

Josh Konowitz - NFL 4th Down Analytics

PROBLEM: NFL coaches currently use a 'gut' decision-making process on 4th down, resulting in punting on 75% of 4th downs

SOLUTION: Using machine learning to provide insights for coaches in order to help them make the most optimal decision

TECHNOLOGY:



NumPy



learn

pandas

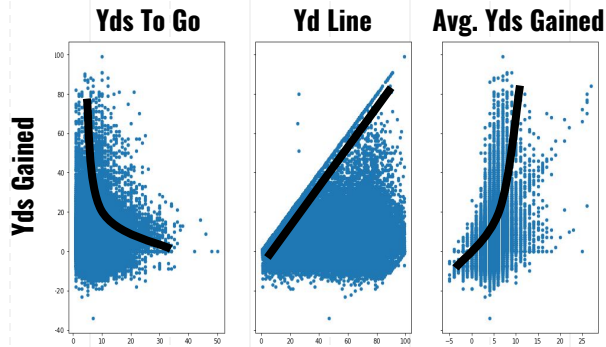
$$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$$



ANACONDA

Powered by Continuum Analytics

PREDICTING YARDS GAINED AND FIRST DOWNS:



**RANDOM FOREST
REGRESSOR MODEL**

Average Error:

Yards Gained:
4.66 YDS

First Downs:
14.15%

Punt Distance:
7.41 YDS

FG Completion:
11.56%

**LEARNING
OUTCOMES..**

1. Python Libraries
2. Machine Learning
3. Data Science

**NEXT
STEPS...**

1. Turning Predictions into Insights