Connor Usaty

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Education

McMaster University   **Sep. 2021 - Present**
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

- Led the development of a suite of Batch and Python scripts that utilize Selenium, PyAutoGUI, Polars, and xlsxwriter to automate a large daily data extraction and processing pipeline, resulting in a **73% reduction in runtime**.
- Developed a web application in Python that utilizes Dash, Plotly, Polars, and Tailwind to process and dynamically visualize sales and backlog data from an SQL database for a multi-million dollar warehouse relocation project.
- Fine-tuned a time series sales forecasting model using XGBoost in Python resulting in an **18% lower RMSE**.
- Utilized PowerBI to process and display sales data resulting in automatically-refreshing, maintenance-free dashboards.

Projects

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

- Fine-tuned the CNN model architecture and generated a custom dataset that more accurately represented sudoku squares resulting in **99.96% validation accuracy** and **0.13% validation loss** on a 213,000 image dataset.
- Developed a data generation script to generate a training dataset that resembled sudoku squares better than MNIST.
- Utilized OpenCV and NumPy to preprocess the images, locate the sudoku, 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) | Report | 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

- Selected by the previous Co-Presidents and MacAI Executive Team to lead the organization.

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, sklearn, and Pandas.
- Developed CNN and neural network demos in Jupyter Notebook using TensorFlow, Keras, sklearn, and matplotlib to further attendees understanding of concepts such as data preprocessing, model validation, and model fine-tuning.

Technical Skills

Languages: Python, SQL, C++, C, Java, JavaScript, HTML, CSS
Libraries: Polars, Pandas, NumPy, TensorFlow, Keras, sklearn, Dash, Plotly, matplotlib, React.JS, Tailwind
Other: Git, GitHub, Azure, Jupyter Notebook, VS Code, PowerBI, Excel