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AI Sports Commercial Skipper

The Problem: When watching sports on TV, I find that the most optimal way to watch is by recording the game, then watching it back while fast forwarding through the commercials and breaks. This allows the viewer to watch a 3 hour game broadcast in 2 hours or less since time is not wasted on commercials. The current solution to this problem is to have the user keep the remote control nearby and manually fast forward whenever a commercial occurs I would like to solve this problem by having the game playback and fast forward through commercials on its own without user input.

The problem described above could be solved using AI techniques. At first glance, this may be a complicated problem, so let us first simplify the problem. In its simplest form, the goal would be to identify when the sports broadcast is displayed, and when a commercial is displayed. If the sports broadcast is displayed, we playback at normal speed, while if a commercial is displayed, we fast forward until the sports broadcast returns. With these simple rules we could implement the solution.

The next problem to solve would be identifying when the sports program is on, and when the commercial is on. Since video is a collection of still images, we can use an AI image recognition model to identify whether the sports broadcast is active. To set up this AI model, we need to identify what the inputs will be sending into the AI. Since this is an image recognition AI, the input will be images. We will not use the raw images from the broadcast though, since each frame would be very large. To reduce the size of the image inputs into the AI, we can leverage some tools such as Image Convolusion and Image pooling as described in the “Machine Learning Zero to Hero” video. These techniques will allow us to reduce the size of images passed into the AI model to improve speed.

Now that we have the AI inputs set up we can begin the training process. To train the AI we will need to pass sports broadcast images into the AI and tell the AI that these are sports broadcasts. After training, the AI model will be able to identify when a frame is part of a sports broadcast. At this point, we can include the AI model in our software program and allow the AI to do its job and it will be able to identify a sports broadcast.

The ideal location to include this feature would be in the smart TV itself, or in the streaming service that supplies the sports broadcast. For the purposes of this paper, I’m going to assume I do not have the ability to access the TV or broadcast company software. Therefore, to implement this, I will need to use a more “do it yourself approach”. For this approach I will use a camera to take pictures of the television screen. I will have the camera hooked up to a Raspberry Pi where I will be running the python program with the AI model. The Raspberry Pi will also be connected to Servo motors controlled by our program that will literally press the fast forward and Play/pause button on the remote. Since a Rasbperry pi is not a very strong computer, we will also need a different computer to actually train the AI image recognition model.

There are some ethical considerations that need to be thought about with this solution. If I were to implement the DIY approach as I described above, the ethical concerns are limited, although I may need to look into some terms of service for the broadcast provider, and potentially the TV manufacturer. If I were implementing this AI professionally to be included in as part of the TV or streaming service software, there would be significantly more ethical considerations. This AI solution would significantly de-value television advertisements. I assume television advertisements is a billion-dollar industry that supplies many jobs and supply for the livelihood for many families. We need to consider if it is ethical and legal to implement this solution at an enterprise level, or if implementing this would be a bad ethical decision.