ALEX MINNAAR

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EDUCATION

University College London *November 2012*
MSc in Computational Statistics & Machine Learning
London, United Kingdom

Queen's University *June 2011*
BSc in Mathematics & Engineering - Control and Computing stream
Kingston, Ontario, Canada

Upper Canada College *June 2007*
Ontario Diploma & International Baccalaureate Diploma
Toronto, Ontario, Canada

EXPERIENCE

VerticalScope, Inc March 2014 - Present
Software Engineer *Toronto, Ontario, Canada*

· Part of the Data Science team. Building large-scale, real-time natural language processing applications with unstructured social media data.
· Implementing NLP/machine learning concepts such as named entity recognition/disambiguation, topic modeling, sentiment analysis, and recommender systems.
· Using the Scala programming language with technologies such as Spark, Kafka, Elasticsearch and Cassandra.

Tucows, Inc February 2013 - March 2014
Data Scientist *Toronto, Ontario, Canada*

· Implemented statistical analysis to gain insight on customer churn.
· Developed several machine learning applications involving classification, clustering, collaborative filtering and sentiment analysis.
· Setup company's first Hadoop cluster using Amazon ec2 and Cloudera.

Advanced Algos, Inc October 2012 - December 2012
Data Analyst Intern *Toronto, Ontario, Canada*

· Performed data analysis tasks on CME and EBS data sets from Spot and FX markets.
· Wrote C++ programs to search for specific occurrences in large data sets.

RESEARCH AND PROJECT EXPERIENCE

MSc Thesis University College London

New Methods for Identifying Small Mean-reverting Portfolios

· Studying the portfolio selection problem of extracting optimally mean-reverting portfolios from multivariate time-series datasets while constraining the number of assets in the portfolio. Included comparison of approximation techniques such as greedy search, semi-definite relaxation, and genetic algorithms. Presents novel on-line learning algorithm that dynamically adjusts portfolio weights to achieve optimal mean-reversion.

Mathematical Programming and Research Methods University College London

· Implementation of machine learning techniques in Matlab and Mathematica. These include gradient descent, linear/polynomial regression, kernel methods, perceptron algorithm, k-means clustering, PCA, and classification via SVMs.

Heritage Health Prize Kaggle Competition

· Competition in which contestants are given a training set of hospital patient data to build algorithms that predict the number of days a group of patients will spend in hospital for a given test set. Best results came from tree-based algorithms and boosting. Scored in top 75 out of 1300+ teams.

Undergraduate Thesis Queen's University

Stochastic Systems with Data Rate Constraints

· A dynamical system was studied in which two noisy sensors are connected to a controller through a noiseless finite capacity channel. A stability result was presented in the case where the eigenvalues of the system matrix are real and distinct. A policy that achieves stochastic stability is also presented and is shown to asymptotically achieve the minimum average rate for the communication channel.

TECHNICAL STRENGTHS AND ACHIEVEMENTS

Programming Languages	C++, Java/Scala, Python, Javascript/JQuery.
Statistical Software	Matlab, R.
Databases	MySQL, Elasticsearch, Cassandra.
Hadoop & Big Data	MapReduce programming, Hive, Mahout, Spark.
Awards	Ontario Scholar. Upper Canada College Prefect. Euclid Math Contest Certificate of Distinction.
Certificates	Hadoop Fundamentals Certificate, *BigDataUniversity.com*. C++ for Financial Engineering, *Baruch College*.
Personal Projects	alexminnaar.com (blog), github.com/alexminnaar (open source projects).
Interests	Brazilian Jiu-Jitsu, CrossFit, Music, Movies.