

Contrast Enhancement using Locally Adaptive Binarization Techniques

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Legibility of historical documents is often a challenging problem to address. Global techniques such as histogram equalization, sharpening, intensity adjustment, and contrast adjustment using a global threshold are often used to improve the perceived quality of images; however, they are often deficient in actually improving document legibility. Recent advances in locally adaptive binarization (Lu, ICDAR 2009; Nina, 2010; Su, 2010) have made significant improvements in segmenting image foreground (text) from image background. Utilizing the results of binarization merged back with the original image, one can darken the foreground (text) and lighten the background, and effectively improve the contrast of the document and consequently reduce the effort required to read the document. This presentation provides a demonstration of these techniques, including the ability for an operator to dynamically adjust some of the parameters in order to afford fine tuning contrast for optimal effect.