

# CONNOR USATY

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## Education

### McMaster University

Sep. 2021 - Apr. 2026

Bachelor of Computer Engineering, Minor in Statistics

Hamilton, Ontario

- **Golden Key Distinction (Top 15%)** - CGPA: 3.8/4.0
- **Relevant Coursework:** Algorithm Design & Analysis, Data Structures & Algorithms, Software Development, Principles of Programming, Microprocessor Systems, Advanced Probability & Random Processes, Engineering Economics

## Work Experience

### MHI RJ Aviation

May 2024 - Present

Data Engineer Intern

Mississauga, Ontario

- Designed a PDF extraction algorithm in **Python** that utilized text and table extraction libraries, **Polars**, and **Regex** patterns to automate the extraction, cleaning, and consolidation of data from 2,723 files into 1 centralized database.
- Led the development of a suite of Batch and **Python** scripts that utilize **Selenium**, **PyAutoGUI**, and **Polars** to automate a large daily data extraction and processing pipeline resulting in a **73% reduction** in runtime.
- Developed multiple web applications in **Python** using **Dash**, **Plotly**, **Polars**, and **Tailwind** to process, calculate, and dynamically visualize KPI from **SQL** databases resulting in accurate monitoring of **\$10M+ monthly revenue**.
- Fine-tuned a time series sales forecasting model using **XGBoost** in **Python** resulting in an **18% lower RMSE**.

## Projects

### AI Sudoku Solver (TensorFlow, Keras, OpenCV, Python) | [GitHub](#)

- Fine-tuned a Convolutional Neural Network (CNN) using concepts such as dropout layers, batch normalization, and early stopping to achieve **99.96% validation accuracy** and **0.13% validation loss** on a 213,000 image dataset.
- Developed a data generation algorithm to efficiently generate a large customized dataset that resembled sudoku squares.
- Utilized **OpenCV** and **NumPy** to preprocess images, locate the sudoku grid, and extract the 81 sudoku squares.

### Pathfinding Algorithm Visualizer (React.JS, JavaScript, Tailwind) | [Website](#) | [GitHub](#)

- Developed an interactive visualization tool for common pathfinding algorithms using the **React.JS** framework.
- Implemented visual examples for A\* Search, Dijkstra's, Breadth-First Search, and Depth-First Search algorithms.

### 3D Spatial Mapping Embedded System (Open3D, Python, C) | [GitHub](#)

- Utilized I2C serial communication to send API calls and receive precise measurement data from a ToF LiDAR sensor.
- Developed a **Python** script that utilizes **PySerial** and **Open3D** to receive, process, and visualize measurement data from the microcontroller resulting in an accurate 3D reconstruction of the scanned area.

## Extracurricular

### McMaster Artificial Intelligence Society

May 2024 - Present

President

McMaster University

- Presented an update of the organizations progress each month to an advisory board of industry experts.
- Led new educational and project initiatives resulting in a **record high 1.3k+ member count**.

### McMaster Artificial Intelligence Society

Sep. 2023 - Apr. 2024

Director of Education

McMaster University

- Led the Education Team comprised of 7 undergrad and 2 graduate students.
- Spearheaded the development and presentation of AI/ML workshops to educate students on a variety of topics and technologies such as supervised learning, neural networks, computer vision, **TensorFlow**, **Keras**, and **sklearn**.
- Developed CNN and neural network demos in **Jupyter Notebook** using **TensorFlow**, **Keras**, and **matplotlib** to further attendees understanding of concepts such as data preprocessing, model validation, and model fine-tuning.

## Technical Skills

**Languages:** Python, C++, C, Java, JavaScript, SQL (MySQL, PostgreSQL), HTML, CSS

**Libraries:** TensorFlow, Keras, scikit-learn (sklearn), Polars, Pandas, Dash, OpenCV, NumPy, React, Tailwind

**Tools:** Git, GitHub, Azure, Jupyter Notebook

**Concepts:** Machine Learning, Artificial Intelligence, Data Analysis, Algorithms