

#### **2D Euclidean Distance Transform Algorithms: A Comparative Survey**

- 1: „The ... maps each image pixel into its smallest distance to regions of interest [Rosenfeld and Pfaltz 1966].“
- 2: „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**

- 1: „The study on ... has gained increasing attention in recent years due to the active...“
- 2: „Previous studies have found that pixels belonging to skin region exhibit..“

#### **A graph-based approach for multiscale shape analysis**

- 1: „This paper presents two shape descriptors, multiscale...“
- 2: „The location and the influence are of the...“
- 3: „This paper has presented two effective shape descriptors...“

#### **A Syntactic Approach to Scale-Space-Based Corner Description**

- 1: "Planar curves are described by information about corners integrated over various levels of"
- 2: "The last appearance (moving from the bottom to the top) of a corner in the pyramid gives information about the scope of the curvature...."
- 3: "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**

- 1: „We propose EMD-L1: a fast and exact algorithm for computing the ... (EMD) ...“
- 2: "We empirically show that this new algorithm has an average time complexits of  $O(N)$ , which...“

#### **Application of planar shape comparison to object retrieval database**

- 1: "When comparing shapes in image databases we have to deal not"
- 2: "In computer vision there is a long history of work on shape representation"
- 3: "A similarity measure for silhouettes of 2D objects is presented, and its properties are analyzed with respect.."
- (4: „A shape similarity measure useful for shape-based retrieval in image“) -> google sagt: Shape Similarity Measure Based on Correspondence of Visual Parts

#### **Approximate graph edit distance computation by means of bipartite graph matching**

- 1: „Simultaneously, ... emerged as a powerful and flexible graph matching paradigm that can be used to address..“
- 2: „...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**

- 1: „The Image is partitioned into piecewise smooth...“
- ((2: „Image denoising algorithms often assume an...“))

#### **Biometrics: A Grand Challenge**

- 1: "A Practical system does not make...."
- 2: „Reliable person identification is an important....“

#### **Collaboration between statistical and structural approaches for old handwritten character recognition**

- 1: „Statistical methods are classical in pattern recognition...“
- 2: „From a general point of view, the structural classification...“

#### **Color image segmentation based on homogram thresholding and region merging**

- 1: „In this paper, a color image segmentation....“
- 2: „In most of the existing color image segmentation approaches....“

#### **Compressed vertex chain codes**

- 1: This paper introduces three new vertex chain codes. Firstly, considering that the vertex
- 2: 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**

- 1: „In this article, we introduce...“
- 2: „Edelsbrunner et al. [10]...“

#### **Contrast enhancement using brightness preserving bi-histogram equalizations**

- 1: „... is widely used for contrast enhancement in a variety of applications due to its simple...“
- 2: „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**

- 1: „A curce pyramid and an image pyramid are built in a similar way.“
- 2: „In this paper, a new method has been introduced for characterisation of “
- 3: „In this paper, we propose a new method to characterise a curve by “

(4: The combination of these three components- stabilisation process, corrections of crossed links and selective propagations)

#### **Curve parameterization by Moments**

- 1: "We present a method for deriving a parametric description of a conic section (quadratic curve) in "
- 2: „Major differences exist between the moment approach to curve parameterization and “
- 3: „Interest in computing parametric descriptions of lines and conics in images has been rekindled by“

#### **Descriptor Learning for Efficient Retrieval**

- 1: "Many visual search and matching systems represent images using sparse set of",
- 2: "Whilst being ostensibly similar to textual words"
- 3: To achieve this, we learn a non-linear transformation model by minimizing a novel

#### **Dissimilarity between two skeletal trees in a context**

- 1: „Typically, the geometric similarity between two shapes is a measure of how well“
- 2: „Skeletal trees are commonly used in order to express geometric properties of the shape.“
- 3: „We test our constructions on a shape retrieval problem by performing two “

#### **Document image analysis: A primer**

- 1: „Segmentation occurs on two levels. On the first level, if the document contains both text and graphics, “
- 2: „Data in a paper document are usually captured by optical scanning...“
- 3: „For gray-scale images with information that is inherently binary such...“

#### **Edge detection improvement by ant colony optimization**

- 1: „... is a technique for marking sharp intensity changes, and is important in further analyzing image content. “
- 2: „... 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**

- 1: „Suppose the input gray image with size NxN has been compressed into the “
- 2: „Before presenting our proposed region-segmentation...“

#### **Extended Hough transform for linear feature detection**

- 1: "Improving the accuracy of line segment detection reduces the complexity of subsequent",
- 2: "We detected short line segments with both approaches and compared their results"

#### **Face Detection in Color Images**

- 1: „Based on novel lighting compensation technique and a...“
- 2: „The color of mouth region contains stronger red...“

#### **Fast algorithm for generation of moment invariants**

- 1: „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**

- 1: „As mentioned in the introduction...“
- 2: „In our face authentication system, the isodensity...“

#### **Feature selection based on the traing set manipulation**

- 1: „Feature weighting procedures rank features...“
- 2: „... The method exploits the information conveyed by the evolution of the training samples “

#### **Fingerprint Image Reconstruction from Standard Templates**

- 1: A minutiae-based template is a very compact representation of a fingerprint
- 2: The global characteristics of the ridge pattern may be described by the orientation image

#### **Flycatcher: Fusion and Gaze with Hierarchical Image Segmentation for Robust Object Detection**

- 1: "The second stage of the algorithm performs graph contraction of the previously found",
- 2: "The hierarchical segmentations algorithm ... produces from an image and seed" à Original ware es "Kropatsch and Haxhimusa's hierarchical segmentation algorithm[12] produces from an image and a seed point P a set of hierarchically related regions" und bezieht sich auf das Paper "Grouping and Segmentation in a Hierarchy of Graphs" von Kropatsch und Haxhimusa
- 3: „In assistive systems designed to aid...“

#### **From image analysis to computer vision: Motives...**

- 1: "Any linear property of an image is a weigghted sum of its pixel values...“
- 2: "Image parts of known shapes can also be detected by template matching",
- 3: "Unfortunately, most vision problem, even those that were first tackled in the 1950's, "

#### **Generic Model Abstraction from Examples**

- 1: „The recognition community has typically avoided bridging the...“

2: „It is important to note that in bringing the model closer to the image...”

#### **Hierarchic Voronoi skeletons**

1: „Characteristically, many attempts to implement Blum's...”

2: „Robust and time-efficient skeletonization of a (planar) shape,...”

#### **Image segmentation evaluation: A survey of unsupervised methods**

1: „... is an important processing step in many image, video and computer vision applications. Extensive research...”

2: „The class of unsupervised objective evaluation methods is the only class of evaluation methods to offer ...”

#### **Image Transformations and Blurring**

1: “Since camera blur the incoming light during measurement, different images of the same surface do not contain the same information about that surface...”

2: „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 discrimination power of the co-occurrence matrix-based features**

1: „Haralicks coefficients are usually calculated from the average co-occurrence matrix “

2: „Nonetheless, the fact that the approach was proposed more than 30 years ago, ”

#### **Laplacian Operator-Based Edge Detectors**

1: “ operator [8] is a second derivative operator that is...”

2:” The ... operator-based edge detectors localize”

3: “This edge-matching filter should also make the value of the output noise variance ”

#### **Measuring the orientability of Shapes**

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

2: Elongation consider the covariance matrix constructed from the second order central

#### **Object detection by global contour shape**

1: „However, local appearance is clearly not the only cue to object detection, “

2: „We present a method for object class detection in images based on global shape.”

#### **Old and new straight-line detectors: Description and comparison**

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

2: “ 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**

1: „The classical ... has resulted in many applications and generalizations. From a...”

2: „For a signal not necessarily in multiresolution spaces, the ... may not be true.”

#### **Parametric estimation of affine deformations of planer shapes**

1: „We consider the estimation of affine transformations...”

2: „Several techniques have been proposed to address the affine...”

#### **Perceptually relevant and piecewise linear matching of silhouettes**

1: „Global or statistical approaches, such as...”

#### **Review of shape representation and description techniques**

1: „More and more images have been generated...”

2: „Syntactic analysis is inspired by the phenomenon that composition of a natural scene is ”

3: „Zhang and Lu have tested geometric moment invariants...”

4: „The extraction of convex hull can be a...”

5: „For example, in case of thick hand-drawn...”

#### **Rigid Shape Matching by Segmentation Averaging**

1: “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...”

2: „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**

1: “We propose a novel method of exploiting inter-view correlation”

2: “PRISM multi-camera”

3: “However, we have to be careful in taking care of the dependencies in decoding.”

#### **Robust Image Segmentation Using Resampling and Shape Constraints**

1: „Automated segmentation of images...“

#### **Robust threshold estimation for images with unimodal histograms**

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

2: “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**

1: „This operator can be used for a variety of image manipulation...“,

2: “Effective resizing of images should not only use geometric constraints”,

3: “Formally, let  $I$  be an  $N \times M$  image and define a vertical seam to be ... FORMEL ...” -> google sagt: Seam Carving for Media Retargeting

#### **Seam Carving for Media Retargeting**

3: “Formally, let  $I$  be an  $N \times M$  image and define a vertical seam to be ... FORMEL ...”

#### **Shape Similarity Measure Based on Correspondence of Visual Parts**

1: „A shape similarity measure useful for shape-based retrieval in image databases “

#### **Shock Graphs and Shape Matching**

1: „We have been developing a theory for the generic representation of 2D shape“

2: “Upon entering a room, one first notice the presence of a particular object”

#### **Sketched Symbol Recognition using Zemike Moments**

1: „In this paper, we present an on-line...“

2: „Zemike Moments are not invariant...“

#### **Statistical Pattern Recognition: A Review**

1: „The design of a pattern recognition system essentially”,

2: “Invariant pattern recognition is desirable in many applications”

#### **The JPEG 2000 Still Image Compression Standard**

1: “ The ... standard has been in use for almost a decade now.”

2: “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**

1: „In this paper, we present a novel method to obtain...“

2: „Assume that an arbitrarily object...“

#### **Thresholding based on variance and intensity contrast**

1: A new ... criterion is formulated for segmenting small objects by

2: The Otsu method [10] uses within-class variance for image segmentation and works well

#### **Transactions on Pattern Analysis and Machine Intelligence**

1: “ Planar curves are described by information about”

#### **Unsupervised Object Segmentation with a Hybrid Graph Model (HGM)**

1: “In a ..., the symmetric relationship is represented by undirected edges, while the asymmetric relationship is represented by directed edges.”

2: “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**

1: “... is a common technique for image segmentation. However, its use for automatic medical image segmentation has been limited particularly due to over segmentation and sensitivity to noise. “

2: “,... has increasingly been recognized as a powerful segmentation“