**ALGORITHM DESIGN AND SELECTION**

Here is the process we outlined initially…..

/pict

Pre-processing / Segmentation:

* Essentially we used two different methods:
  + Connected Component Based Methods
    - Slow in practice, susceptible to noise
    - [Ohya et al.] J. Ohya, A. Shio, and S. Akamatsu, Recognizing Characters in Scene Images, IEEE Transactions on Pattern Analysis and Machine Intelligence, 16 (2) (1994) 214-224.
    - Binarization with local thresholding, detection with gray-level difference of shapes and sizes
      * Pros
        + Able to extract and recognize chars
        + Good under varying illuminating conditions
      * Cons
        + Susceptible to noise
        + Text alignment is restricted, upright, not connected, monochrome
  + Morphological Approach
    - RGB components form a weighted grayscale
    - Yassin M. Y. Hasan and Lina J. Karam, Morphological Text Extraction from Images, IEEE Transactions on Image Processing, 9 (11) (2000) 1978-1983.
    - Edges are identified using a morphological gradient operator
    - Adaptive thresholding for binary edge image
    - Usage of dilation and erosion to form candidate regions, remove noise
      * Pros
        + Robust to noise, insensitive to skew, text orientation
      * Cons
        + Current implement seems susceptible to illuminating conditions