

Tchebichef moment based restoration of Gaussian blurred images

Ahmad Kumar, Raveendran Paramesran, Chern-Loon Lim, and Sarat C. Dass

Applied Optics Vol. 55, Issue 32 (/ao/issue.cfm?volume=55&issue=32), pp. 9006-9016 (2016) • <https://doi.org/10.1364/AO.55.009006> (<https://doi.org/10.1364/AO.55.009006>)

✉ “,” (viewmedia.cfm?uri=ao-55-32-9006&seq=0) (!) (/user/favorites_add_article.cfm?articles=353557)

Not Accessible
Your account may give you access

- Abstract
- Full Article (viewmedia.cfm?uri=ao-55-32-9006&seq=0&html=true)
- Figures (15)
- Tables (7)
- Equations (19)
- References (45)
- Cited By
- Metrics
- Back to Top
- Get PDF (viewmedia.cfm?uri=ao-55-32-9006&seq=0)

Abstract

With the knowledge of how edges vary in the presence of a Gaussian blur, a method that uses low-order Tchebichef moments is proposed to estimate the blur parameters: sigma (σ) and size (w). The difference between the Tchebichef moments of the original and the reblurred images is used as feature vectors to train an extreme learning machine for estimating the blur parameters (σ, w). The effectiveness of the proposed method to estimate the blur parameters is examined using cross-database validation. The estimated blur parameters from the proposed method are used in the split Bregman-based image restoration algorithm. A comparative analysis of the proposed method with three existing methods using all the images from the LIVE database is carried out. The results show that the proposed method in most of the cases performs better than the three existing methods in terms of the visual quality evaluated using the structural similarity index.

© 2016 Optical Society of America

Full Article (viewmedia.cfm?uri=ao-55-32-9006&seq=0&html=true) | PDF Article (viewmedia.cfm?uri=ao-55-32-9006&seq=0)

OSA Recommended Articles

- Intelligent estimation of noise and blur variances using ANN for the restoration of ultrasound images (/ao/abstract.cfm?uri=ao-55-32-9005)**
 Muhammad Shahin Uddin, Kalyan Kumar Halder, Murat Tahtali, Andrew J. Lambert, Mark R. Pickering, Margaret Marchese, and Iain Stuart
Appl. Opt. 55(31) 8905-8915 (2016)
- Selection of regularization parameter in total variation image restoration (/josaa/abstract.cfm?uri=josaa-26-11-2311)**
 Haiyong Liao, Fang Li, and Michael K. Ng
J. Opt. Soc. Am. A 26(11) 2311-2320 (2009)
- Multiframe blind deconvolution of heavily blurred astronomical images (/ao/abstract.cfm?uri=ao-45-28-7342)**
 Yulia V. Zhulina
Appl. Opt. 45(28) 7342-7352 (2006)

More Recommended Articles