Natalie Mustard

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Education

University of Toronto — Toronto, ON
Master of Engineering, Industrial Engineering, Emphasis in Data Science and Analytics — 2019 – 2020
- Cumulative GPA: 3.97
- Master's Research Project, Intelligent Traffic Control Systems

Queen's University — Kingston, ON
Bachelor of Applied Science, Mechanical Engineering — 2012 – 2016
- Cumulative GPA: 3.72
- Extra-curricular: Queen's University Baja SAE Racing and Design Team

Skills & Technologies

- Machine Learning: Deep Learning, Clustering, Supervised Learning, Decision Trees
- Statistical Methods: Logistic & linear regression, k-NN, PCA, Bayesian Statistics, probablistic graphical models
- Data Science: sentiment analysis, web scraping, social network analysis, recommendation systems
- Software & Programming: Proficient in Python (Tensorflow, sci-kit learn, numpy, pandas, Jupyter), Tableau, AWS Cloud Computing, R, SQL, Matlab, big data tools (databricks, spark, HQL)

Professional Work Experience

Deloitte — Toronto, ON
Risk Advisory, Accounting and Internal Controls — 2021 – present
Data Scientist, RA Digital Team

- Computer Vision model training in AWS Sagemaker
- Optical Character Recognition implementation and model analysis
- Analytical dashboarding in Tableau for client's management reporting
- Developed a Disaster Response AI Tool which came in top 5 in Deloitte's Cortex AI Hackathon
- Team Disaster Response AI was shortlisted for the SAS Hackathon

Ford Motor Company — Dearborn, MI, USA
Automotive, Design and Engineering — 2016 – 2018
Product Engineer, Configured Digital Vehicle Team

- Acted as a liaison to assist communication between engineering, design, and program management teams to drive quality management and resolution of digital vehicle model builds
- Analyzed and approved design engineering changes to the vehicle Bill of Material in excel
- Analyzed digital vehicle CAD models for errors with a strong attention to detail

Data Science Projects

Traffic Congestion Pattern Mining and Prediction: — 2020
Project is private, need approval from University to request access to code and results

- Using a Dynamic Bayesian Network to determine root cause of traffic congestion over time
- Data: developed a python script to run traffic simulations and collect simulated speed data
- Models: developed Dynamic Bayesian Network and Gibb's Sampling Inference software in python with numpy
- Developed a tool in python to visualize traffic congestion data over time

TabNet: 2020

https://github.com/mustardn/TabNet

- Automating guitar audio transcription into tablature form using deep learning
- Data: Set of 360 guitar audio recordings processed into spectrograms
- Models: developed CNN, CNN-LSTM frameworks in python using Tensorflow
- Results: Model predictions had an accuracy of around 90%

Various Data Science Projects: 2019-2020

https://github.com/mustardn

- **Natural Language Processing**: Trip Advisor hotel review sentiment analysis, Twitter sentiment analysis of Airline tweets
- **Predictive models**: Airbnb price prediction, Kaggle survey salary prediction, Newsgroup topic classification, ETF price valuation prediction
- **Analytics**: Social Network Analysis of tweets, movie recommendation system