

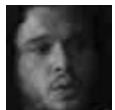
1. Lead Characters of the film:

Trial 1: <https://www.youtube.com/watch?v=38hnsgqf8O0>

Total number of faces detected in the entire video: 6633

Number of clusters formed: 5

Lead characters detected from the top cluster having most number of faces and with highest similarity score.



Trial 2: <https://www.youtube.com/watch?v=wbd9PHdhKZE>

Total number of faces detected in the entire video: $10166+41+2736+192+849 = 13984$

Number of clusters formed: 5

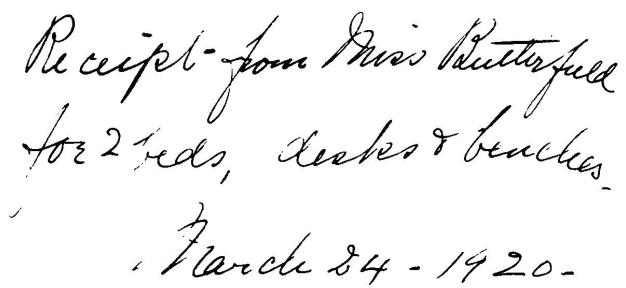
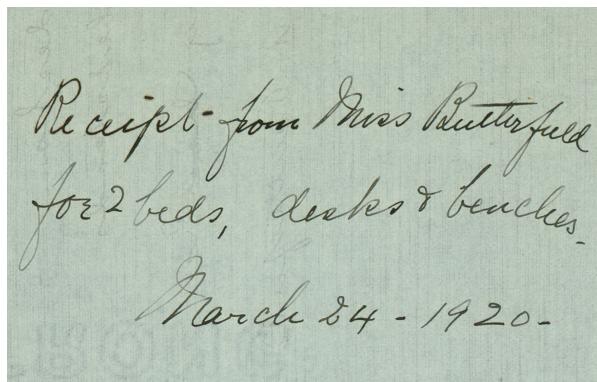
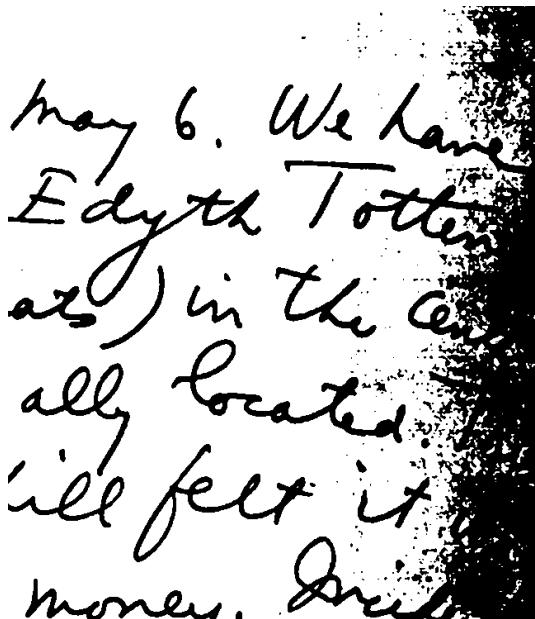
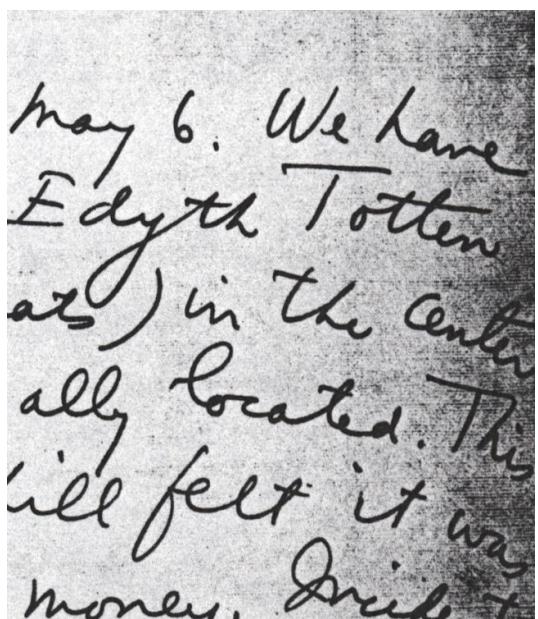
Lead characters detected from the top cluster having most number of faces and with highest similarity score.



Since the film was about the best of Sheldon's, mostly Sheldon occupied the screen time. The feature, LBP used was not able to help in clustering the faces quite clearly. This could be avoided by doing pre-processing before feature extraction. That is, cropping the face detected to have only 60 to 70% of detected face area which has only eyes nose and mouth part except for the fore head and others which will have better results.

2. Binarization of hand written images:

Outputs are shown below,



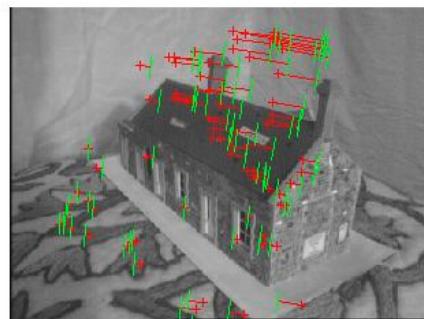
3. Fundamental Matrix between two images:

One of the results for F matrix,

F =

$$\begin{array}{ccc} -0.0000 & 0.0000 & -0.0046 \\ -0.0000 & 0.0000 & 0.0045 \\ 0.0069 & -0.0069 & -0.3591 \end{array}$$

Following is the improvement seen over with RANSAC over without one.



4. FG-BG segmentation:

I've tried the above on the video,

<https://www.youtube.com/watch?v=7wbVggmnsCU>.

Results are uploaded here,

<http://youtu.be/Qc5TjayMDC4>

<https://www.youtube.com/watch?v=Qc5TjayMDC4>

