Drew Johnston

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Education

BS, Applied & Computational Mathematics (ACME)   **December 2020**
Brigham Young University   *Provo, Utah*
- ACME is a combination of rigorous mathematics, coding, and statistical modelling.
- Concentration: Machine Learning
- Major GPA: 4.00, Total GPA: 3.99, ACT: 35, SAT: 2340 (1540)
- Awarded full tuition scholarship from Brigham Young University based on academics
- Relevant Coursework:

Deep Learning	Modeling Dynamics and Control
Natural Language Processing	Modeling Uncertainty and Data
Approximation Theory	Machine Learning
Dynamic Optimization	Probabilistic Methods

Skills

- Reading Documentation
- Data Visualization
- Predictive Modeling
- *Coding*: Python, R, C++, Apache Spark, SQL, MongoDB, Jupyter, NLTK, Git, Bash
- *Python Modules*: NumPy, SciPy, Scikit-Learn, Matplotlib, Pandas, PyTorch, BeautifulSoup, Requests, NetworkX
- Debugging
- Problem Solving
- Communication

Relevant Experience

Undergraduate Researcher   **June 2019 – August 2019**
University of North Carolina at Wilmington - Department of Mathematics and Statistics   *Wilmington, NC*
- Selected as one of 8 students to work with a team funded by the National Science Foundation to develop novel features for detecting atrial fibrillation in electrocardiogram readings.
- Achieved up to 97% accuracy using a random forest model with personally engineered features.
- Composed a paper detailing methodology and results and presented my work at multiple research conferences.

Data Science Intern   **September 2018 – Present**
NCH Capital Inc.   *Rio de Janeiro, Brazil/Provo, UT*
- Validated proprietary metrics for stock cycle prediction with machine learning techniques.
- Combined in-house data with data from BYU's Bloomberg terminal to identify features to be used in anomaly detection for growth-based investment strategies.

Relevant Projects

Applied Machine Learning: "The Titanic Problem"
- Built and tested a variety of machine learning to solve "The Titanic Problem," predicting the survival of hundreds of passengers on the Titanic based on a given training set.
- Performed data munging, cleaning, preprocessing, and feature engineering to improve performance.
- Achieved 83% accuracy with my model, a result on par with the industry standard for this problem.

Fourier Analysis
- Experimented using the Discrete Fourier Transform to perform convolution on sound bites, effectively eliminate white noise from sound files, and clean up distorted images.

Deep Learning: Cancer Detection
- Built a convolutional neural network with U-net architecture to act as a "virtual radiologist," learning to identify and label cancerous tissue among healthy tissue in images.
- Achieved cross-validation accuracy of 95% with cross-entropy loss of 0.3 on cancer image dataset.

Data Analysis: Bias in Pitchfork Music Reviews
- Used Selenium, BeautifulSoup, and Spotipy to scrape information from 18,000 *Pitchfork* music reviews, 70 years of *Billboard 200* albums, and musical features from *Spotify* about the albums in question.
- Engineered features and created visualizations to illustrate bias inherent in modern music review companies.