CS 194-26: Video Supercuts

Welcome to our Interactive IPython Notebook

Find Phrases Demo

Our main program dynamically creates a supercut from a video and subtitle pairing. Users are able to view the occurences of key clips from a large video file by extracting key words and phrases. As a bells & whistle, we made a feature that allows users to force the speaker to say a fake speech using his own words!

In this mini-demo, we will be showing off our find phrases feature on the video https://youtu.be/TMDV3VY0tPA, where Obama Delivers a Statement on the Shooting in Oregon.

Steps:

1. Process Command Line Input (Not Shown)
2. Load Video and Subtitles
3. Process Subtitles to Determine Video Bounds
4. Slice the Video
5. Save the Video and Admire Results

In [33]:

```
from config import INPUT_FOLDER, OUTPUT_FOLDER, LOG_FILE, TIMESTAMP_SET
# Get the configuration variables from where our videos are stored
from utils import parseSRT, flatten, testUserInput, listVideoFiles
# Add a few utilities for ease of use
from moviepy.editor import VideoFileClip, AudioFileClip, concatenate, ipython_di
splay
# Bring in the MoviePy Package for video splicing
from IPython.display import YouTubeVideo, HTML
import re, os, sys
import argparse, datetime
```

After loading our utilities, we will know begin to pass in our video and subtitle data.

In [2]:

```
VERBOSE = False
video = VideoFileClip(INPUT_FOLDER+'1.mp4')
subs = parseSRT('1')
```

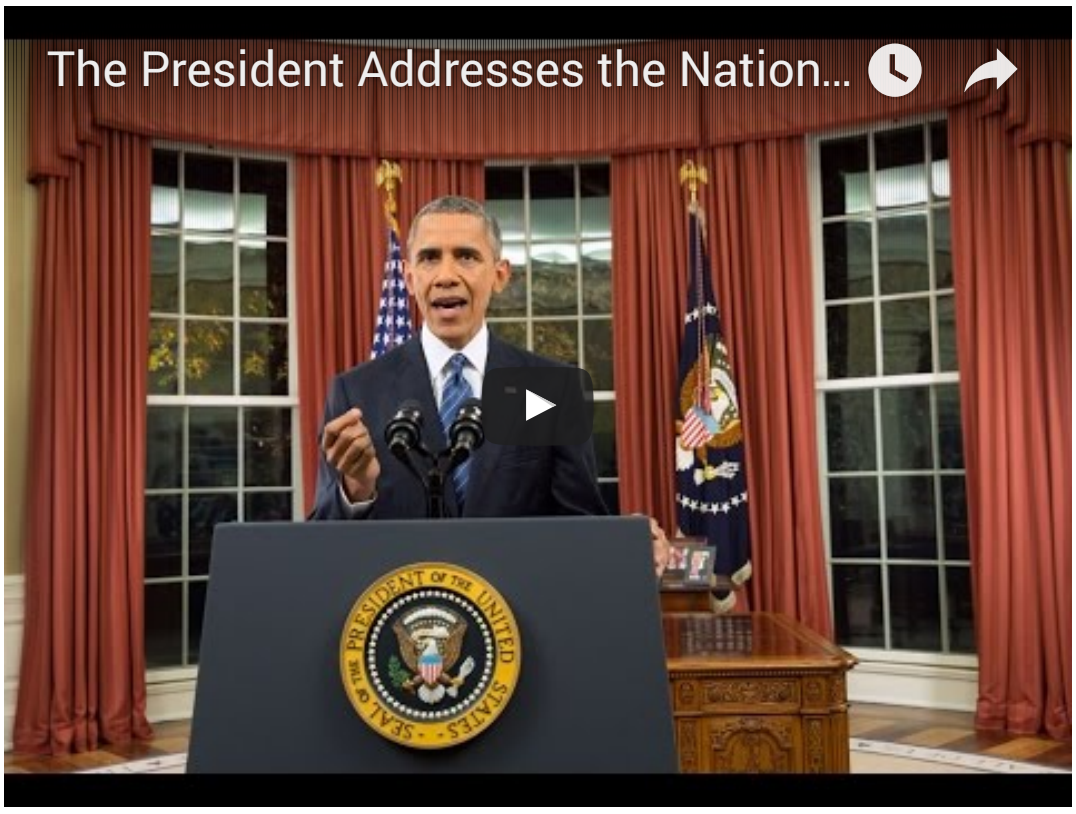
Using MoviePy we load in our video, and process our subtitles with our parseSRT method from our internal utiltiies. Normally, we would process command line input, but for this demo will be just using the phrase method.

For reference, here is the sample video in question:

In [3]:

```
YouTubeVideo("TMDV3VY0tPA", start=0, autoplay=0, theme="light", color="red")
```

Out[3]:



We can use MoviePy to see the first 10 seconds of the video file to make sure we are looking at the right file.

In [4]:

```
ipython_display(video.subclip(0, 10), width=300)
```

Out[4]:

With our video and subtitles loaded, we are now ready to search for our favorite words. But first, let's take a look at what we have in our data!

In [5]:

```
print(subs)
print 'Total Number of words: %d | Uniques: %d' % (subs.wordCount, subs.uniqueWo
rdCount() )
fd = subs.freqDist
fdout = ['%s: %s' % (k, v) for k, v in sorted(fd.items(), key = lambda x: x[1],
reverse = True) \
        if not ('~' in k or '--' in k)] # take the most common words for show
print 'Common Words:', fdout[:20] # let's take a look
```

```
<SubtitleObj: 1 | lines: 260 | words: 2127>
Total Number of words: 2127 | Uniques: 719
Common Words: ['to: 67', 'the: 67', 'and: 63', 'of: 50', 'that: 42',
'we: 35', 'our: 33', 'in: 30', 'a: 28', 'are: 26', 'is: 21', 'ISIL:
18', 'with: 17', 'I: 16', 'were: 14', 'this: 13', 'like: 13', 'what:
12', 'have: 12', 'for: 12']
```

Here we can see that a little more information about which words are commonly said, and since we are like totally rooting for America, we will examine just these time ranges.

In [27]:

```
words = ['America', 'terrorist']
segmentedWordList = subs.words
times = subs.times
occurrences = []
for idx, wordList in enumerate(segmentedWordList):
    for word in words:
        if word.upper() in map(str.upper,wordList):
            timeRanges = [times[idx]]
            occurrences += timeRanges
            break
if len(occurrences) == 0:
    print "\nThe word(s) "+ str(words)+ " were not in the video. No supercut cou
ld be made.\n"
```

With a quick for loop, we are ready to extract the time ranges from our video

In [28]:

```
print 'Time ranges:', occurrences
```

```
Time ranges: [['00:00:49,482', '00:00:52,385'], ['00:01:05,397', '00
:01:07,399'], ['00:01:45,972', '00:01:49,375'], ['00:01:58,685', '00
:02:02,622'], ['00:04:12,185', '00:04:14,253'], ['00:06:23,783', '00
:06:26,786'], ['00:06:58,351', '00:07:01,87'], ['00:07:40,593', '00:
07:43,863'], ['00:08:20,600', '00:08:24,637'], ['00:09:29,635', '00:
09:35,174'], ['00:09:58,731', '00:10:01,200'], ['00:12:38,357', '00:
12:42,528'], ['00:12:51,3', '00:12:55,274'], ['00:12:57,276', '00:12
:59,277']]
```

In [29]:

```
slices = concatenate([video.subclip(start, end) for (start,end) in occurrences])
```

With our slices prepared, we join our key words to create our output file name and write the video to disk.

In [30]:

```
keywordString = '-' + '-'.join([w.upper() for w in words  ])
pathname = OUTPUT_FOLDER + '1' + '-' + 'phrases' + keywordString
slices.write_videofile(pathname + ".mp4", fps=video.fps,
                       codec='libx264', audio_codec='aac',
                       temp_audiofile= 'output/temp-audio.m4a',
                       remove_temp=True, audio_bitrate="1000k", bitrate="4000k")
```

```
[MoviePy] >>>> Building video output/1-phrases-AMERICA-TERRORIST.mp4
[MoviePy] Writing audio in output/temp-audio.m4a


[MoviePy] Done.
[MoviePy] Writing video output/1-phrases-AMERICA-TERRORIST.mp4


[MoviePy] Done.
[MoviePy] >>>> Video ready: output/1-phrases-AMERICA-TERRORIST.mp4
```

Let's see what we got!

In [41]:

```
def playvideo(fname, mimetype):
    """Load the video in the file `fname`, with given mimetype, and display as H
TML5 video.
    """
    from IPython.display import HTML
    from base64 import b64encode
    with open(fname, "rb") as f:
        video_encoded= b64encode(f.read())
    video_tag= """
<center><video controls style='max-width:100%'>
<source src='data:{mimetype};base64,{b64}' type='video/{mimetype}' loop=1 autopl
ay>
Your browser does not support the video tag.
</video><center/>""".format(mimetype=mimetype, b64=video_encoded)
    return HTML(data=video_tag)
name = pathname + '.mp4'
playvideo(name, name.split('.')[-1])
```

Out[41]:

Thanks for reading!

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In [ ]:

```
import urllib2
# HTML(urllib2.urlopen('http://bit.ly/1Bf5Hft').read())
# uncomment above line for magic CSS styling
```