Morgan White

Hamilton, ON (Open to Relocation) | Canadian Citizen | English (Native/Fluent)

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EDUCATION

Carleton University, Ottawa, ON, Canada 2020-2024

Bachelor of Computer Science Honours, Artificial Intelligence and Machine Learning Stream

- CGPA: 10.92/12 (A)
- Harry S. Southam $9,000 Scholarship for Academic Achievement 2020 - 2023
- Dean's Honour List (2020-2022)

WORK EXPERIENCE

Canadian Food Inspection Agency, Ottawa, Canada May 2024 - April 2025

Artificial Intelligence Developer

- Built an AI tool to automate the classification of 90,000 rows of food-related products using machine learning techniques at the Canadian Food Inspection Agency, allowing analysts to change from spending 80% of their time on data collection to 20% with the rest freed up for data analysis.
- Utilized data preprocessing methods including lemmatization and TF-IDF vectorization to enhance data consistency and model accuracy, achieving over 80% precision, recall, and f1-scores in classification tasks.
- Collaborated with the Foreign Competent Authority team to integrate the AI solution into existing workflows, providing presentations and training to ensure successful adoption and ongoing improvements, while being offered contract extensions twice.
- Tech Stack: Python, Scikit-learn, NLP, Neural Networks, Pandas, NumPy.

Carleton University, Ottawa, Canada Winter 2023 & Fall 2024

Teaching Assistant

- Facilitated student learning in Programming Paradigms and Introduction to Artificial Intelligence courses by holding weekly office hours, assisting students with complex concepts, which enhanced their understanding and academic performance.
- Evaluated and graded quizzes and assignments, providing constructive feedback to students, thereby improving their grasp of programming paradigms and AI principles.
- Tech Stack: Haskell, Prolog, Python, heuristic search, reinforcement learning.

Elections Canada, Ottawa, Canada June 2022-December 2022

Programmer Analyst Co-op

- Enhanced the efficiency and adaptability of Elections Canada's EREG application by refactoring hard-coded settings into dynamic, database-driven configurations, resulting in a more robust and maintainable system.
- Collaborated with database developers and quality assurance teams to integrate new features and fix complex bugs, improving system performance and user experience.
- Tech Stack: C#, SQL, database design, version control, agile development methods.

PROJECTS

Honours Project - Can Agent Elimination Improve Cooperation in Multi-Agent Reinforcement Learning Environments Fall 2024

- Developed a multi-agent reinforcement learning environment using Google's Meltingpot library to investigate how agent elimination impacts cooperative behavior among agents, successfully demonstrating that elimination mechanisms can enhance cooperation.
- Tested elimination scenarios, including group voting and individual elimination, to determine whether the threat of elimination increased cooperation and collective success.
- Tech Stack: Unity ML-Agents, C#, PPO, POCA, SAC algorithms, MARL, TensorBoard.

Stock Value Predictor Winter 2024

- Created a recurrent neural network model with LSTM layers to predict stock price changes by integrating Reddit social media sentiment and financial data, enhancing predictive accuracy through combined analysis of market trends and investor sentiments.
- Implemented data collection pipelines using Reddit and Yahoo Finance APIs to gather and preprocess large datasets, improving the model's ability to capture the impact of social media on stock prices.
- Tech Stack: Python, TensorFlow/Keras, LSTM/RNN, NLTK, API integration.

Autonomous Warehouse Robot Fall 2021

- Built a fully autonomous mobile robot in Webots that navigates a 20×20 meter warehouse to locate, collect, and organize honey jars using computer vision and multi-sensor fusion, achieving 100% success rate across all trials.
- Engineered color-based object detection with RGB thresholding and intelligent search algorithms, including 360° scanning, achieving ±3° heading accuracy and ±10cm position accuracy through compass-based navigation.
- Designed multi-phase mission planning with obstacle clearing, jar collection, and placement, integrating sensor fusion from camera, compass, distance sensors, and touch sensors for robust autonomous operation.
- Tech Stack: Webots, Java, computer vision, robotics, pathfinding algorithms.