Tarek Sallam

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Education

Bachelor of Computer Science   Ottawa, Canada
Carleton University   *2023 – Present*

- Concentrations: Artificial Intelligence and Machine Learning, Mathematics minor

- Relevant coursework: Probability & Statistics, Multi-Variable Calculus, Numerical Linear Algebra, Algorithms & Analysis

Experience

Applied ML Engineering Intern   May 2025 – Present
Shopify   *Ottawa, Canada*

- Led development of a large-scale entity similarity model for a knowledge graph with billions of edges, enabling fraud analysts to quickly surface linked fraudulent actors by significantly reducing manual review time.

- Prototyped models using tools like PyTorch, Scikit-learn, CometML, Collab, and BigQuery to explore graph-based fraud signals and support experimentation with entity similarity scoring.

- Built and maintained scalable data pipelines using Airflow and DBT to process and enrich graph data daily, supporting near real-time fraud detection and model readiness.

- Developed internal dashboards and tooling using BigQuery, DBT, and Looker Studio to enable custom rule creation and monitor fraud patterns, cutting down investigation time by surfacing high-risk connections.

Teaching Assistant - Discrete Structures I, II   May 2024 – May 2025
Carleton University   *Ottawa, Canada*

- Provided personalized support to students through weekly tutorials and office hours by going over mathematics proofs and derivations, to assist with material comprehension.

Extracurricular Activities

Carleton Artificial Intelligence Society   Jan. 2025 – Present
Co-President   *Ottawa, Canada*

- Reestablished the society by selecting and leading a team of executives, successfully attracting over 50 active members.

- Led in-person workshops on AI/ML fundamentals, explaining core mathematical concepts and guiding participants through interactive notebooks featuring hands-on applications.

Personal Projects

Fantasy Football Drafter | *Python, Gym, TensorFlow, Keras, NumPy, Pandas, Matplotlib*   August 2024
A deep reinforcement learning model to draft a roster of players in a fantasy football draft

- Built a custom fantasy football draft simulator using OpenAI Gym and trained a reinforcement learning agent with a Monte Carlo policy gradient approach in TensorFlow/Keras.

- Engineered reward functions and epsilon-greedy exploration to optimize roster selection by position value and projected points.

ML Models From Scratch | *NumPy, Matplotlib, Jupyter*   December 2024
A variety of classical machine learning algorithms built purely with NumPy

- Implemented Linear/Polynomial regression, Logistic regression, Softmax regression and the Support Vector Machine algorithm using only NumPy, while documenting all mathematical derivations to provide a comprehensive resource for others to learn.

Skills

Languages: Python, SQL, C, C++, Java, JavaScript, HTML/CSS
Data Tools: BigQuery, Airflow, DBT, NumPy, Pandas, Matplotlib
ML Tools: Scikit-Learn, SciPy, Tensorflow, Keras, PyTorch, Jax, Jupyter