# Ethan Vaz Falcao

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#### **EDUCATION**

## **Worcester Polytechnic Institute**

Bachelor of Science in Data Science & Mathematical Sciences

2024.05

Minor in Computer Science

Relevant Coursework: Machine Learning, Algorithms, Principles of Real Analysis, Linear Algebra, Combinatorics, Probability Theory, Mathematical Statistics, Artificial Intelligence, Big Data, Business Intelligence

**Awards:** Pi Mu Epsilon (U.S. Mathematics Honors Society)

**EXPERIENCE** 

**Schneider Electric** Boston, MA

Data Science Intern

2023.06 - 2023.09

Admitted: 2023.04

- Constructed a predictive model using Python (PySpark) and random forest regression for quantitative analysis, achieving 91% accuracy in forecasting battery percentages for a UPS Phase 1 sensor.
- Uncovered insights into UPS battery aging patterns over time, battery chemistry, and energy conservation aspects.

# **United Solutions**

Leominster, MA

Business Analytics Intern

- Designed and implemented Power BI dashboards with dynamic DAX formulas, reducing report generation time by 30% and enhancing data visualization. This improvement facilitated quicker and more informed decision-making based on key trends.
- Implemented daily IQMS Reports using Excel, reducing report generation time and providing critical insights into labor productivity trends.

Clora Boston, MA

**Business Analytics Intern** 

2021.06 - 2022.08

- Conducted detailed payroll analysis for 100+ healthcare consultants, ensuring 100% accuracy and complete contract
- Developed and presented monthly operational and financial reports, identifying cost-saving opportunities that led to a 5% reduction in budget expenses.

## **PROJECTS**

#### **Optimizing Crypto Options Models**

github.com/EthanFalcao/Optimizing-Options-Models-Crypto

2024.01

 Developed Bitcoin and Ethereum options models by extracting 12 months of future data from the Deribit API; improved accuracy by 15% through adapting the Black-Scholes model to crypto's unique volatility.

# **Sentiment Analysis in Financial Markets**

github.com/EthanFalcao/Sentiment-Analysis-in-Financial-Markets

2024.01

• Utilized NLP techniques, including sentiment analysis and topic modeling, to analyze 10,000+ web-scraped CNBC financial articles, achieving a model accuracy of 85% in predicting stock trends from market sentiment.

#### **Full Stack - Spotify Recommendation Algorithm**

github.com/EthanFalcao/Spotify Reccommendation Algorithm

2023.09

 Developed a playlist recommendation algorithm using extracted song data from the Spotify API(Spotipy). Utilized random forest algorithms and cosine similarity to create personalized playlist recommendations based on the user-input playlist, with an 90% accuracy.

# Yelp Dataset Challenge: Detecting Fraud reviews and Business Attributes

ethanfalcao.github.io/Yelp\_dataset\_Challenge

2023.05

• Predicted business attributes with 86% accuracy, offering insights into business profiles. Implemented fraud detection, flagging 20% of fake reviews for enhanced data integrity.

#### **LEADERSHIP**

# **Data Science Club Treasurer** Worcester Polytechnic Institute

Worcester, MA

2023.01 - Present

- Managed the club's annual budget, directly contributing to a 100% increase in club attendance.
- Conducted collaborative workshops with industry partners, to help students improve resumes and network

## **SKILLS**

- Languages Python (PySpark, Pandas, Matplotlib, Seaborn, Sklearn, Tensorflow, Or-tools), R, SQL, Java, MATLAB
- Analysis Techniques Logistic Regressions, Decision Trees, Random Forests, Cosine Similarity, Data Pipelines
- Tools VSCode, Databricks, Power BI, Kaggle, Jupyter, PyCharm, RStudio, Azure, Salesforce, Excel, Git