

# MICHAEL HARNETT

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## Skills

### LANGUAGES

Python  
SQL  
NOSQL  
HTML

### LIBRARIES

Pandas  
Numpy  
Scikit-Learn  
StatsModels  
Keras/Tensorflow  
NLTK

### WEB SCRAPING AND DEVELOPMENT

Selenium  
Beautiful Soup  
API's  
Streamlit

### VISUALIZATIONS

Matplotlib  
Seaborn  
Plotly  
Tableau

### MACHINE LEARNING

Regression  
Classification  
Natural Language Processing  
Dimensionality Reduction  
Cross Validation  
Recommendation Engines  
Convolutional Neural Networks

### DATA STORAGE

SQLite  
MongoDB  
SQLAlchemy  
CronTab

## Education

Rutgers 2008 to 2010  
Classes included: Calculus for Engineers, Intro to computers - MatLab, Analytical Physics, Digital Logic Design, Programming Methodology

## Experience

### Metis

Data Scientist

Remote  
Mar. 2021 to July 2021

Metis is an intensive 14 week data science bootcamp that focuses on project work and portfolio building, focusing on data acquisition and storage, Python programming, supervised and unsupervised machine learning, deep learning, data visualization, and communication of results.

#### Cocktail Classifier (Convolutional Neural Net, Classification, Web Application, Google Colab)

**Objective:** Create an app that will take a picture of a cocktail as an input, and output what drink is in the photo

##### Analyses Performed:

- Crafted custom data set of over four thousand cocktail images.
- Pulled ingredients and recipe information from a cocktail API.
- Built a convolutional neural network using keras and tensorflow on Google Colab.
- Created a Streamlit web app that takes a user-inputted picture, and return's the top classification for that photo, the ingredients for the selected drink, and the recipe on how to make it. It also provides the next two possible classes in case the classification was incorrect.

##### Outcomes:

- Achieved a 70% accuracy score on hold out set of pictures not seen by the model.
- Successfully deployed application to allow others to use the classifier.

#### Twitch Dashboard (API requests, NoSQL, MongoDB, CronTab, Engineering Pipeline)

##### Analyses Performed:

- Utilized different API requests in conjunction with one another to get the top 100 streams for each of the top 100 games.
- Created a NoSQL database using MongoDB with 4 collections, one for each of the above requests that , and one that records the history of each request, to create aggregations not offered by the API .
- Used CronTab to automate API pulls every hour.

##### Results:

- Created a constantly updating database of the top games on Twitch, and their streaming information.
- Visualized results on a local Streamlit app using Plotly.
- Used the growing database to also display hourly metrics for the previous 24 hours for each game.

#### Steam Games Analysis (Web Scraping, Linear Regression)

##### Analyses Performed:

- Scraped data from SteamPowered games store using selenium and Beautiful Soup, to first create a master list of over 16k games, then go into each game page and scrape relevant information.
- Used requests to pull information from SteamSpy's API for supplemental information.
- Built a linear regression model using both StatsModels and SKLearn to predict the number of copies owned for each video game.

##### Results:

- Was able to predict number of copies owned with a MAE and RMSE both below one.
- Displayed results and residuals using Matplotlib, further explaining model performance.

#### Steam 2 the Redux (NLP, Topic Modeling, Recommendation Engine)

##### Analyses performed:

- Pulled review information for the top games by genre from Steam. Pulled 100 reviews for each of the top 30 games for ten genres.
- Used topic modeling on these reviews using TF-IDF and NMF to find 9 distinct topics.
- Used cosine similarity to compare an input string to review topics.

##### Results:

- Successfully created a recommendation engine that takes an input string, finds the 3 closest comments that relate to that input string, and displays the games related to those topics.
- Used word clouds to further illustrate topic coherence.

#### Taxi Tip Classification (Logistic Regression, Classification)

##### Analyses Performed:

- Downloaded trip information for both yellow and green taxis in NYC for January of 2019 from NYC.gov, to frame a logistic regression model that will classify rides resulting in a tip as the positive class, or no tip as the not class.
- Downloaded an additional data frame that defined the destination codes used by taxis with actual Borough names, and merged the information twice, once each for both pickup and drop-off locations.
- Utilized pandas datetime functionality to feature engineer day hour of day, day of week, and week of month columns, to further analyze contributing features.

##### Results:

- Focusing on precision, in attempts to minimize false positives, the model was able to achieve an accuracy and precision score of 99%, with only 99 false positives.

### La Pecora Bianca

Lead Bartender

New York, New York  
July 2019 to Mar. 2020, Aug. 2020 to Dec. 2020

- Trained all bar staff on specialty cocktails in order to provide a consistent (and delicious) experience for every guest.
- Created, maintained, and distributed weekly schedule for bar staff, ensuring proper coverage, monitoring hours, and honoring staff's availability and time-off requests.
- Engaged with guests at all times, providing an experience people want to return to.

### Lasagna

Manager

New York, New York  
Aug. 2017 to July 2019

- Created and managed schedules for all employees both front of house and back of house, ensuring the restaurant was fully staffed and running smoothly at all times.
- Created excel sheets to streamline tip calculations for the serving staff at the end of every shift, reducing errors and closing time.
- Monitored the floor during service, communicating with both guests and staff, helping wherever needed.
- Communicate with dissatisfied guests to understand any issues, and find a solution that would recover the experience.

### Wynwood Diner & Cocktails

Bartender

Wynwood, Miami  
May 2016 to Aug. 2017

- Retained recipe knowledge for weekly rotating drink specials, and communicated them guests.
- Maintained composure in an extremely fast paced tourist destination.

### Apple Inc.

Technical Specialist

Paramus, NJ & Miami, FL  
Nov. 2014 to Mar. 2016

- Repaired broken software and hardware on Apple devices.
- Helped ease customer's concerns with missing data and malfunctioning devices by focusing on the customer as opposed to the device.
- Maintained a consistent workflow allowing me to keep up with required metrics.