

Weekly Report (5/4/25)

ELO Based Win Prediction

Methodology Summary

Initially, we attempted to predict game outcomes using team statistics such as points scored, rebounds, assists, and other performance metrics. However, this approach did not yield strong predictive results, likely due to variability in how different teams accumulate stats and a lack of contextual strength indicators.

To overcome this, we pivoted to a more dynamic method using Elo ratings, which provide a running estimate of a team's relative strength based on match outcomes. Elo systems are widely used in competitive games and sports because they adapt as new results come in.

Our Elo-Based Workflow:

Match Preprocessing: Standardized match data so each match appears only once (e.g., "Team A vs Team B" appears in alphabetical order). Sorted matches by date and removed duplicates.

Initialization: All teams began with a base Elo rating (1500). We also tracked win streaks to capture momentum going into each match.

Sequential Processing: For each match, we recorded:

Match Number

Team and Opponent

Date

Win (1 if Team wins)

Pre-match Elo ratings

Win streaks before the match

Elo ratings and streaks were updated after the match outcome to ensure no future data leakage.

Prediction and Results: Using just Elo ratings and win streaks as features, we trained a simple classifier. The prediction accuracy was around 65%, which is better than random but leaves room for improvement.