My Robotics Project was that you can parse a bunch of data off of website, put that data into classes and objects and create algorithms to help make future predictions based on that data set. I got a bunch of 2015 NFL data (Weeks 1-12) from the web including game stats and game odds. The game stats included passing, rushing, receiving, penalty, downs and other categories. The game odds included the spread and the over/under. I took a look at the data and made some algorithms that I made to predict how teams will do against the spread in the future. These are rudimentary and need some tweaking, so don’t go flying to Vegas.

The algorithms are

TeamName RYA AYA IPA TPAA TE TrueScore Total

Patriots 3.617 7.807 0.015 0.012 11.823 50.5 23.275

The "advanced" stats,

RYA - Rushing yards per att, higher # the better

AYA - Passing yards per att, higher # the better

IPA - Interceptions per comp, higher # the worse

TPAA - Turnovers per att (fumbleslost+int)/totalatt, rush&pass, higher # the worse

TE - (score/totatt) \* FirstDowns, higher the better

TrueScore – Is a number on how the team has done against the spread for every game this year

TrueScore - + and higher is better.

Total – is the Total Power Rating for that team

A quick example on the TrueScore – If the Patriots were -7 point favorites last week and they won by 17, their TrueScore would be +10. They were expected to win by 7 and won by 17, making them 10 pts better than expected. If the Patriots were 4 point favorites and lost by 17, they would get a -21 TrueScore. They were expected to win by 4 and lost by 17 making that a -21 point swing. The truescore lets you know how teams are valued or performing, do they hit their predictions or fail to make it? For instance, a team like the Panthers didn’t have a lot of preseason backing and were picked to be about average. They are undefeated and have outperformed the spread by 96.5 points this year.

I add these all together and create a power rating. These power ratings are then used as a prediction model against the spread. For instance using the power ratings for Sunday’s game of Texans/Patriots

HomeTeam HPwrRate HomeSprd VisTeam VPRate VisSprd TPRate totPwrRate+3

Texans 16.502 3.500 Patriots 23.275 -3.500 6.773 0.000

You see the Texans have a 16.5 PR and the Patriots have a 23.3 PR. You would subtract the higher from the lower giving you a spread of Patriots by approx. -6.8. By my calculations, the Patriots are 7 pts better than the Texans. In the NFL the home team (Texans) get -3 for being at home. The actual vegas line is -3.5 (Patriots), this line is close to mine. If you give the Texans the 3, my line is -4 pts (Patriots). Most my lines are not that close and I know why. My numbers need some tweaking, the turnover numbers are way too small and I put a very large bonus on first downs. Defense isn’t accounted for and there is no opponent adjustment. The Panthers number would drop if I had an opponent adjustment, as they have had a ridiculously easy schedule this year and they get to play the Saints twice. The Saints have had, according to some other adv.stats websites, the worst defense in NFL history. Bet with the Panthers in the playoffs at your own peril. If your team is good at throwing the ball and gets a lot of first downs they will get a high power rating (see the Arizona Cardinals).