Fatemeh Arbab

☐ (+1) 647 885 2863 | ✉ ff.arbab@gmail.com | ☐ fatbab | ☐ FatemehArbab

Summary

APPLIED RESEARCHER AT THE INTERSECTION OF:

- Systematic Investing:: Quantitative Alpha and Risk Premia Research, Multi-Factor Long-Short Portfolio Management.
- Information Theory and Cryptography:: Federated Learning and Differential Privacy, Secure Multi-Party Key-Agreement Protocols.
- Data Science:: Recommendation Engines, Custom Sentiment Models, Predictive Time Series Analysis, User Behaviour Experimentation.
- Software Engineering:: Agile full-cycle software development in Advanced Malware Protection product.

Work Experience

Quantitative Engineer   **Toronto, Canada**
CPP INVESTMENT   **Apr 2017 – present**

- Created a new factor with exceeding IR performance in Macro asset universe.
- Designed (NLP → multilayered clustering) and (PCA → regression) ensemble models with improved accuracy in their respective applications.
- Built time series forecast pipelines (ttm mean, FB-Prophet, Auto ARIMA) and analyzed forecast accuracy impact on signal performance.
- Lead sessions on Graph-Based Risk Model, Interpretability (TCAV), NLP-Based Alpha Models, and AlexNet for image classification.
- Created visualization at scale for monitoring signal performance, discrepancy detection and relative recall of unsupervised learning models.
- Supervised interns, facilitated retrospective meetings and conducted study on characteristics of innovative teams.

Data Scientist   **Toronto, Canada**
WATTPAD   **Sep – Dec 2016**

- Built a user churn classifier (Neural Network, SVM). Modeled writers' engagement habits (PCA, Robust and Logistic Regression) to study its causal relationship to writers popularity on the app [R].
- Developed KMeans – KNN ensemble model for time series clustering as contender method against Dynamic Time Warping (DTW) and Convolutional Neural Network (CNN) with Accuracy 96%, Precision 89% and Recall 86% [Python].
- Generated ETL reports for Talent Acquisition team (Theil–Sen estimator) [Hive & Luigi], NLP–based application for Marketing team [R].

BI Data Scientist   **London, UK** *and* **Toronto, Canada**
CONCENTRA ANALYTICS   **Apr 2016** *and* **Jul – Aug 2016**

- Performed demographic and demand forecasting analysis on five years of NHS prescription data from England & Wales GP practices.
- Implemented an application of NLP text classification (Naïve Bayes) on Twitter data for client RFP [Python].
- Conducted training session on A/B testing and K–Means clustering for the BI team [R, Matlab, Alteryx].

Software Engineer   **Calgary, Canada**
CISCO, ADVANCED MALWARE PROTECTION TEAM   **Apr 2014 – Nov 2015**

- Managed QA team as stand–in team lead for 3 sprints, facilitated Agile retrospective meetings and served on hiring committee.
- Developed automation test for FireAMP web application (Selenium WebDriver) [Ruby].
- As Certified Product Owner, conducted product planning and feature design for OpenIOC, RBAC, I18N and L10N.
- Performed end-to-end, functional, load and combinatorial interaction regression tests.

Identity Management Consultant   **Calgary, Canada**
NULLI SECUNDUS INC.   **Mar 2012 – Mar 2014**

- Designed, developed, deployed & maintained access control solutions for clients in Oil & Gas, Insurance, Aviation and Software Industries.
- Trained and led an inter–company team of onsite and offshore QA engineers under tight deadlines and delivered reports to project leads.
- Developed in-house software to diff large log files in MS Excel format into XML [Java].

Technical Skills

Programming:	Python, PySpark, Ruby, Java, JS, C++.
ML Libraries:	BERT, Gensim, Keras, NLTK, scikit-learn, SciPy, spaCy, TensorFlow, Theano.
Visualization:	Matplotlib, Seaborn, Bokeh, ggplot, Plotly.
Administrative:	Git, Jenkins, Jira, SVN, Tidal, LiquidPlanner, Bugzilla, Trello.
Miscellaneous:	Bloomberg Terminal, LaTeX, LDAP, Oracle IDM, ForgeRock OpenIDM, Alteryx.

Analytics:
R, Matlab, Tableau, BigQuery, Mathematica, AMPL.

Collaboration Platforms:
Google Colab, Jupyter Notebook.

Databases:
RDBMS: Oracle DB, MS SQL, Amazon Redshift (PostgreSQL), SQLite.
HDFS Map–Reduce: Apache Hadoop, Hive, Spark.
NoSQL: KDB, MongoDB.

Education

Deep Learning Specialization Certificate   **deeplearning.ai**
COURSERA   **2019**

   Modules:: Neural Networks and Deep Learning || Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization || Structuring Machine Learning Projects || Convolutional Neural Networks || Sequence Models.

MSc in Business Analytics [Distinction]   **London, UK**
IMPERIAL COLLEGE LONDON BUSINESS SCHOOL   **2016**

- *Thesis:* Clustering Methods in Recommendation Engines.
- *Awards:* Optimisation Prize Winner (individual), Johnson & Johnson Analytics Challenge Winner (team).

MSc in Computer Science   **Calgary, Canada**
UNIVERSITY OF CALGARY   **2011**

- *Thesis:* Towards Designing an Unconditionally Secure and More Efficient Conference Key Distribution Scheme.
- *Activity:* VP–External, Computer Science Graduate Society (2009-10) || Facilitator, Women in Computer Science Workshop (2009 – 10).
- *Teaching Assistant:* Complexity Theory: Design and Analysis of Algorithms || Theory of Computability || Introduction to Computer Science.

BSc in Theoretical Mathematics   **Tehran, Iran**
SHARIF UNIVERSITY OF TECHNOLOGY   **2008**

- *Thesis:* A Study on Falsity of Euler's Conjecture and Number of Orthogonal Latin Squares.
- *Activity:* President, Karsoogh Mathematics Workshops Group (2004-06).
- *Research Assistant:* Electronics Research Center (Summer 2005 & 2006) || The Logic Group (2007) || Combinatorics Group (2008).

Volunteer Experience

Board Member – Treasurer   **Toronto, Canada**
TORONTO STANDARD CONDOMINIUM CORPORATION   **June 2020 – present**

- Managing books, proposing budgetary reforms and addressing residents concerns effectively.

Corporate Lead – Ally Community   **Toronto, Canada**
CPP INVESTMENT   **Mar 2020 – present**

- Working closely with *Inclusion & Diversity* leaders to proactively support team of Allies to LGBTQ+ community within CPPIB.

Data Science Mentor   **Toronto, Canada**
SHARPEST MINDS   **Feb 2020 – present**

- Mentored new grads and professionals to land their first Data Science jobs through completion of data science projects, working through the theory, code review and mock interviews. Each mentorship program takes about 8-12 weeks.

Data Analyst   **Calgary** *and* **Toronto, Canada**
DATA FOR GOOD INITIATIVE   **Mar 2015** *and* **Dec 2016**

- Provided strategic geographical fundraising recommendations by analyzing 12 years of *Raising the Roof* donation data.
- Investigated causality relation between calls made to *Calgary Distress Center* and meteorologic conditions over a span of 5 years.

Scholarship Committee Member   **Houston, USA**
ANITA BORG INSTITUTE   **2015**

- Reviewed applications for Grace Hopper Celebration of Women in Computing (GHC) conference submitted from 5 countries and 3 continents.

StartUp Experience

Business Development Partner   **Toronto, CA**
DEEPBRAIN PROJECT – STARTUP   **Jan 2017 – May 2017**

- Conducted interviews with Clinical practitioners and ML experts focusing on rehabilitation applications.
- Designed the field experimentation and beta user group. Built prototype and pitched to UoT Hatchery.

Business Development Partner   **London, UK**
GREEN ENERGY PORTFOLIO – STARTUP   **Oct 2015 – Feb 2016**

- Conducted research on supply, demand and pricing of alternative energy resources by interviewing industrial and academic professionals.
- Created business canvas and development plans, laid out growth strategies and alternative products.