2D Euclidean Distance Transform Algorithms: A Comparative Survey
The ... maps each image pixel into its smallest distance to regions of interest [Rosenfeld and Pfaltz 1966].
The efficient and sequential EDT algorithms can be classified in terms of the order in which...
A bayesian approach to skin color classification in YCBCR color space
The study on ... has gained increasing attention in recent years due to the active...
Previous studies have found that pixels belonging to skin region exhibit..
A Computational Approach to Edge detection
... detectors of some kind, particularly step ... , have been an essential part of many computer vision systems. The ... process serves to simplify the analysis of images by drastically reducing the amount of data to be processed
In two dimensions it was shown that marking . . . points at maxima of gradient magnitude in the gradient direction is equivalent to finding zero-crossings of a certain nonlinear differential
A graph-based approach for multiscale shape analysis
This paper presents two shape descriptors, multiscale...
The location and the influence are of the...
This paper has presented two effective shape descriptors...
A Syntactic Approach to Scale-Space-Based Corner Description
Planar curves are described by information about corners integrated over various levels of
The last appearance (moving from the bottom to the top) of a corner in the pyramid gives information about the scope of the curvature....
A multiresolution description of planar curves using corners and the curve pyramid has been presented.
An efficient earth movers distance algorithm for robust histogram comparison
We propose EMD-La fast and exact algorithm for computing the ... (EMD) ...
We empirically show that this new algorithm has an average time complexits of O(N), which...
Application of planar shape comparison to object retrieval in image database
A shape similarity measure useful for shape-based...,
A similarity measure for silhouettes of 2D objects is presented, and its properties are analyzed with respect to …
When comparing shapes in image databases we have to deal not,
In computer vision there is a long history of work on shape representation
Approximate graph edit distance computation by means of bipartite graph matching
Simultaneously, ... emerged as a powerful and flexible graph matching paradigm that can be used to address..
...refers to the process of evaluating the structural similarity of graphs. A large number of...
Automatic Estimation and Removal of Noise from a Single Image
The Image is partitioned into piecewise smooth...
Image denoising algorithms often assume an...
Biometrics: A Grand Challenge
A Practical system does not make....
Reliable person identification is an important....
Clustering of video objects by graph matching
For a given video, each frame is segmented into a number of regions using region segmentation technique
In this work we propose a new graph-based data structure, . . . representing spatial and temporal relationships among objects in a video. After an
Collaboration between statistical and structural approaches for old handwritten character recognition
Statistical methods are classical in pattern recognition...
From a general point of view, the structural classification...
Color image segmentation based on homogram thresholding and region merging
In this paper, a color image segmentation....
In most of the existing color image segmentation approaches....
Compressed vertex chain codes
This paper introduces three new vertex chain codes. Firstly, considering that the vertex
The main reason for the popularity of ... is its memory compactness. ... can be viewed as a connected sequence of straight- line
Computing the shape of planer points set
In this article, we introduce...
Edelsbrunner et al. [10]...
Contrast enhancement using brightness preserving bi-histogram equalizations
... is widely used for contrast enhancement in a variety of applications due to its simple...
Another example which shows the limitation of the ... is illustrated in Fig. 4, where the first...
Corner detection and curve segmentation by multiresolution chain-code linking
A curce pyramid...
In this paper, a new methode...
In this paper, we propose
Curve parameterization by Moments
We present a method for deriving...
Major differences between the moment approach to...

Interest in computing parametric descriptions...
Descriptor Learning for Efficient Retrieval
Many visual search and matching systems represent images using sparse set of,
Whilst being ostensibly similar to textual words
To achieve this, we learn a non-linear transformation model by minimizing a novel
Dissimilarity between two skeletal trees in a context
Typically, the geometric...
Skeletal trees are commonly...
We test our constructions
Document image analysis: A primer
Segmentation occurs on two levels...
Data in a paper document are usually captured by optical scanning...
For gray-scale images with information that is inherently binary such...
Edge detection improvement by ant colony optimization
... is a technique for marking sharp intensity changes, and is important in further analyzing image content.
... is efficient in solving tree-like problems. Furthermore, the constructive steps of each ...
Efficient region segmentation on compressed gray images using quadtree and shading representation
Suppose the input gray image...
Before presenting our proposed region-segmentation...
Extended Hough transform for linear feature detection
Improving the accuracy of line segment detection reduces the complexity of subsequent,
We detected short line segments with both approaches and compared their results
Face Detection in Color Images
Based on novel lighting compensation technique and a...
The color of mouth region contains stronger red...
Fast algorithm for generation of moment invariants
Moment invariants are important shape descriptors in computer vision...
Fast template matching algorithm for contour images based on its chain coded description applied for human identification
As mentioned in the Introduction, the chain coded description is very useful to speed up matching…
…In our … face authentication system, the isodensity....
Feature selection based on the traing set manipulation
Feature weighting procedures rank features...
The method exploits the information...
Fingerprint Image Reconstruction from Standard Templates
A minutiae-based template is a very compact representation of a fingerprint
The global characteristics of the ridge pattern may be described by the orientation image
Flycather: Fusion and Gaze with Hierarchical Image Segmentation for Robust Object Detection
The second stage of the algorithm performs graph contraction of the previously found,
The hierarchical segmentations algorithm … produces from an image and seed
In assistive systems designed to aid...
From image analysis to computer vision: Motives...
Any linear property of an image is a weigghted sum of its pixel values...,
Image parts of known shapes can also be detected by template matching,
Unfortunately, most vision problem, even those that were first tackled
Generic Model Abstraction from Examples
The recognition community has typically avoided bridging the...
It is important to note that in bringing the model closer to the image...
Hierarchic Voronoi skelletons
Characteristically, many attempts to implement Blum's...
Robust and time-efficient skelletonization of a (planar) shape,...
Image Analysis Using Mathematical Morphology
Dilation by disk structuring elements correspond to isotropic swelling or expansion algorithms common to binary image processing
For the purposes of object or defect identification required in industrial vision applications, the operations of mathematical morphology are more useful than the convolution operations employed in signal processing because the morphological operators relate directly to shape
In practice, dilations and erosions are usually employed in pairs, either dilation of an image followed by the erosion of the dilated result
Image segmentation evaluation: A survey of unsupervised methods
... is an important processing step in many image, video and computer vision applications. Extensive research...
The class of unsupervised objective evaluation methods is the only class of evaluation methods to offer ...
Image Transformations and Blurring
Since camera blur the incoming light during measurement, different images of the same surface do not contain the same information about that surface...
This paper introduced the formalism of the ideal image, consisting of the unblurred incoming light, and the real image,

consisting of the blurred measured image.

Increasing the discriminative power of the co-occurence matrix-based features

Haradlicks coefficients are usually calculated from the average co-...

Nonetheless the fact that the approach...

Laplacian Operator-Based Edge Detectors

operator [8] is a second derivative operator that is...

The … operator-based edge detectors localize,

This edge-matching filter should also

Measuring the orientability of Shapes

An orientability measure determines how orientable a shape is...

Elongation consider the covariance matrix...

Object detection by global contour shape

However, local appearance...

We present a method...

Old and new straight-line detectors: Description and comparison

...is important in several fields such as robotics, remote sensing, and imagery. The obiective of this paper is to present several methods,.. We begin by reviewing the standard Hough (RHT),...,

An image I is described by the Cartesian coordinates of its points. We denote by H the parameter space...

On Sampling Theorem, Wavelets, and Wavelet Transforms

The classical ... has resulted in many applications and generalizations. From a...

For a signal not necessarily in multiresolution spaces, the ... may not be true.

Parametric estimation of affine deformations of planer shapes

We consider the estimation of affine transformations...

Several techniques have been proposed to address the affine...

People Detection by Boosting Features in Nonlinear Subspace

The method is an extension of the ... data structure described in [25]. The ... holds at the point (x, y) in the image the sum of all the pixels contained in the rectangular region defined by the top-left corner of the image and the point

Perceptually relevant and piecewise linear mathing of silhouttes

Global or statistical approaches, such as...

Pictorial structures for object recognition

. . . can be used to represent quite generic objects. For example, the appearance models for the individual parts

Research in object recognition is increasingly concerned with the ability to recognize generic classes of objects rather than just specific instances

Regions adjacency graph applied to color image segmentation

This paper presents different algorithms, based on a combination of two structures of a graph and of two color image processing

One of the advantages of the ... is that they provide a "spatial view" of the image

These three conditions determine the good arrangement of vertices in sets of nearly similar vertices, that implies also regions underlying of vertices

Review of shape representation and description techniques

More and more images have been generated...

Syntactic analysis is inspired...

Zhang and Lu have tested geometric moment invariants...

The extraction of convex hull can be a...

For example, in case of thick hand-drawn...,

We have been developing a Theory for the generic representation

Rigid Shape Matching by Segmentation Averaging

We use segmentations to match images by shape. The new matching technique does not require point-to-point edge correspondence and is robust to small shape variations and spatial shifts...

The shape of an object (as conveyed by edge curves) is among its most distinctive features.Though a category of objects can vary greatly in appearance as the ...

Robust distributed multi-view video compression for wireless camera networks

We propose a novel method of exploiting inter-view correlation

PRISM multi-camera

However, we have to be careful in taking are of the dependencies in decoding.

Robust Fragments-based Tracking using the Integral Histogram

A second issue, inherent in the use of . . . , is the loss of spatial information. This issue has been addressed by several works. In

The method is an extension of the ... data structure described in [25]. The ... holds at the point (x, y) in the image the sum of all the pixels contained

Robust Image Segmentation Using Resampling and Shape Constraints

Automated segmentation of images...

Robust threshold estimation for images with unimodal histograms

This article introduces a method to determine in a robust manner the threshold in highly noisy gradient images. To enhance the robustness,...

To achieve these objectives, a novel minimization criterion is proposed. It consists of the minimization of the error between the descending slope of the histogram and its piecewise linear regression....

Seam Carving for Content-Aware Image Resizing

This operator can be used for a variety of image manipulation...,
Effective resizing of images should not only use geometri constraints,
Formally, let I be an NxM image and define a vertical

Shock Graphs and Shape Matching

We have been developting a theory for the generic representation of 2D shape,
Upon entering a room, one first notice the presence of a particular object

Sketched Symbol Recognition using Zemike Moments

In this paper, we present an on-line....
Zemike Moments are not invariant...

Statistical Pattern Recognition: A Review

The design of a pattern recognition system essentially,
Invariant pattern recognition is desirable in many applications

The JPEG 2000 Still Image Compression Standard

The … standard has been in use for almost a decade now.
Lossless and lossy compression: It is desired to provide lossless compression naturally in the course of progressive decoding

Three-dimensional Euclidean distance transformation and its application to shortest path planning

In this paper, we present a novel method to obtain the three-dimensional Euclidean distance...
Assume that an arbitrarily-shaped object moves from a starting point to a destination...

Thresholding based on variance and intensity contrast

A new ... criterion is formulated for segmenting small objects by
The Otsu method [10] uses within-class variance for image segmentation and works well

Transactions on Pattern Analysis and Machine Intelligence

Planar curves are described by information about

Unsupervised Object Segmentation with a Hybrid Graph Model (HGM)

In a .., the symmetric relationship is represented by undirected edges, while the asymmetric relationship is represented by dilected edges...
The vertices of a ... represent the samples, e.g., superpixels of an image. The vertices are connected by directed edges and/or undirected ones.

Watershed segmentation using prior shape and appearance knowledge

... transformation is a common technique for image segmentation. However, its use for automatic medical image segmentation has been limited particularly due to oversegmentation and sensitivity to noise.
… is a common technique for image segmentation. However, its
... has increasingly been recognized as a powerful segmentation