Melissa McMillan

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I am a forward-thinking Data Scientist who uses curiosity, emotional intelligence, innovation, and efficiency to tell stories with data. My background as an earth scientist and project manager allows me to deliver value through efficient processes, enthusiastic stakeholder engagement, and resourceful expertise. I love applying the scientific process to solve real-world problems and have a positive impact on the team or organization while I'm at it. One can gather from my varied experiences that I'm not afraid to try new things; I've become skilled at adapting, learning, and improving along the way.

Technical Skills

Skills: Data Analysis, Data Visualization, Data Cleaning, Web Scraping, Supervised and Unsupervised Machine Learning (ML), Time Series, Natural Language Processing, Image Classification, Bayesian Statistics, Tableau, A/B Testing

Python Libraries: Pandas, NumPy, SciPy, Matplotlib, Seaborn, Scikit-learn, Natural Language Toolkit, Beautiful Soup, Keras, Tensorflow, PyTorch, Pymc3

Machine Learning Models: Linear Regression, Multiple Linear Regression, Support Vector Machines, DBSCAN, Decision Trees, Adaboost, Random Forest, Extra Trees, K-Nearest Neighbor, K-Means, Convolutional Neural Networks, Recurrent Neural Networks, GBM, XGBoost, Voting Classifier, ARIMA/SARIMA, Naive Bayes

Languages / Software: Python, SQL, R, Bash, Scala, Jupyter Notebook, Microsoft Office, Databricks

Project Management Skills

Project Management Professional (PMP) Certification: License #1956892 — October 2016 - Present

Lean Six Sigma Yellow Belt Certification — December 2018 - Present

Leadership Skills

EnergyTechHub Board Member — November 2019 - Present

Data Science Projects

Forecasting Induced Seismicity in the Eagle Ford Shale Play

- Utilized the USGS and TexNet Seismicity Catalogs to understand earthquake occurrence and driving mechanisms
- Used Recurrent Neural Networks, ARIMA, and SARIMA models to forecast seismicity occurrence
- Found preliminary relationship between hydraulic fracture injection volume per foot lateral to induced seismicity

Trained Convolutional Neural Network to Diagnose Presentation of COVID-19 and Viral Pneumonia in X-Rays

- Collaborated with three other data scientists to develop highly predictive model
- Utilized Kaggle Dataset of X-Ray images to train Keras CNN model
- CNN Model test accuracy: 95%, Recall score of 95%
- Created an end-user interface to interact with the trained model using Flask

Natural Language Processing Binary Classification for Game of Thrones vs Lord of the Rings Subreddits

- Used PushShift API to scrape r/GoT, r/LOTR subreddit posts
- Used Naïve Bayes and Random Forest models to create a Natural Language Processing Model
- RandomForest was the best model achieving 93% accuracy, 91% sensitivity using TF-IDF Vectorizer
- Visualized model statistics comparing TF-IDF vectorizer against CountVectorizor

SAT & ACT Testing Analysis Using 2017-2019 Dataset, Focusing on the State of Arizona

- Used the 2017-2019 SAT and ACT Participation Statistics dataset to conduct exploratory data analysis, statistical analysis, and data visualization with the goal of providing recommendations for increasing participation in Arizona
- Found that ACT participation in AZ is twice as high as SAT participation, due to partnership with Helios Foundation
- Recommended to SAT Board to partner with non-profit institutions and AZ Education Board to provide lower cost testing during regular school hours to reduce cost and time barriers faced by many students and their parents

Professional Experience

Data Science Immersive Student — December 2020 - March 2021
General Assembly — Denver, CO

- Followed machine learning curriculum and built supervised and unsupervised machine learning models
- Worked on a team of four other data scientists on a project to diagnose COVID-19 lung infection in x-rays
- Was challenged to create five projects using various machine learning models in a time-limited manner

Eagle Ford Shale Play Asset Geophysicist — March 2019 - October 2020
BP/BPX Energy — Denver, CO

- Geoscientist/Geophysicist responsible for providing data-driven insight to reduce well deliverability risk for a 4-6 rig drilling program
- Advised multi-disciplinary team of geologists and engineers on the benefits and appropriate uses of 2D/3D seismic datasets for optimizing hydrocarbon production
- Delivered a data reprocessing and interpretation project worth ~$100k that improved hydrocarbon valuation in an undeveloped play
- Facilitated completion and organization of newly acquired 3D seismic data worth ~$18million
- Assisted Asset VP in Process Improvement efforts for Eagle Ford BU to optimize team efficiency and Capital Planning Process, reducing software touch points and man-hours

Project Coordinator — February 2017 - March 2019
ESG/Spectraseis — Denver, CO

- Project Coordinator/Manager responsible for delivering 30+ awarded Passive/Induced Seismicity projects, ranging from $10k-100k in value, following the company's Project Management Processes
- Responsible for project planning and execution, coordinating operational logistics, meeting technical and contractual obligations, process integration and improvement, and managing client communication
- Integrated newly acquired business and service offering, Spectraseis and Interactive Seismicity Monitoring, into parent company's (ESG) Project Management Process
- Developed and adapted ESG's Project Management Process to fit Spectraseis' Seismicity service offering, increasing efficiency and profitability during BU integration

Geophysicist/ Geoscientist — August 2012 - March 2016
BP America, Inc — Houston, TX

- Geoscientist/Geophysicist for the Deepwater Gulf of Mexico, Wyoming, Anadarko, and Arkoma BU's responsible for mapping the subsurface on both 2D/3D seismic data to assist teams in optimizing hydrocarbon production
- Led the successful acquisition and delivery of a new 3D seismic dataset worth ~$20million to the Anadarko BU
- Led the Deepwater Gulf of Mexico team to drill a $130million exploration well with operational partner Exxon
- Delivered Technical Seismic Fitness and Futures Report with recommendations for past and future dataset potential for the Wyoming asset that provided foundation for identification of additional plays in the mature/legacy asset
- Led a team to conduct technical analysis and provide recommendation to management against participation in a competitor's $200 million exploration well, successfully avoiding a (very expensive) dry hole
- Recommended for the Leadership Development Program in 2013; completed the Courageous Conversations and Effective Planning Courses as part of this program

Geoscience Intern — May 2011 - August 2011
BP America, Inc — Houston, TX

- Summer Intern on the Deepwater Gulf of Mexico Upper Miocene Team responsible for analyzing an offshore hydrocarbon prospect
- Interpreted and analyzed available 3D seismic dataset and nearby well dataset to understand viability and size of prospect, and deliver a technical report and presentation on my findings
- Successful delivery of the project resulted in a full-time job offer, to commence upon graduation from Master studies

Summer Scholar — May 2010 - August 2010
Carnegie Geophysical Laboratory — Washington DC

- Conducted Trace Element Geochemical Analysis on Molybdenite minerals as part of a larger Mineral Evolution project
- Resulted in publication: "Rhenium variations in molybdenite (MoS_2): Evidence for progressive subsurface oxidation" Earth & Plan. Sci Letters; vol. 366, p.1-5 March 15, 2013

Education

Data Science Immersive Advanced Certificate | General Assembly — Grad year: 2021
Master of Science in Geoscience | University of Arizona — Grad year: 2012
Bachelor of Science in Geoscience, Minor in Mathematics | The University of Arizona — Grad year: 2010