules.

**Database Management System**

*Languages and Frameworks: SQL, MySQL Workbench, Java*

- Developed a Database Management System using primary key, foreign key relationships in MYSQL Workbench based on an initial ER diagram while reducing redundancy and increasing optimization of the system using normalization techniques.