Abstract

This paper presents a thorough study of different types of entropies. Application and comparison of various entropies have been considered with their effectiveness and suitability in different applications being explored. The usage of entropy in the fields of image thresholding, image reconstruction, image segmentation, and incorporation of entropy in tackling real life problems have been mentioned categorically. A comparative analysis of different forms of entropy accordingly to their suitability for various applications has been discussed.

References

- Pun, T. 1980 A new method for grey-level picture thresholding using the entropy of the histogram.
picture thresholding using the entropy of the histogram.
- Sahoo, P., Wilkins, C., and Yeager, J. 1997 Threshold selection using Renyi’s entropy.
- Jianwei Wang Eliza Yingzi Du Chein-I Chang. Relative entropy-based methods for image thresholding. 0-7803-7448-7/02/$17.00 ©2002 IEEE
- Prasanna K. Sahooa; Gurdial Arora. 2003 A thresholding method based on two-dimensional Renyi’s entropy.
- M. Portes de Albuquerque a,*, I. A. Esquef b, A. R. Gesualdi Mello a, M. Portes de Albuquerque. 2004 Image thresholding using Tsallis entropy.
- Nathan R. Beane James S. Rentch Thomas M. Schuler. 2013 Using maximum entropy modeling to identify and prioritize red spruce forest habitat in West Virginia.
- Tomasz Maszczyk and W_lodzis_law Duch. Comparison of Shannon, Renyi and Tsallis Entropy used in Decision Trees&quote;, Department of Informatics, Nicolaus Copernicus University Grudzi¸adzka 5, 87-100 Toru´n, Poland.
- Guo Jing, Chng Eng Siong and Deepu Rajan. Foreground motion detection by difference-based spatial temporal entropy image. School of Computer Engineering Nanyang Technological University, Singapore 639798 fguoj0005, aseschng, asdrajan g@ntu. edu. sg
- Dominikus Noll 1997, Restoration of degraded images with maximum entropy.
method—solution to missing short-baseline problem.

- Fotinos, George Economou and Spiros Fotopoulos. Using the relative entropy as a color edge detector. University of Patras, Patras 26100, Greece. E-mail: spiros@physics.upatras.gr.

- Dr. (Mrs.) R. Sukanesh, R. Harikumar, N. S. Balaji and S. R. Balasubramaniam, 2007. Analysis of Image Compression by Minimum Relative Entropy (MRE) and Restoration through Weighted Region Growing Techniques for Medical Images.


- Jan Urban, Jan Vaneek, and Dalibor Stys. Preprocessing of microscopy images via Shannon’s entropy, Department of Bioengineering, Institute of Physical Biology, University of South Bohemia, Za’mek 136, Nove´ Hrady, 37333, Czech republic urban@ufb.jcu.cz.

Index Terms

Computer Science  Information Sciences

Keywords

Entropy  computer vision  thresholding  segmentation  restoration  registration