

Image Texture Feature Extraction Using GLCM Approach

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Abstract- Feature Extraction is a method of capturing visual content of images for indexing & retrieval. Primitive or low level image features can be either general features, such as extraction of color, texture and shape or domain specific features. This paper presents an application of gray level co-occurrence matrix (GLCM) to extract second order statistical texture features for motion estimation of images. The Four features namely, Angular Second Moment, Correlation, Inverse Difference Moment, and Entropy are computed using Xilinx FPGA. The results show that these texture features have high discrimination accuracy, requires less computation time and hence efficiently used for real time Pattern recognition applications.

Index Terms- Texture, Pattern recognition, Features, Frames.

I. INTRODUCTION

Feature extraction involves simplifying the amount of resources required to describe a large set of data accurately. When performing analysis of complex data one of the major problems stems from the number of variables involved. Analysis with a large number of variables generally requires a large amount of memory and computation power or a classification algorithm which over fits the training sample and generalizes poorly to new samples. Feature extraction is a general term for methods of constructing combinations of the variables to get around these problems while still describing the data with sufficient accuracy. Texture tactile or visual characteristic of a surface. Texture analysis aims in finding a unique way of representing the underlying characteristics of textures and represent them in some simpler but unique form, so that they can be used for robust, accurate classification and segmentation of objects. Though texture plays a significant role in image analysis and pattern recognition, only a few architectures implement on-board textural feature extraction. In this paper, Gray level co-occurrence matrix is formulated to obtain statistical texture features. A number of texture features may be extracted from the GLCM. Only four second order features namely angular second moment, correlation, inverse difference moment, and entropy are computed. These four measures provide high discrimination accuracy required for motion picture estimation. These features are calculated and implemented using Xilinx ISE 13.4.

II. EXTRACTION OF GLCM

In statistical texture analysis, texture features are computed from the statistical distribution of observed combinations of intensities at specified positions relative to each other in the image. According to the number of intensity points (pixels) in each combination, statistics are classified into first-order, second-order and higher-order statistics. The Gray

Level Coocurrence Matrix (GLCM) method is a way of extracting second order statistical texture features.

The approach has been used in a number of applications. Third and higher order textures consider the relationships among three or more pixels. These are theoretically possible but not commonly implemented due to calculation time and interpretation difficulty.

A GLCM is a matrix where the number of rows and columns is equal to the number of gray levels, G , in the image. The matrix element $P(i, j | \Delta x, \Delta y)$ is the relative frequency with which two pixels, separated by a pixel distance $(\Delta x, \Delta y)$, occur within a given neighborhood, one with intensity 'i' and the other with intensity 'j'. The matrix element $P(i, j | d, \theta)$ contains the second order statistical probability values for changes between gray levels 'i' and 'j' at a particular displacement distance d and at a particular angle (θ) . Using a large number of intensity levels G implies storing a lot of temporary data, i.e. a $G \times G$ matrix for each combination of $(\Delta x, \Delta y)$ or (d, θ) . Due to their large dimensionality, the GLCM's are very sensitive to the size of the texture samples on which they are estimated. Thus, the number of gray levels is often reduced. GLCM matrix formulation can be explained with the example illustrated in fig 2.1 for four different gray levels. Here one pixel offset is used (a reference pixel and its immediate neighbour). If the window is large enough, using a larger offset is possible. The top left cell will be filled with the number of times the combination 0,0 occurs, i.e. how many times within the image area a pixel with grey level 0 (neighbour pixel) falls to the right of another pixel with grey level 0(reference pixel).

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Artificial Intelligence and Knowledge Processing Hemachandran K, Raul Villamarin Rodriguez, Manjeet Rege, Abejide Ade-Ibijola, Kok-Leong Ong, Vincenzo Piuri, 2024-12-26 This book constitutes the 4th International Conference on Artificial Intelligence and Knowledge Processing AIKP 2024 held in Johannesburg Business School Johannesburg South Africa during August 22-24 2024 The 18 full papers included in this book were carefully reviewed and selected from 76 submissions This AIKP 2024 topics covered in these proceedings including machine learning natural language processing computer vision robotics data mining quantum AI and cognitive computing

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Applied Information and Digital Image Technologies, Control and Power Engineering R. Edwin Raj, M. Marsaline Beno, M. Carolin Mabel, 2014-08-28 Selected peer reviewed papers from the International Conference on Energy Efficient Technologies for Sustainability ICEETS 14 April 7 9 2014 Tamil Nadu India

IEEE International Geoscience and Remote Sensing Symposium Proceedings ,2003 **Storage and Retrieval for Image and Video Databases VII** Minerva Ming-Yee Yeung, Boon-Lock Yeo, Charles Addison Bouman, Society of Photo-optical Instrumentation Engineers, 1998 A collection of 69 papers which were presented at the IS multimedia management and retrieval systems video retrieval and image browsing

Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery ,2004 *IGARSS 2002* ,2002 *Pattern Recognition and Image Analysis* ,2005 **Proceedings for the Twenty-sixth International Symposium on Remote Sensing of Environment** ,1996 *Optical Engineering* ,2003 Publishes papers reporting on research and development in optical science and engineering and the practical applications of known optical science engineering and technology

Classification Methods for Remotely Sensed Data, Second Edition Brandt Tso, Paul Mather, 2009-05-12 Keeping abreast of new developments this new edition provides a comprehensive and up to date review of the entire field of classification methods applied to remotely sensed data It provides seven fully revised chapters and two new chapters covering support vector machines SVM and decision trees

Textured Image Analysis Ying-Chia Jau, 1986 *SPE Reservoir Evaluation & Engineering* ,1998 **IEEE 1983 Computer Vision and Pattern Recognition** ,1983 IGARSS 2004 ,2004 **Journal of Zhejiang University** ,2007

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