

# Rafik Matta, MSc

Data Scientist and Machine Learning Engineer

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## Skills

	Experienced	Proficient
Languages	Python, Java	Spark (PySpark), R
Frameworks	pandas	Hadoop, TensorFlow, keras, PyTorch
Databases	MySQL, Oracle, MS SQL Server	HDFS, PostgreSQL, MongoDB
Cloud	Cloud Foundry	OpenShift, Kubernetes/Docker

## Education

### Ryerson University

M.Sc. Data Science and Analytics  
(Part – time)  
Sept 2017-Oct 2019

- Focus on Big Data Engineering, Machine Learning, NLP and Data Visualization
- Leveraged Neural Networks and LSTMs for Portfolio Construction within master's research

### University of Toronto

B.A.Sc Electrical and Computer Engineering  
Sep 2007 – Jun 2011

- Focus on signal processing and software
- Research using machine learning to implement an advanced cardiac biometric algorithm

## Experience

### RBC Global Asset Management

Senior Software Engineer &  
Technical Lead, Data Science  
Apr 2018 - Present

- Built a Portfolio Risk Calculation Library with Python
- Performed research engineering with AI researchers to apply NLP to unstructured text data for quant and fundamental investing using Word2Vec, BERT and NLTK
- Built an SEC Filings reader using NLP (bag of words, cosine similarity) to save equity analysts many hours parsing through company filings using Python + NLTK/sci-kit learn, Airflow and S3
- Built an Asset Allocation tool using least squares regression for portfolio rebalancing

### Ryerson University

Graduate Teaching Assistant  
Sept 2018 – Apr 2019

- Teaching assistant for Graduate Level Machine Learning I and Machine Learning II Courses
- Tutoring in Python and R

### CPP Investment Board

Senior Developer, Total Portfolio Management  
Jun 2016 - Apr 2018

- Developed Big Data research platform for large financial data sets, unstructured data, and distributed processing using Hadoop and Spark
- Developed key components of a daily process for rebalancing the portfolio of the organization built with Python and pandas

## Scotiabank

Application Specialist

Aug 2015 – Jun 2016

- Technical Lead on a \$6 million modernization program for International Banking driving development, deployment and testing on 3 separate projects targeting different aspects of the client experience using Mobile Frameworks + Angular/Java

## BMO Capital Markets (Contract)

Senior Software Engineer, FX

Nov 2013 – Aug 2015

- Technical lead on a \$500,000 CRM, Deal booking and real-time pricing web application for FX Front Office Sales team
- Developed an API for accessing customers' financial information, streaming real time FX rates and booking deals using multithreaded web services model, built using Java

## TouchFree Labs (Start Up)

Co-founder and Software Engineer

May 2013 – Oct 2013

- Co-founded a company to develop gesture recognition software for surgeons to navigate images in a sterile operating room

## Nymi Inc.

Lead Engineer

Apr 2012 – Apr 2013

- Responsible for technology strategy and product development for biometric authentication solutions leveraging machine learning using C#/C++/Java and Android

## EXFO Electro Optical Inc.

Software Design Engineer

Jun 2011 – Apr 2012

- Responsible for embedded software and algorithm development for fault detection on diagnostic product for telecom providers using C# and C

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### Projects & Publications

#### Deep Learning to Enhance Momentum Trading Strategies using LSTM on the Canadian Stock Market

Matta R. (2019), Ryerson University

Jan 2019 - Aug 2019

- Master's Thesis and Research Paper
- Cross sectional time series analysis to replicate and enhance a basic momentum strategy
- Leveraged Keras and Tensorflow with Google TPUs to train a LSTM

#### Real time identification using the ECG as a Biometric

Matta R., Lau, K. H., Agrafioti F. and Hatzinakos D. (2011), University of Toronto

Sep 2010 - Apr 2011

- Bachelors Cap Stone Project
- Using the Electrocardiogram (ECG) as a biometric for real time user identification
- Implemented signal processing algorithm (Auto correlation + linear discriminant analysis) for signal filtering and classification
- Published a paper and presented findings at the IEEE CCECE 2011
- Won 3<sup>rd</sup> Place for Best Design Project/Paper at the International Conference for Upcoming Engineers (ICUE, 2011)