

Youssef Samaan

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EDUCATION

McGill University

Montreal, CA

B.Sc. in Computer Science, Minor in Statistics — GPA 3.8/4.0

Sep. 2021 – Apr. 2025

- Relevant courses: Software Design, Algorithm Design, Databases, OS, DS, Applied ML, RL, NLP, Distributed Systems, DSA, OOP, Probability, Statistics, Linear Algebra, Stochastic processes, Discrete Mathematics.

EXPERIENCE

Ericsson

Jan. 2024 – Aug. 2024

Data Engineering Intern

Montreal, CA

- Implemented ETL pipelines and storage solutions on Amazon OpenSearch and S3, ensuring data reliability.
- Architected scalable data pipelines with PySpark, processing 100+ GB/day per customer for 10+ customers.
- Streamlined data delivery to 100+ engineers, reducing access time by 99% and boosting ML model efficiency.

DermBiont

May 2022 – Aug. 2022

Software Developer and Data Scientist

Boston, US

- Migrated 1TB of data from Dropbox to SharePoint and eLab to Benchling via APIs, ensuring 100% data integrity.
- Developed scripts to resolve 25% data discrepancies between Excel and databases, enhancing data accuracy.
- Developed a program to process corrupt files, parse data, and generate reports, saving 20+ hours/week.

PROJECTS

Machine Learning Projects | *Python, Pandas, NumPy, TensorFlow, Huggingface, SimpleTransformers*

- Project 1: Developed 3 classes, Linear regression, logistic regression, and KNN, from scratch in Python to analyze the Energy Efficiency and Qualitative Bankruptcy data sets from UC Irvine.
- Project 2: Designed a Multi-Layer Perceptron class with regularization and different activation functions from scratch. And used it along with CNN class from TensorFlow to classify image data from the CIFAR-10.
- Project 3: Created a Naive Bayes Classifier and fine-tuned BERT using Huggingface for IMDB sentiment analysis.

Noisy Rewards on RL-Agent Performance | *Python, NumPy, Matplotlib, PyTorch, Gymnasium*

- Evaluated Q-learning, SARSA, DQN, and DDQN on Cart Pole and Acrobot Env with varying reward noise.
- Concluded that reward noise enhances agent performance by facilitating faster convergence to optimal solutions.

Generalization and Preprocessing for Sarcasm Detection | *nlTK, scikit-learn, PyTorch, TensorFlow, Transformers*

- Tested multiple models on a diverse dataset, evaluating generalization and preprocessing for sarcasm detection.
- Found RL-based LLMs outperformed other models; minimal preprocessing improved training time and results.

News Coverage of Taylor Swift | *Python*

- Used APIs and open coding to analyze media coverage trends of Taylor Swift, focusing on sentiment and topics.

Risk-Free Trading Website | *Python, Django, HTML, CSS, JavaScript, Bootstrap*

- Developed a Django-based stock trading simulator web application for risk free practice.
- Integrated Finnhub's real-time stock price API to provide up-to-date market data, enhancing realism.

Solar System Simulation | *MATLAB*

- Developed a realistic solar system model in MATLAB, simulating 8 planets and the sun with high accuracy.

RESEARCH EXPERIENCE

McGill University

Sep. 2024 – Present

Research Assistant in Reinforcement Learning & NeuroAI

Montreal, CA

- Investigating sparse reward RL algorithms (PPO, SAC) in AnimalAI environments to mimic biological learning.

TECHNICAL SKILLS

Languages: Python, SQL, NoSQL, C/C++, Java, JavaScript, HTML/CSS.

Tools & Frameworks: Git, AWS, Gymnasium, Pandas, NumPy, TensorFlow, PyTorch, PySpark, scikit-learn, HuggingFace, Transformers, Django, Spring Boot, React, Node.js, JUnit, Next.js, Bootstrap, Docker.

Hobbies: Solving hard problems, Trying new food, Swimming, Pingpong, Drawing, Movies/Anime/TV shows, Traveling.