Milestone#4 - Future Analysis

Using the streak metrics that we created in the above analysis, we want to further stratify the shot records by the following three factors, and see how they would affect the hot hand theory. We would describe the analysis plans in the following, which are still quite flexible, and feedback or suggestions from the TF are welcome.

1. Home Game

Under the hypothesis that players are easier to “get hot” when playing at home, we want to separately look at each player’s streak metrics for home games (location=H) and away games (location=A) and compare between the statistics in the two scenarios.

The specific analysis plan: we could always compare the averaged home and averaged away metrics for each players, and do the paired statistical test (for example: paired t-test) to examine if there are significant differences between “home metrics” and “away metrics”; or we could plot the distribution of home and away metrics of all the games for all the players and visualize the difference.

2. Top Players

We created two versions of ranking among players by two standard: PPG or FG%. And we want to test the hypothesis that top players are easier to “get hot”.

For now we want to draw the threshold of “top players” at top 5, and compare the stream metrics of the top five players to the rest of the players. Also it would be interesting to see if the results are different for the two versions of the ranking system, as we do see differences between the two in the exploratory analysis.

Further, we could stratify the players into groups by performance (for example: top 1/3, middle 1/3 and bottom 1/3 players) and examine the streak metrics among different groups.

3. Defenders

We hypothesize that certain defenders are better at stopping the “hot-hand” trend. To test this hypothesis, we want to identify the closest defender (by defender ID) when the streak direction is reversed, and draw a distribution to see if there are enrichments on certain defenders. If their shot records are available as well, we can further examine the relationship between good defenders and hot-hands.