The goal of this project is to use Maximally Stable Extremal Regions (MSER) [2] to improve the generation of character candidates in an existing text detection system.

### Maximally Stable Extremal Regions

MSER is used to find connected component regions that exhibit minimum variation as an image is thresholded over a range of threshold levels.

### Existing pipeline

- Coarse detection identifies text regions
- Fine detector gives us seed points within characters
- We use a flood filling considering edge and color boundaries from each seed to obtain the characters [1]

### Procedure

- Edges obtained in Lab
- Text hotmap
- Filtered edges
- Segmented characters

### Results

- Original Image
- Flood filling
- From MSER

- Obtains similar and sometimes better results than flood filling
- MSER is considerably faster than region growing, each image takes a few milliseconds as opposed to a few minutes
- Prone to merging characters that are close together

### Conclusions

- MSER is a viable option for fast character growing
- Additional verification steps will be able to refine the characters even further
- Possible improvements include using the windows used in fine detection to address under segmented characters

### References
