

NFL Play Predictor

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Introduction

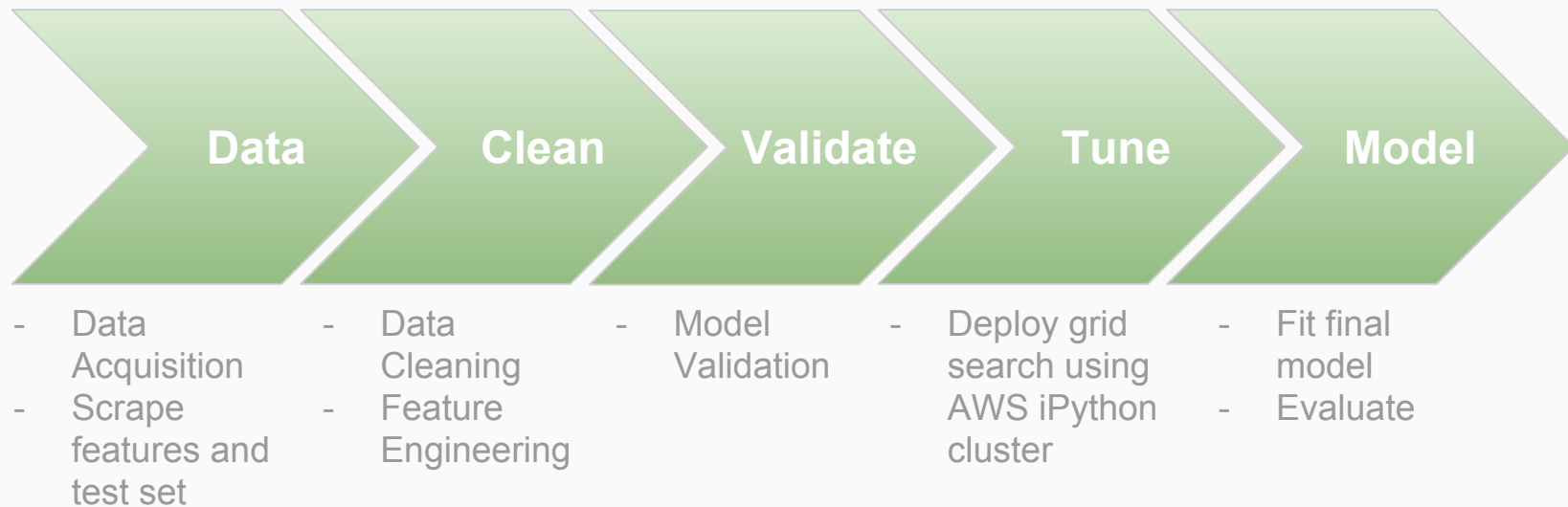
- Football play types
- Binary Classifier
- Given game circumstances, can we predict rush or pass?
- Simple but complex

Data

- Full play by play 2013 - 2016
- Sources:
 - NFL Savant
 - NFL Weather
 - Pro Football Reference
- 150,000 plays in total
- 31 total features

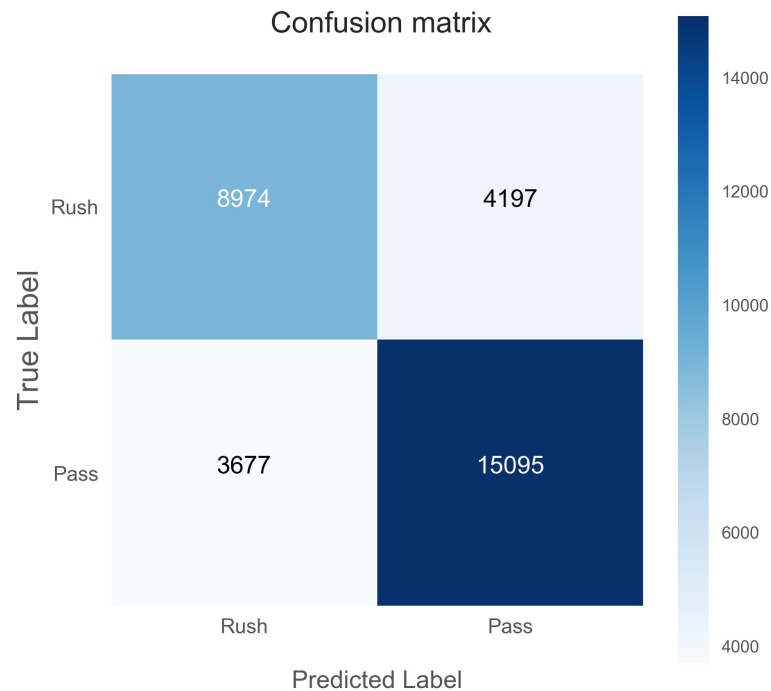
Feature Categories
Time
Teams
Coaches
Down and Distance
Score Differential
Formation
Weather

Process

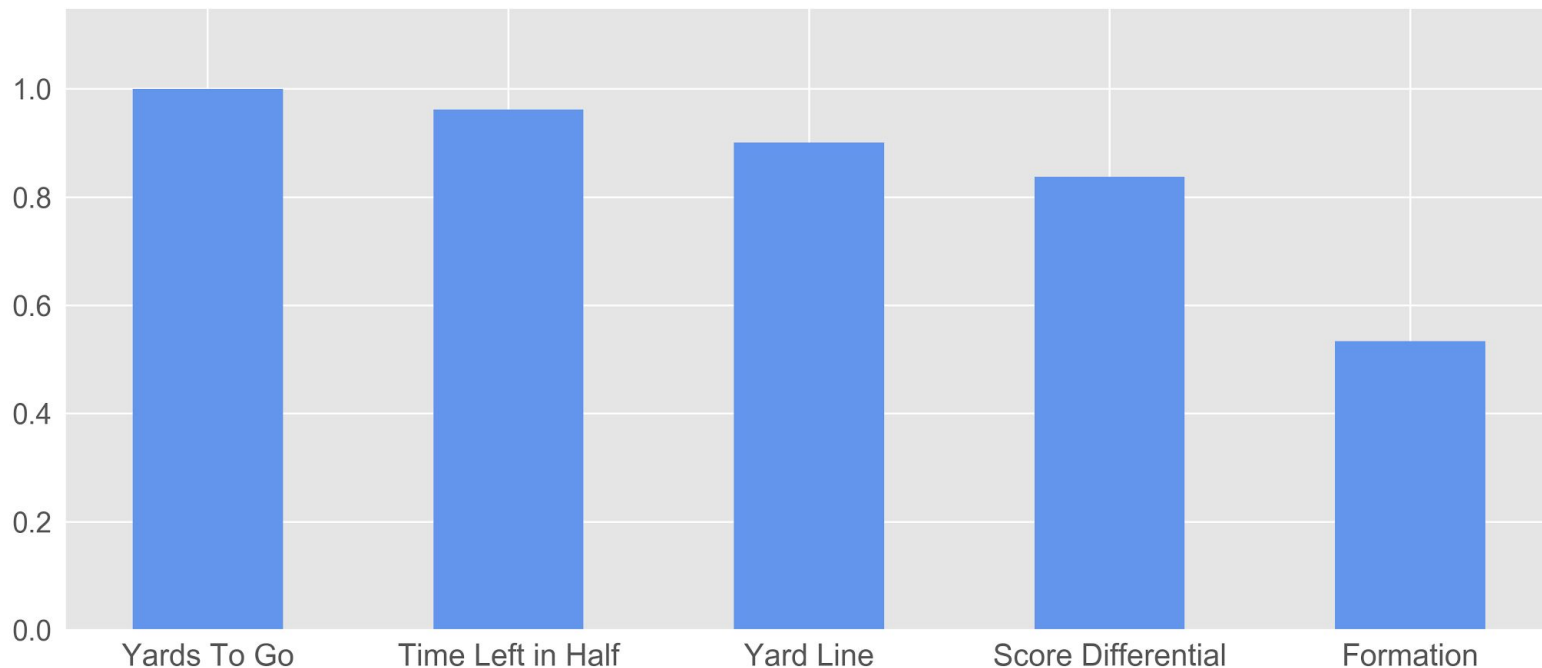


Gradient Boosting Classifier

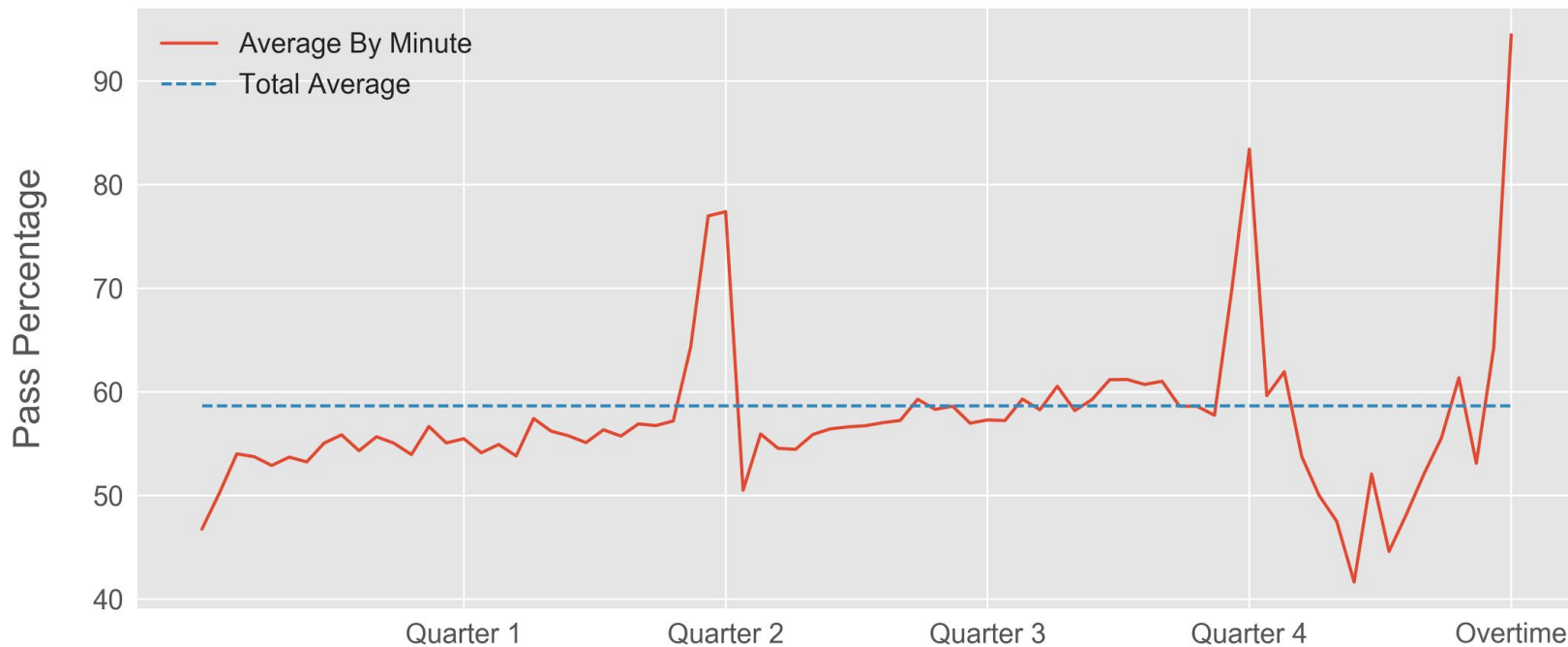
	Accuracy	Precision	Recall
<i>Logistic Regression</i>	0.71	0.71	0.71
<i>Random Forest Classifier</i>	0.69	0.69	0.69
<i>Gradient Boosting Classifier</i>	0.74	0.74	0.74



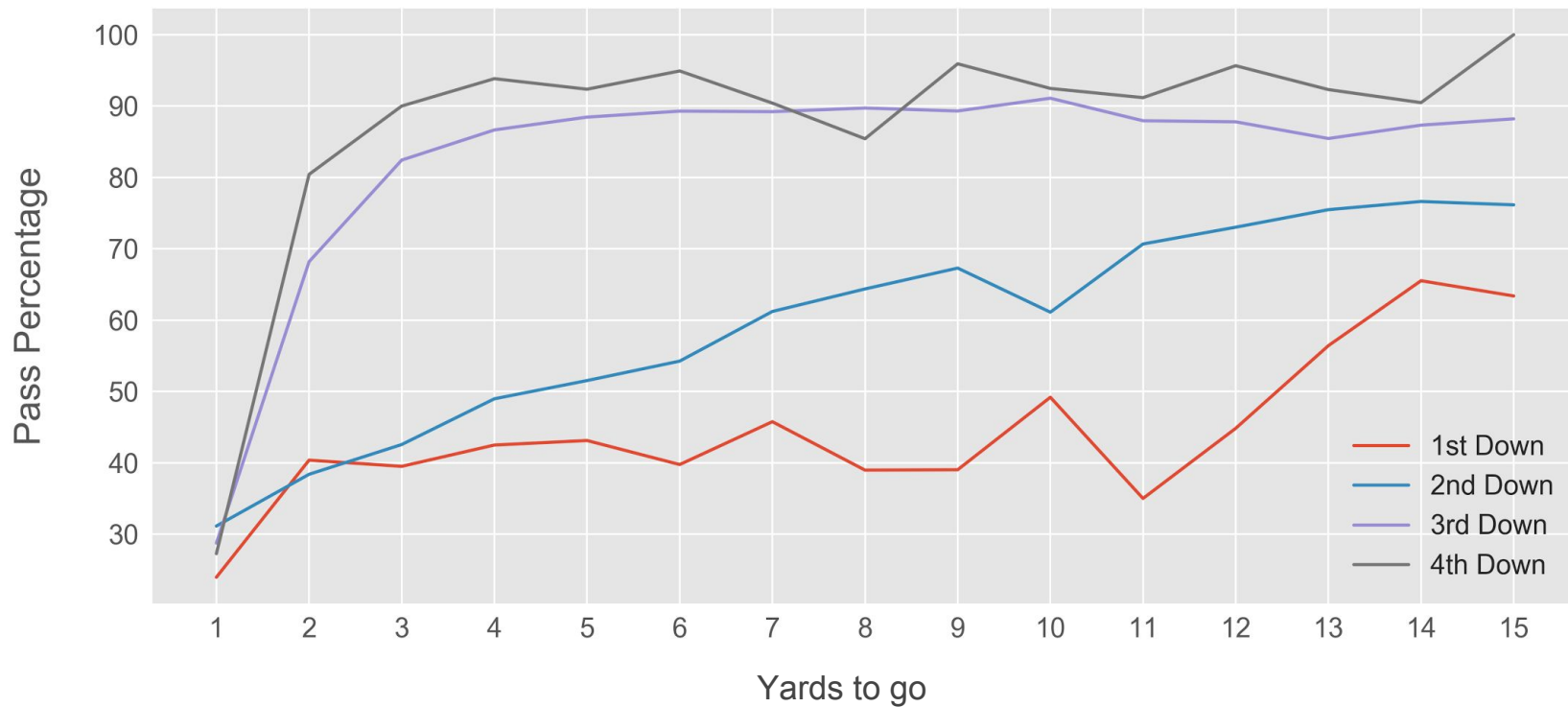
Relative Feature Importances



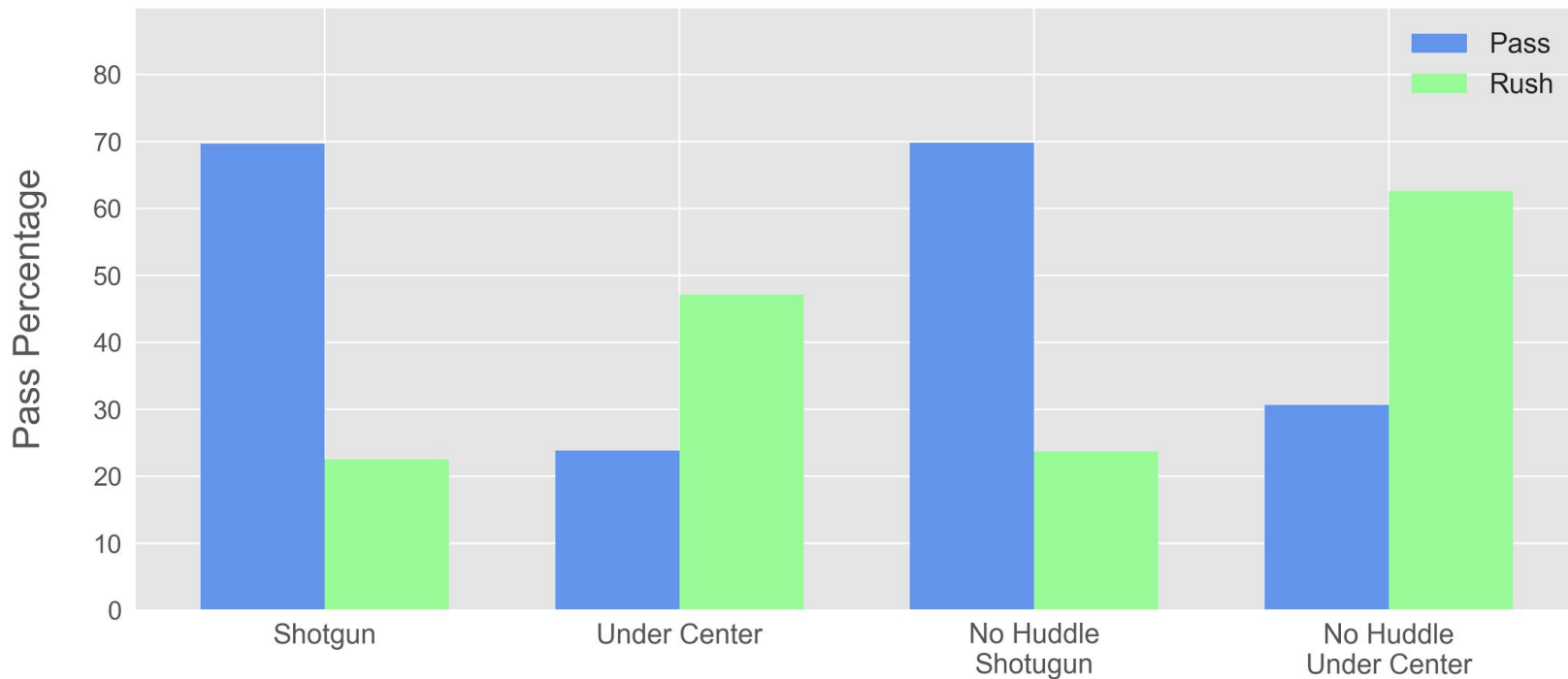
Pass Play Average by Minute



Pass Play Average by Down and Distance



Pass/Rush Ratios by Formation



Future Ambitions

- Player packages
- Past plays
- Baseball

