

Project Title

JUMPR: The Art of the Shot

Abstract:

There exists a need for a more precise method of analyzing shot forms and comparing shot forms. Using MediaPipe's pose estimation model, we developed a program that accessed body part coordinates of players in live and pre-recorded videos and used these coordinates to calculate key angle measures. The program outputs a graph of angle measures over time for a live video feed imposed over a graph that displays an interval for angles over time that are considered a "good" shot form, calculated from video of NBA players. This allows for comparison of one's own shot with that of professional players. Development of this system involved defining the process of a shot, standardizing videos to sync up shot forms of differing time lengths, developing smoothing functions for graphical output of angle calculations, and design of a dual input functionality that would allow the model to be run on both pre recorded and live videos. Our system is a valuable tool for analyzing metrics of player's shot forms and comparing input shot videos with professional shots, but the environmental impact of the training for the MediaPipe model we used is non-trivial.