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Jumpshot

Feedback on athletic technique often requires a human input. However, there are many problems associated with this. Human input includes biases, humans often lack expertise, and humans are not always available. A lot of efforts have gone into the physics of basketball. Determining how factors like lift, angle, and velocity can impact the accuracy of a shot. But what if there was an automatic, easily accessible way to get feedback on the form of the shot itself, and for that feedback to be better than that of many people? I created a new system that extracts key phases of the shot from the video using key point estimation, and utilizes a Multilayer Perceptron trained on 100+ videos and 300+ images, which takes shot phase and key points as input to detect issues with shot form at over 63% accuracy, whilst finding issues in the follow through at 84% and issues in the base of the shot at 80%. These results show the potential of using Computer Vision to critique the performance of athletes in ways only humans have historically been able to, which could potentially revolutionize sports training and expand the realm of what computer vision can be applied to.

Academic or Professional Status

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