DOUGLAS SILVERMAN

SOFTWARE ENGINEER
WEB DEVELOPER

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WEBSITE
https://douglas-silverman.github.io

GitHub
https://github.com/douglas-silverman

SKILLS
Programming Languages:
Python, Java, JavaScript, C

Machine Learning:
scikit-learn, numpy, pandas, matplotlib

Web-Development:
Vue.js, Angular.js, Node.js, MongoDB, Google Firebase

Software:
Visual Studio Code, git/GitHub, Eclipse

More Info
Please visit my website and GitHub to find out more information about me and the projects I have done.

EDUCATION

University of Massachusetts, Amherst
B.S.in Computer Science & Mathematics
GPA: 3.26
Graduation Date: May 2021

COURSEWORK

Computer Science	Mathematics
Data Structures	Multivariate Calculus
Algorithm Design and Analysis	Linear Algebra
Web Programming	Abstract Algebra
Computer Graphics	Mathematical Modeling
Artificial Intelligence	Combinatorics and Graph Theory
Natural Language Processing	Scientific Computing
Machine Learning	Statistics I and II

EXPERIENCE

Coach & Crew – Web Development Intern

August 2019-March 2020

▌Created different web pages using Angular.js and bootstrap
▌Helped team design the database using MongoDB
▌Communicated smoothly over different time zones, mainly through email and Slack. Scheduled weekly meetings and had a slack channel to help troubleshoot

PROJECTS

Sentiment Analysis on COVID-19 Tweets

September 2020 - December 2020

This group project was to compare different classification methods for Sentiment Analysis. Having the best tool to understand the general public's stance during a crisis is important. The dataset consisted of 40,000 covid tweets from March and April of 2020. We used Python to iterate through a numpy array of the tweets and remove invalid characters like emojis. We used a TF-IDF vectorizer to convert a tweet into a feature vector of terms. We then trained Naive Bayes, Logistic Regression, Random Forests, and VADER from scikit-learn. Lastly, we evaluated the trained classifiers' performance on a test dataset and found the VADER and Logistic Regression performed the best.

Analysis of Sports Betting Strategies

March 2020 - October 2020

With the interest in sports gambling continuing to rise, I wanted to analyze some betting strategies used by amateur gamblers. I created 5 models: Martingale and Oscar's Grind which reduce losses, Kelly Criterion that maximizes profit, and 2 Poisson Distribution models that predict winners of every game. The models were tested on 3 seasons of play across 3 different sports. The datasets were cleaned using Pandas and Python to normalize team names (some teams change cities) and to remove invalid entries. The results can be found on my website.

❚ Created 5 different models to simulate different gambling strategies
    ❚ Martingale, Oscar's Grind, Kelly Criterion, Poisson Distribution
❚ Simulated betting over a season of play and graphed profit over time
❚ Cleaned and normalized dataset of 3 seasons of games from MLB, NBA, NFL
    ❚ Team's change name/city over the years as well as column orders in CSV

❚ Trained Naive Bayes, Logistic Regression, Random Forests, and VADER from scikit-learn
❚ Selected feature vectors using TF-IDF vectorizer for better performance
❚ Predicted tweet sentiment and analyzed performance of each classifier
❚ Cleaned dataset of ~40k covid tweets from March and April 2020