A Mobile Scanner-OCR System

A stepping stone towards receipt-to-spreadsheet

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Approach

Desktop OCR system work very well when provided with high quality scanned document images. This inspired the following two steps approach

1. Build a “robust” mobile scanning pipeline
2. Feed the result to an OCR system
Challenges

Camera orientation

Document quality

Background color
Evaluation Procedure

Dataset

Metric
Average cosine distance between output of OCR on mobile scanned image and original text.
Mobile Scanner Algorithm

1. Gaussian Blur and Sharpening
2. Edge Detection (Canny)
3. Adaptive Thresholding
4. Warping
5. Largest quadrilateral
Mobile Scanner Robustness

Two parameters determine robustness.

Size of gaussian blur. Impacts robustness against noisy background for edge detection.

Sharpening. Necessary when background is bright.
Two parameters determine the quality of the OCR result

**Window size** in adaptive thresholding

**Threshold** in adaptive thresholding (when average brightness is below the threshold, the whole region is assumed to be white).
Results

Influence of Window Size

Influence of threshold
Conclusion & Future

System is robust against background types
Pictures should be taken from above for better quality
System is robust against document quality

Future work:
1. Implement specific text processing algorithm to convert receipt into a spreadsheet
2. Migrate code to mobile phone.