

CS194 Project Proposal

Project: Hootation

Team Members: Eunmo Yang, Do Hyeong Kwon

Executive Summary

Many people visit YouTube with a precise knowledge of what they want to watch. Being bought by and integrated into Google, the search functionality is a great resource for these people with a query. There are also categories to narrow the search, which is useful for those with a general idea of what they want to see. However, many others visit the website with nothing particular on their mind, simply looking for some entertaining piece of clip. For these people, YouTube offers some options on their website, providing a range of featured and recommended videos based on previous search history. Sadly, much less options are left for people using handheld devices, such as the iPhone.

Our target clients are these people using a handheld device, who want to do minimal thinking and just sit back and enjoy the show. These people would enjoy having to do as little interaction as possible with an application and be able to watch a series of videos seamlessly. However, most of the apps that feed off of YouTube videos are based on either manually selected list of videos, which is very slow to update and requires much manpower, or downloading a list of videos from the website, which requires much user input. They do not focus on offering a simple, quick and easy way of find a list of interesting videos for those who simple want to be entertained without further ado, and this will be the primary goal of our project.

The popularity of such an approach can be clearly observed in the immensely popular 9gag.com, which displays a seemingly endless stream of short witty internet memes. We believe the success of the website came from the sleek user experience, and will heavily focus on the UI aspect strive to achieve a

similar degree of simplicity and usability in our application. Our ultimate goal is to create an iOS app that people can pull out anytime to entertain themselves with minimal hassle.

The Basic Idea

Hootation would enable access to funny videos on YouTube as one would access television. The application builds stations based on the user's search query, and goes through a playlist of similar funny videos. An important distinction with existing video-based mediums is its automaticity; the user is not expected to manually go through and choose which funny videos to add to the playlist. This is an important distinction, because a crucial element of humorous material is its element of surprise.

An Assessment of the Need

Imagine a user looking to be amused, and conventional mediums of TV or a night out have failed him. Naturally, the user looks to technology for his solutions, and he decides to go to YouTube. As he looks at the portal that could give him access to billions of bytes of chucks and giggles, however, he is stumped: he doesn't know what to look for.

The flaw with YouTube is that it merely enables search; it is not a "show" that dictate to the user what is entertaining. With any other medium of entertainment, the user passively consumes the material. Patrons of theatre, concerts, and circuses sit back, relax, expectant of what is to come and the surprises attached thereof. This passivity in consumption is fundamental to the idea of humor. The funniest content is not found, but delivered. Knowing that the video you are about to watch contains footage of a kitten breaking cups does not improve on the humorousness of the experience.

The need for Hootstation is clear: search doesn't work for funny, and we need to do something about it.

Benchmarking

The greatest source of inspiration for this project is 9gag.com. The website has a simple UI, with seemingly endless list of internet memes. It also gives people options to comment and share each meme on Tweeter and Facebook. This box of options follow the user when scrolling down, making it easier for the users to share the meme after they finished reading it. Because the total number of Facebook likes accumulated on the memes on the website is 2.8 million, this box would have certainly played a factor in the popularity of the website. Nonetheless, we believe the key idea for the success of the website is making it easy to view countless number of internet memes by simply scrolling down the website. Internet memes are hugely popular these days, and many are even translated to other languages such as Korean, but 9gag.com is not the only website offering internet memes. Therefore we came to conclude that the popularity is based on the ease of browsing. Therefore we decided to build a similar version, but with videos to differentiate.

Then we looked at the native YouTube app on the iPhone. Besides the search functionality, which we find no difference with the YouTube website itself, it only a few options to browse: 1) all time/this week's/today's most viewed videos, 2) featured videos, and 3) most recent videos. We think these options offer enough videos to choose from as a starting point. However, after one watches a video, the app goes over to the info page, showing a seemingly infinite number of tags, which does not have much meaning to the person who just watched the video, and when scrolled down, shows the comment section. It is as if the application is forcing the user to read more about the video and rate and comment on it. Related videos can only be seen after clicking the back button. We believe this interaction can be better streamlined for the people who want minimal interaction in-between the videos.

YouTube also has a mobile website, and some even go as far as saying the reason Google left the native iPhone app in its state is because they prefer people visiting the mobile website, not using the native app. However, the mobile website only gives two more options to browse. One is search by

categories, which is somewhat useful, and another is a list of live feeds, which does not appear to be sorted. With these options, the mobile website may be arguably better than the app. However, the user interaction remains unchanged. After fully watching a clip, one has to either click the done button to get out of the video screen or the play button to see the clip again. This again introduces to clicks to watch another video. Hence, for the type of usage we have in mind, the mobile website is not much different from the app.

Being disappointed by the two authentic versions, we surveyed what other iPhone apps were doing. Surprisingly, a vast number of apps in the search result of using the keyword 'video' in conjunction with others (such as funny videos, humor videos, and gag videos) had nothing to do with video and only showed pictures. The rest can be roughly divided into three categories: one focusing on downloads, another offering a hand selected list of videos, and a third specializing on music. The numbers were not that large, probably because of the difficulty of dealing with video streams. The apps focusing on downloads is good to save a number of videos on the device to be viewed anytime, anywhere. However, for our intended usage, most videos will be seen only once, and will not have much replay value. Therefore, having to download the videos themselves is an additional overhead for not much use. The apps focusing on offering a hand selected list of videos is much closer to our goal, but is either slow to update or require much manpower. There are apps showing the most popular videos in different countries around the world, which seems to tackle both problems, but this app faces the language barrier. For example, French clips do not hold much value to English users. The last category seems to be a red market, with large players such as YouTube music section or MTV tightly claiming their turf.

The true challenge of the implementation, and the reason it has not been done before, is the challenge of selecting videos to add in a single playlist. Simply playing videos in YouTube's related videos playlist is not enough, as often the fact the videos are viewed one after the other does not attest to

whether they would be played well together. Though the related videos API is our friend, there are too many videos in that playlist, some relevant and some not, and we have to make a choice which videos will flow seamlessly when played together.

To advance this state-of-the-art, we plan to use feature vectors, not unlike those used by Pandora to decide which songs are related to each other. Each YouTube video comes with string tags that are used to associate one video with a series of themes. That is one feature we would use to decide if two videos are similar to each other.

Why Our Product Will Be Better

We think that Hootation is the first among video-sharing services to truly offer the idea of passive consumption of visual content on a hand-held device. What we bring to the table is something truly unique; we transform the way social media is consumed on the web. We recognize that a programmatically determining a chain of videos that will put on a dazzling show is no easy task, equal to having a machine make decisions regarding culture.

This project will pit our collective learning as seniors of Stanford Computer Science to come up with the best machine learning algorithm possible, one that effectively classifies visual content the same way NLP allows the classification of natural text material. What we accomplish here, assuming we succeed, will positively advance the way we look at the limitations of machine classification.