ADITYA MAHESHWARI

Looking for challenging and exciting opportunities to continue developing my data science skills

Contact

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Education

Carleton University, Ontario, Canada ·
Jan. 2019 to Sept. 2020
Masters of Computer Science with Thesis
Data Science Option
Courses Taken Include: Statistical Machine Learning,
Learning in Random Environments, Evolving Information
Networks, Parallel Algorithms for Data Science

University of Waterloo, Ontario, Canada ·
Sept. 2014 to Dec. 2018
Bachelor of Math (Co-op Program)
Major in Statistics
Minor in Combinatorics and Optimization
Courses Taken Include: Classification, Applied Linear
Modelling, Survey Sampling and Experimental Design
Techniques, Scheduling Algorithms, Network Flow Theory

MOOC and Additional Online Courses
Stanford: Introduction to Machine Learning,
deeplearning.ai: Introduction to Deep Learning, Stanford:
Mining of Massive Datasets, Stanford: Introduction to
Food and Health

PROGRAMMING SKILLS
R
Python
C++
SQL
Docker
Kubernetes
PySpark
Scikit Learn
Keras and Tensorflow
Dask
R Shiny

Activities

Bio-Hacking
Adapting my lifestyle by evaluating the effectiveness of
specific foods and workouts on health based on data
collected on my posture, heart rate, and sleep patterns

Cello Playing
Performed internationally in Orchestra and as a soloist for
audiences up to and over 500 people across Europe, North
America, and India

Kickboxing and Ice Hockey
Training kickboxing 3 times a week and sparring and
played ice hockey recreationally

Employment

Bank of Canada
Data Science Consultant with the Data Action Lab
Ottawa, Canada
Oct. 2020 to Jan. 2021
- Refined inflation forecasting models to help guide monetary policy decisions, by applying recurrent neural networks (with LSTMs) to historic macro-economic time series data in Tensorflow, and additionally built a framework to combine the NN predictions with the existing econometric models
- Submitted a report providing a full analysis of the potential of machine learning for macro-economic forecasting of the Canadian economy, along with an associated Python notebook of code using open source data, containing a context-free model that could predict inflation rates within a 1% error
- Will be presenting results and methodology to senior management to guide the Bank of Canada Machine Learning and Data Science teams in early 2021

Canadian Air Transport Security Authority (CATSA)
Data Science Consultant
Ottawa, Canada
Sept. 2019 to Feb. 2020
- Improved customer experience and reduced their wait times by developing and implementing a full data pipeline to create a model which forecasted the number of departing passengers requiring screening in realtime (from 15 minute intervals up to 4 hours) at 8 major Canadian International Airports
- Accurately predicted passenger counts within a ~10% error of actual scans for 4 hours, and within a ~5% error for 1 hour, by using Xgboost based regressions to determine the total number of scans expected for each flight, and a recursive least squares algorithm to determine the arrival distribution of passengers for each flight
- This model is currently being used and analyzed for its cost-benefit impact

Interset Inc.
Data Scientist, Co-op
Ottawa, Canada
Jan. 2018 to Apr. 2018
- Fortified Interset's cybersecurity products by incorporating the ability to detect threats from domain generation algorithm viruses by designing a classification model, retrieving data from client computer log files, streaming the data using Apache Kafka and automating feature engineering using Apache NiFi
- Simulated real-world data to test Interset's cybersecurity products anomaly detection abilities by taking samples of customer expense and email traffic data and developing data generation tools using R scripts

Scotiabank Capital Markets
Sales & Trading Analyst, Co-op
Toronto, Canada
Jan. 2017 to Apr. 2017
- Traded securities for Scotiabank and developed a tool to automatically manage the daily funding processes to exchange ~100 million dollars per day, and save ~2 hours of an employees workday
- Created an interactive and live-updating risk summary and profit/loss sheet enabling traders to view their comprehensive trading activity

Scotiabank
Risk Management and Information Technology Analyst, Co-op
Toronto, Canada
May 2016 to Aug. 2016
- Successfully implemented solutions to help enable the trade floor to comply with the Volcker Rule in the Dodd Frank Act, by communicating business needs for and assisting software developers in designing and building the required data processing systems
- Effectively communicated with the trade floor to help evaluate, summarize and present financial trade data to the auditors to identify limit and risk tolerance breaches, and designed solutions to prevent them from recurring

Cisco Systems Inc.
Sales Development Intern
Toronto, Canada
May 2015 to Aug. 2015
- Led the consultation and analytical process to identify the needs of industry leaders (Blackberry, Leon's, Best Buy, and Husky Injection Molding Systems) and addressed the needs by developing an Internet of Things based solution
- Supported senior executives in successfully launching a 2.5 million dollar connected health care initiative with the UHN by developing presentations in PowerPoint, and gathering, sorting and presenting data in Excel, and analyzing key internal stakeholders

Projects

Carleton University Global Academy - Machine Learning Instructor
June 2018 to Current
- Developed curriculum and delivered lectures on machine learning to third and fourth year exchange students, covering topics including: Neural Networks (Feedforward, CNN, RNN), dimension reduction (PCA, UMAP), Clustering (DBSCAN, Spectral, E-M, K-Means, Heirarchal), Classification (XgBoost, RandomForest, Logistic Regression), Regression, and Data Visualization (using ggplot)
- Successfully lead completion of group projects including analyzing Social Media impact of Posts, Building Voice Based Authentication Services, and Analyzing Sales and Stock Price Trends in Industries, which students used in their applications for jobs and future admissions.
- Currently building curriculum on enterprise machine learning, covering efficient programming in Python, Pandas, Apache Spark and Dask for parallel processing, Docker and Kubernetes for deployment, and Cloud Microservices.

Masters Thesis: Mitigating Traffic Jams on Highways using Autonomous Vehicles with Deep RL
Oct. 2019 to Sept. 2020
- Explored the traffic patterns of mixed-autonomy collision-free highways, by designing a micro-traffic road model and using a stochastic ruleset to simulate human drivers, and training Autonomous Vehicles (AVs) with Deep RL
- Concluded that even a small amount of AVs can noticeably reduce traffic jams and increase average road speeds, and further, that these trends continued to improve as the percentage of AVs increased
- In addition to the thesis, submitted a paper to IEEE Transactions on Intelligent Vehicles

Posture Analysis
Jan. 2019 to Apr. 2019
- Engineered a strap that allowed for a smartphone to be attached to the upper back, and then took advantage of the motion sensors in smartphones to continuously monitor the posture of the individual
- Used Recurrent Neural Networks to understand and predict how long it took for users to go from sitting down, to eventually settling in a permanently slouched posture, and designed a corresponding notification framework that reminds you to "Posture Up"