The use of various predictive metrics in sports has been occurring as long as human beings have watched each other compete. Initially this started out as simple gut feeling or a subjective assessment of the competitors – the bets usually go to the bigger fighter! In more recent times, humanity has refined its predictive power with the advent of statistics and logical decision making (famously put to use in Major League Baseball, as shown in the film Moneyball). With the advent of the information age and the possibility for large-scale data analytics and machine learning, the National Basketball Association has decided to jump in.

Detailed statistics are already available to the NBA as these have been tracked for many years, supporting classic statistical decision making. The goal is to run both unsupervised and supervised machine learning algorithms on the statistical data available. Specifically – the NBA wants a tool for its coaches to use to put together better player matchups (defender vs offender) and to asses and optimize shooter performance.

In technical terms, we aim to deliver predictive metrics for threat/benefit level at an individual player level, as well as an interactive application that identifies the likelihood of a shot landing from a specific offender shooting from a specific position on the court, against a specific defender located a certain distance away. This will allow coaches to run limited scenarios in the predictive model, to inform both their practice routines and to assist in making strategic decisions during live games.

As an example, consider the matchup of Lebron James on offence and Serge Ibaka on defence. Let’s assume that Lebron typically tries to shoot from top of the key, and is being defended by Serge Ibaka, 5 feet away. The model takes these discrete inputs and outputs a real-world percentage success of 10.5% (example). If the average shooting success rate is 30%, we can identify this as a bad shot, and encourage Lebron to pass in these situations.