# Project Proposal, Emil Klasson Svensson emisv463

This project is loosely based around a article written by Dwight Lutz called ”A Cluster Analysis of NBA Players” which revolves around finding clusters of NBA-players (basketball players) and giving them a new class-labeled for basketball players positions on court.

Traditionally players are labeled according to the respective task on the court, called positions. Small and fast players are referred to as guards (point guard/shooting guard) and tall and strong players are labeled forward (power/small-) or center. There is no formal way of determining what position a player should be according to these 5 current positions and is still up to coaches to decide.

In the modern NBA something that is called ”positionless basketball” have gained popularity with many coaches moving away from the classic positions and playing different line ups with players in position that they would not play accordingly would play. The goal with this project will be to via multivariate cluster analysis identify new more appropriate labels for players defined by their performance on the court in different variables. When clustering is done and new labels are defined see how these new position-labels are used in the most frequently used line-ups today.

My choice of clustering technique was using the Expectation-maximization algorithm (EM) since it is used in the article and it would mean that I could run and compare the same algorithms with new data and maybe new variables. As a complement or alternative I thought about using PAM or DENCLUE to compare and se which perform the best.