Week 7

Zachary Daniels

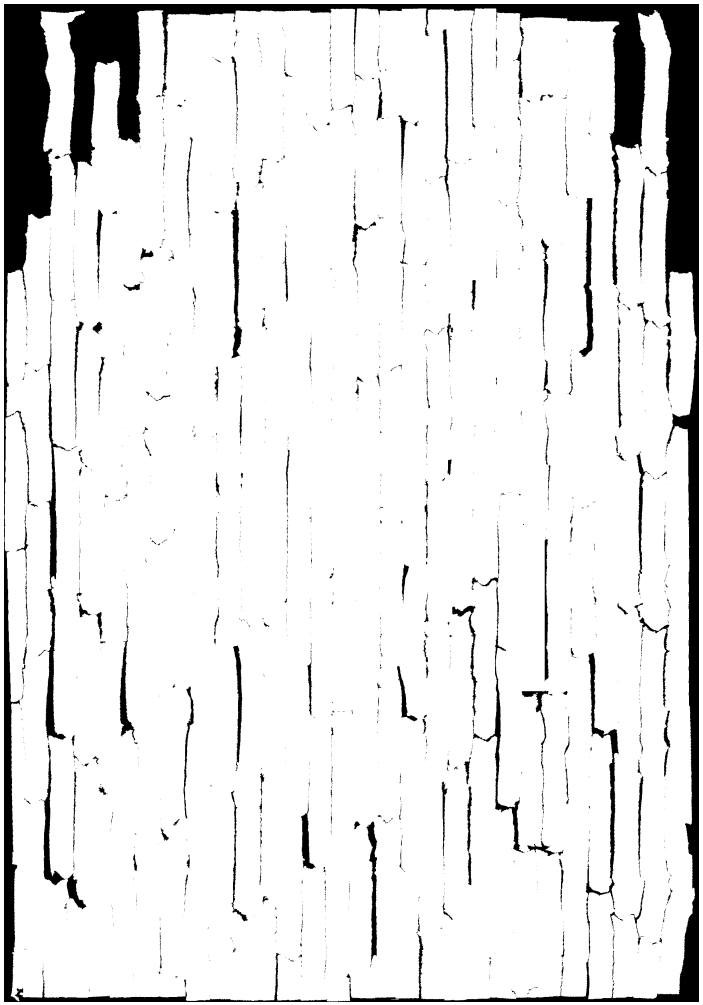
Building Ground Truth

1. Extract letters and lines from shreds, correlate across solution image to place shreds (v1, last week)
2. Correlate binarized shreds across ground truth v1 to fill gaps
3. Manually (roughly) place remaining blank/border pieces using GUI (v2)
4. Manually fine-tune entire puzzle using GUI (v3)

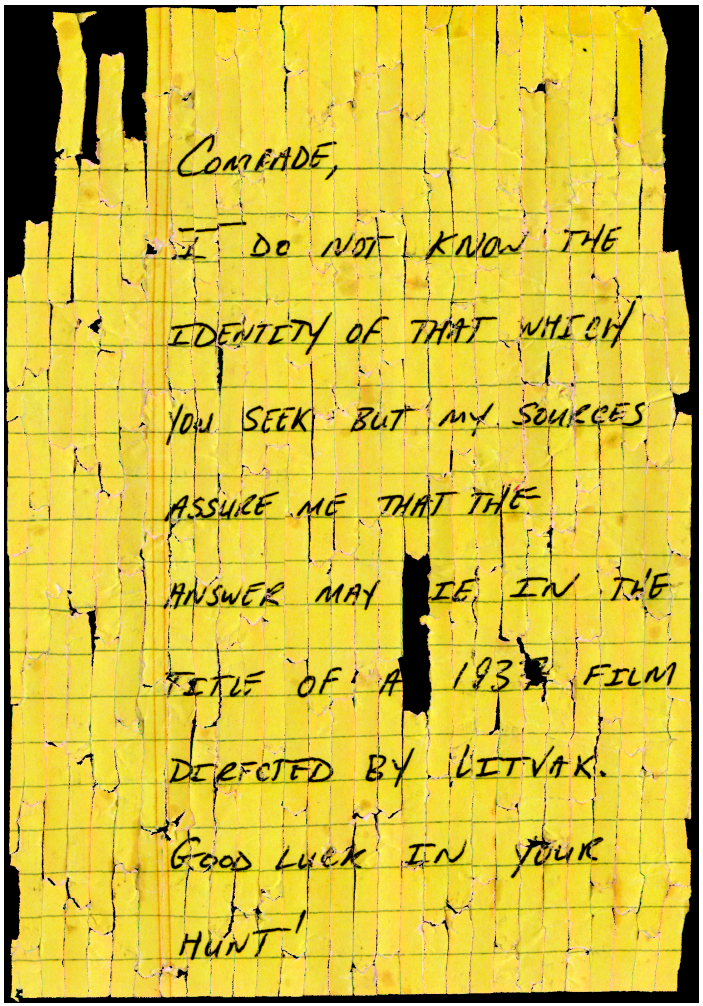
Ground Truth v1 (letter correlation)



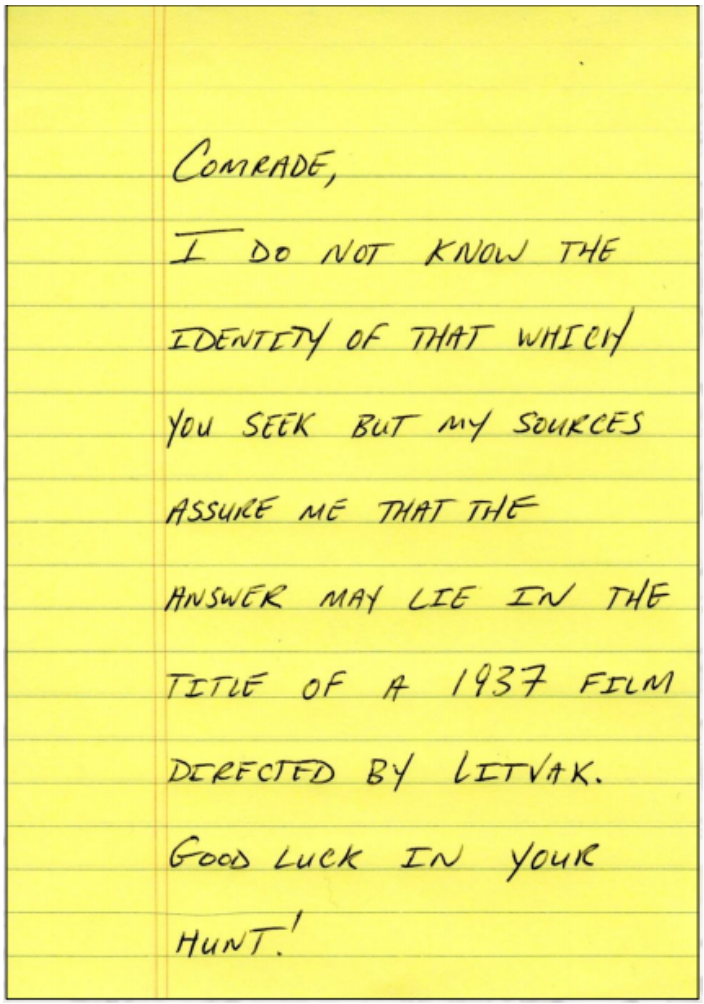
Ground Truth v2 (gap filling + manual placement)



Ground Truth v3 (gap shrinking + fine tuning)



Actual Solution



Information Known by Oracle

- For each chad:
  - x-position
  - y-position
  - rotation
  - spin
  - chads to the right that share a large border
  - chads to the right that share a small border
  - letters that appear on chads and ordering of letters
    - cut off characters denoted by ?

Reconstructing the Puzzle

- Became familiar with existing code
- Modified code to run on all valid shreds
- Ran pair-wise cost extraction
  - 2D correlation of edges
  - Gap between pieces
  - Overlap between pieces
  - Line alignment
  - Text alignment
- Built testing software
  - Flawed + a few bugs
    - Results invalid
  - Rebuilding
    - 1 or 2 days
    - Results by end of weekend

Next steps

- Started investigating how to do dictionary validation of shreds
- Results from existing code will provide basis for number of guesses needed to reconstruct puzzle
- Goal of dictionary validation: reduce number of guesses