# Aymen Rumi

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## Education

**McGill University**, *Faculty of Computer Science* — Montreal, Canada | 2015 -2020
Bachelor of Science: Major - Computer Science, Minor – Mathematics *(Probability & Statistics)*

## Legal Status

Dual Citizen (Canada/United States)

## Experience

**UofT AI – Machine Learning Researcher** — Remote | June - December 2020

- Represented McGill University in a multi-school research competition looking at machine learning methods to fight climate change
- Paper proposes novel Deep Reinforcement Learning model with IoT, and cloud technology for autonomous farming system.
- Analyzed potential reduction in water & energy consumption through data analysis of agricultural & irrigation dataset, using R.

**CAE Inc. – Software Developer** — Montreal, Canada | May-August 2018

- Implemented automated system testing features to CAE's Simfinity virtual simulator with C++ & C# in an AGILE development team using Git version control
- Engineered tools allowing for better diagnosis, validation, and debugging of existing & future software functionalities.

## Highlighted Projects – *click project title to view, for more please visit Portfolio at: https://aymenrumi.github.io/*

### ML Medical Application

- Built CRUD web application using HTML, CSS, JavaScript, Python (Flask), AWS (DynamoDB, RDS) deployed on AWS EC2 with Docker
- Application allows users to predict medical failures, predict diagnosis, & view medical analytic dashboards made with Plotly.
- Machine learning models trained & tested using Python- Scikit-Learn & TensorFlow (random forest & convolutional neural network)

### Insider Trading Live Analytics

- Built a real-time streaming ETL pipeline, using Apache Kakfa with automated scheduling using Airflow for insider trading activity.
- Data is extracted real-time through web scraping with Selenium, loaded into AWS Redshift and updated on a Tableau dashboard.

### Morris Water Maze Task

- Replicated results from a computational neuroscience paper studying neural mechanisms of spatial learning & memory, in Python.
- Simulated a rat's spatial navigation system and memory-based coordinate system via actor-critic network using temporal difference learning; a model-free reinforcement learning method.

### House Prices: Advanced Regression Techniques

- Data cleaning with imputations, data visualization, dimensionality reduction with PCA & data preprocessing done using R.
- Machine learning model selection i.e. multiple linear regression, decision trees, & deep neural network trained, tuned, and tested with k-fold cross validation with Python- Scikit-Learn & TensorFlow.

## Relevant Skill & Coursework

### Skills

*Programming*

*Proficient:* • Python • R • MATLAB • Java • SQL • Linux Commands | *Intermediate:* • HTML • CSS • JavaScript • C++ • C# • C

*Libraries/Tools:* • Scikit-Learn • Keras • TensorFlow • PyTorch • Tableau • Plotly • Ggplot2 • Apache Spark • Apache Kafka • Apache Airflow • Flask • AWS (EC2, Lambda, Kinesis, DynamoDB, RDS, S3, Redshift, Sagemaker) • Git • Docker • LaTeX • RMarkdown

*Languages:* • English • French • Bengali

### Relevant Courses

*Computer Science*: • Algorithms & Data Structures • Software Design • Operating Systems • Database Systems • Theory of Computation • Artificial Intelligence • Robotics & Intelligent Systems • Computational Biology Methods • Numerical Computing • Applied Machine Learning • Brain-Inspired Artificial Intelligence • Distributed Systems Design

*Math/Statistics*: • Probability • Statistics • Intro to Stochastic Processes • Intro to Statistical Computing • Honors Regression and Analysis of Variance • Intro to Time Series Analysis • Mathematical & Computational Finance I

## Leadership & Extracurricular

• Co-President: Bangladeshi Student Association McGill • Team Captain: Intramural Basketball