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( 1 )  
DETECTION OF LINES IN IMAGES BY CURVE FITTING  
USING HOUGH TRANSFORM

A.A.Sewisy

### Abstract:

**ABSTRACT** This paper a new proposes Algorithm to overcome the drawbacks of the generalized Hough transform, namely its computational complexity and storage requirement. For decreasing the Computation time, the algorithm performs the Hough transform by (1) decomposing an image into small blocks, (2) estimating line parameters through least-squares line fitting for each block, and (3) removing detected lines while performing the Hough transform for the remaining blocks. For reducing the memory storage, the proposed algorithm utilizes a data structure, list to represent accumulators. The method significantly reduces the computational complexity and storage required to evaluate all possible parameters without using a accumulator array. Experimental results are given to show the correctness and effectiveness of the proposed method.

### Keywords:

Hough transforms; Line detection; Line fitting; Segmenting image; Accumulator space

### Published In:

International Review on Computers and Software , ,



( 2 )

## A gene selection approach for classifying diseases based on microarray datasets

Taysir Hassan A. Soliman, Adel A. Sewissy, and Hisham Abdel Latif

### Abstract:

Gene Selection is very important problem in the classification of serious diseases in clinical information systems. A limitation of these gene selection methods is that they may result in gene sets with some redundancy and yield an unnecessary large number of candidate genes for classification analysis. In the current work, a hybrid approach is presented in order to classify diseases, such as colon cancer, leukemia, and liver cancer, based on informative genes. This hybrid approach uses clustering (K-means) with statistical analysis (ANOVA) as a preprocessing step for gene selection and Support Vector Machines (SVM) to classify diseases related to microarray experiments. To compare the performance of the proposed methodology, two kinds of comparisons were achieved: 1) applying statistical analysis combined with clustering algorithm (K-means) as a preprocessing step and 2) comparing different classification algorithms: decision tree (ID3), naïve bayes, adaptive naïve bayes, and support vector machines. In case of combining clustering with statistical analysis, much better classification accuracy is given of 97% rather than without applying clustering in the preprocessing phase. In addition, SVM had proven better accuracy than decision trees, Naïve Bayes, and Adaptive Naïve Bayes classification.

### Keywords:

ANOVA test , Classification , Clustering , Feature Selection , Gene Selection , Microarray data

### Published In:

Computer Technology and Development (ICCTD), 2010 2nd International Conference on , , pp.626- 631



( 3 )

## Augmented Dressed Body System Controlled By Motion Capture Data

Khaled F. Hussain, Adel A. Sewisy and Islam T. El-Gendy

### Abstract:

Abstract Augmenting deformable surfaces like cloth and body in real video is a challenging task. This paper presents a system for cloth and body augmentation in a single-view video. The system allows users to change their cloth either by changing the color, the texture, or the whole cloth. It augments the user with virtual clothes. As a result, users can enjoy changing their cloth with any other cloth they want. As a prerequisite, the user needs to wear a special suit and enters through our motion capture system that captures the movements of the user. From the captured data, an animated 3D character model is created, which will serve as the new body. The model is rendered with the new cloth but without the head. We extract the real face of the user and place it on the virtual model. This system can be used in film production and advertisement.

### Keywords:

Camera registration, Cloth simulation, Color transfer, Matting, Motion capture system, Segmentation, Video editing

### Published In:

International Journal of Computing Academic Research (IJCAR) , Volume 2, Number 1 , pp. 1-13



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Adel A. Sewisy

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**ABSTRACT** This paper a new proposes Algorithm to overcome the drawbacks of the generalized Hough transform, namely its computational complexity and storage requirement. For decreasing the Computation time, the algorithm performs the Hough transform by (1) decomposing an image into small blocks, (2) estimating line parameters through least-squares line fitting for each block, and (3) removing detected lines while performing the Hough transform for the remaining blocks. For reducing the memory storage, the proposed algorithm utilizes a data structure, list to represent accumulators. The method significantly reduces the computational complexity and storage required to evaluate all possible parameters without using a accumulator array. Experimental results are given to show the correctness and effectiveness of the proposed method.

**Keywords:**

Hough transforms; Line detection; Line fitting; Segmenting image; Accumulator space

**Published In:**

Proceedings of the 37th International Conference on Computers and Industrial Engineering , ,



( 5 )

## Detection ellipses by finding lines of symmetry in the images via an hough transform applied to straight lines

Adel A Sewisy and Franz Leberl

### Abstract:

Abstract. Through the use of a global geometric symmetry, detection ellipses are proposed in this paper. Based on the geometric symmetry, the proposed method first locates candidates of ellipses centers. In the meantime, according to these candidate centers, all feature points in an input image are grouped into several sub images. Then, for each sub image, by using geometric properties again, all ellipses are extracted. The method significantly reduces the time required to evaluate all possible parameters without using edge direction information. Experimental results are given to show the correctness and effectiveness of the proposed method.

### Published In:

Image and Vision Computing , Volume 19, Issue 12 , Pages 857-866



( 6 )

## Fast Efficient Clustering Algorithm for Balanced Data

Adel A. Sewisy , M. H. Marghny , Rasha M. Abd ElAziz , Ahmed I. Taloba

### Abstract:

The Cluster analysis is a major technique for statistical analysis, machine learning, pattern recognition, data mining, image analysis and bioinformatics. K-means algorithm is one of the most important clustering algorithms. However, the k-means algorithm needs a large amount of computational time for handling large data sets. In this paper, we developed more efficient clustering algorithm to overcome this deficiency named Fast Balanced k-means (FBK-means). This algorithm is not only yields the best clustering results as in the k-means algorithm but also requires less computational time. The algorithm is working well in the case of balanced data.

### Keywords:

Clustering; K-means algorithm; Bee algorithm; GA algorithm; FBK-means algorithm

### Published In:

International Journal of Advanced Computer Science & Applications , Vol. 5 - No. 6 , pp 123-129



( 7 )

## Query Processing in Ontology Based Data Access

Majid Askar, Alsayed Algergawy, Taysir Soliman, Birgitta König-Ries, Adel Sewisy

### Abstract:

NULL

### Keywords:

NULL

### Published In:

10th International Conference on Ecological Informatics-Translating Ecological Data into Knowledge and Decisions in a Rapidly Changing World , NULL , NULL