Abstract

This paper introduces two hybrid image enhancement methods "Weighted of Local and Bidirectional Smooth Histogram Stretching" (WLBSHS) and "Local then Bidirectional Smooth Histogram Stretching" (LBSHS). Both methods are almost same and based on local and global enhancement. WLBSHS utilizing local and global enhancement in weighted manner, while LBSHS utilizing them in one by one manner. Local enhancement is achieved based on local standard deviation. Main purpose of local enhancement is sharpening edges of object and exploring local details. For global enhancement this proposed a technique, "Bidirectional Smooth Histogram Stretching" (BSHS). Under BSHS this break histogram in two parts and apply modify forward and backward gamma transform on these parts, with consecutive bin interval control mechanism. Subjective and objective assessments have shown the superiority of our proposed method over existing methods.
Image Enhancement using Edge Sharpening and Bidirectional Smooth Histogram Stretching


Index Terms

Computer Science
Image Processing

Keywords
local standard deviation (LSD)
histogram partition
gamma transform
bidirectional histogram stretching