

Mobile Visual Text Translator

Qiaojing Yan, Wei Wang

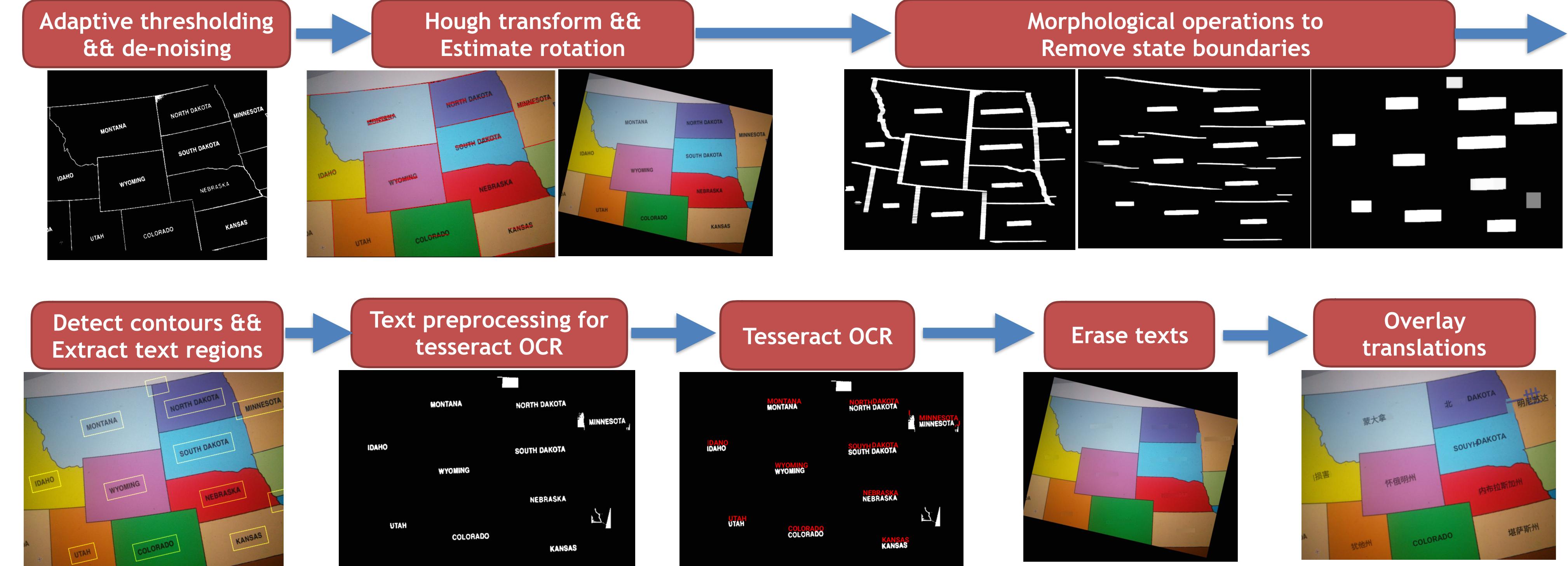
Department of Electrical Engineering, Stanford University

Motivation

When a user needs to know the meaning of a segment of text in another language, he usually needs to manually search a dictionary or translation engine. We built an Android app that automatically recognizes texts in simple plain images such as book, sign, and map and overlays the translated text on top of the original one, while preserving information such as location, color, font size, etc. This relieves users' burdens of searching word one at a time. We believe this app would be useful for foreign visitors and foreign language learners.



Pipeline



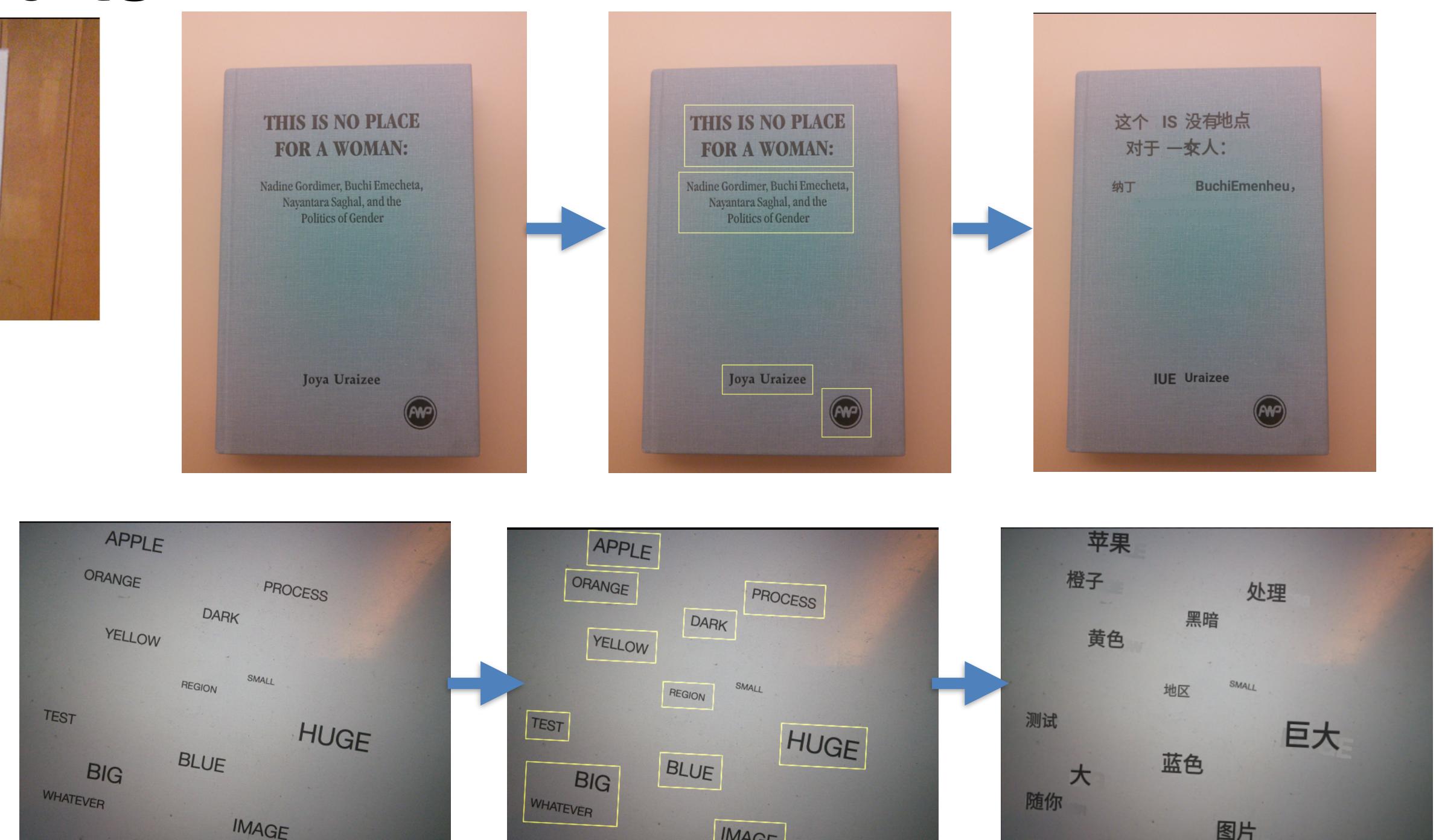
Experimental Results



Accuracy (10 images each with ~10 words)

Text detection: 89.3%

Tesseract OCR on successful detections: 71.6%



Future Work

- Real time detection**
Currently our work uses Java, Tesseract OCR and Google online translator. The processing speed is not promising. In the future we can integrate all the modules in C and with local dictionary to achieve real time detections.
- Natural image processing**
Currently our work requires relatively simple plain image as input for text detection. In the future we can adopt more complicated algorithms to support text detection and extraction from natural images (where text is not the main object).
- Translation in context with correction**
Currently we have a relatively low OCR recognition rate compared to the detection rate. A single character error in a word would lead to failure. In the future we can do auto-correction based on MAP of the context.
- More languages support**
Currently we only support English to Chinese translation for display purposes. In the future we can add support for more languages.