Why LUV?

There are two reasons we might use non-RGB colorspaces, including LUV, in computer vision. The first reason is that differences in RGB space do not correspond well to perceived differences in color. That is, two colors can be close in RGB space but appear very different to humans and vice versa. The second reason (and I would say the more important one for object detection) is that spaces like LUV decouple the "color" (chromaticity, the UV part) and "lightness" (luminance, the L part) of color. Thus in object detection, it is common to match objects just based on the UV part, which gives invariance to changes in lighting condition.

Flexible code.

Threshold : if the difference between the previous frame and the current frame is higher than a certain threshold, then the current frame is included. The disadvantage is that the threshold value requires constant adjustments as it is different videos.

Use top order (our choice) : Sort the frames based on the difference, The first n frames from the sorted frames are selected as key frames. Advantage : Fixed number of keyframes every time, adjustments can be done easily done based on the length of the video.

Use local maxima : A sliding window moves through the frames. When a maximum is attained in a sliding window, its middle frame is chosen as a keyframe.