No-reference Blur Estimation Based on the Average Cone Ratio in the Wavelet Domain

Ljiljana Platiša, Aleksandra Pižurica, Ewout Vansteenkiste, Wilfried Philips

Ghent University, Department of Telecommunications and Information Processing
TELIN-IPI-IBBT, St-Pietersnieuwstraat 41, B-9000 Ghent, Belgium

ABSTRACT

We propose a wavelet based metric of blurriness in the digital images named CogACR – Center of gravity of the Average Cone Ratio. The metric is highly robust to noise and able to distinguish between a great range of blurriness. To automate the CogACR estimation of blur in a no-reference scenario, we introduce a novel method for image classification based on edge content similarity. Our results indicate high accuracy of the CogACR metric for a range of natural scene images distorted with the out-of-focus blur. Within the considered range of blur radius of 0 to 10 pixels, varied in steps of 0.25 pixels, the proposed metric estimates the blur radius with an absolute error of up to 1 pixel in 80 to 90% of the images.