

Technical Report
SMU-EE-TR-1981-12 ✓
CNR Contract Number N00014-79-C-0494 ✓
June 14, 1981

LEVEL

BS

AD A101827

RESEARCH PROGRESS ON
IMAGE SEGMENTATION*

See 14731

DTIC
ELECTE
JUL 23 1981
C

by

C. H. Chen
Electrical Engineering Department
Southeastern Massachusetts University
North Dartmouth, Massachusetts 02747

DISTRIBUTION STATEMENT A

Approved for public release;
Distribution U limited

*The support of the Statistics and Probability Program of
the Office of Naval Research on this work is gratefully
acknowledged.

DTIC FILE COPY

81 7 22 027

BS

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
	AD-A707 827	
4. TITLE (and Subtitle)	5. TYPE OF REPORT & PERIOD COVERED	
6 Research Progress on Image Segmentation.	9 Technical Report	
7. AUTHOR(s)	6. PERFORMING ORG. REPORT NUMBER	
10 C. H. Chen	14 SMU-EE-TR-81-12	
	8. CONTRACT OR GRANT NUMBER(s)	
	13 NO 0014-79-C-0494	
9. PERFORMING ORGANIZATION NAME AND ADDRESS		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
Electrical Engineering Department Southeastern Massachusetts University North Dartmouth, MA 02747		NR 042-422
11. CONTROLLING OFFICE NAME AND ADDRESS		12. REPORT DATE
Statistics and Probability Program Office of Naval Research, Code 436 Arlington, VA 22217		July 14, 1981
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		13. NUMBER OF PAGES
11 24 JUN 81		12 297
		15. SECURITY CLASS. (of this report)
		UNCLASSIFIED
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report)		
APPROVED FOR PUBLIC RELEASE: DISTRIBUTION UNLIMITED.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
Statistical image segmentation, relational approach to image segmentation, structural-syntactic approach to image segmentation.		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number)		
A survey of recent progress on image segmentation is presented according to statistically based approaches such as the structural methods. Extensive list of literatures on image segmentation is also given.		

DD FORM 1 JAN 73 1473

EDITION OF 1 NOV 65 IS OBSOLETE

N 0101-LP-014-6001

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

407932 101

1..Introduction

Image segmentation in image processing refers to computer oriented techniques that partition the image into meaningful parts or regions. It is a major function of the low level processing in computer vision. A large amount of research efforts has been devoted to this topic in the past ten years while much more progress is expected in the next decade. Several good survey articles on image segmentation have been published. Fu and Mui [1] reviewed three major approaches to image segmentation, namely, the characteristic feature thresholding, edge detection, and region extraction. The paper also provided 97 references.

So far the image-segmentation techniques are application dependent. A priori information about the type of images is essential to a successful segmentation. For the application in cytology, Ranade and Prewitt [2] compared five segmentation algorithms: two of which are histogram based, another two are quadtree based and the remaining one is the relaxation method. Other references include the surveys by Zucker [3], and Rixeman and Arbib [4], which discussed various techniques, and by Kanade [5] which gave a unified view of the segmentation problem. More complete list of references is in the Appendix.

In this brief report, research progress is reviewed according to the statistically based and the non-statistically based approaches to the segmentation. This dichotomy reflects our view that most segmentation problems can be treated as a statistical problem while many others are more suitably treated by the nonstatistical

methods including the relational methods and the syntactic-structural methods. With this view our emphasis is placed on the application independent and task independent aspects of image segmentation.

2. Statistically-Based Image Segmentation

The most familiar statistical image segmentation procedure is by thresholding the gray scale picture. The optimal thresholds can be determined or approximated statistically. The thresholding methods followed by other post-processing procedures such as gap filling, etc. are the most practical approach to image segmentation. The next statistical segmentation approach is via spatial clustering which is considered as an unsupervised pattern classification. Image segmentation can be performed with pixel classification [6-9]. The supervised segmentation generally performs better than the unsupervised segmentation. For the images with additive noise, statistical boundary estimation [10] can provide region extraction. Segmentation can also be considered as an estimation problem [11] in which regions are grown with the aid of estimated parameters. Furthermore, the homogeneity and common characteristics of a region can be tested statistically with, e.g., F-statistic, K-S test, etc.

Although contextral analysis in statistical pattern recognition [12] is difficult, simple statistical-spatial models can be very effective in segmentation. The fundamental limitation of the statistical approaches is that the image information content is not entirely statistical except for the purely random noise image.

Accession For	
NTIS GRA&I	
DTIC TAB	
Unannounced	
Justification	
By	
Distribution/	
Availability Code	
Dist	Special

Even for the textured images for which the statistical models are effective, structural information can be very important. It is necessary to develop a structural model in some images and estimate its parameters with the aid of the statistical methods.

3. Relational Approach to Image Segmentation

In this approach, the nonstatistical relationships are established between segments or regions. The segments can be as small as pixels. The best example of the relational approach is the quadtree structure proposed by Rosenfeld [13]. The region/edge coordination is performed locally so that the noise points which may be present elsewhere in the image have no effect on this coordination. The coordination process is important to the relational approach in general. Semantic information can also be utilized in the relational approach. The relaxation method in image segmentation needs good initial conditions. The region information obtained from analysis of the histogram of the original image can be used to initialize the class membership indices. Such indices can be probabilistic relations to be estimated recursively.

4. Structural-Syntactic Approach

The basic units of structure in images are primitives. Grammatical rules can be established such that the image can be described by a language. This formal approach in structural analysis is called the syntactic approach. In general, any method which exploits the structure of the images is a structural approach.

Detection of curves, lines, etc. is a structural approach that can accomplish image segmentation. In other images such as the acoustic ambiguity function, the inherent functional relation is a structure which is useful in extracting the region of interests. Thus the scope of the structural approach is very broad. Obviously the statistical and the structural approaches should be combined as much as possible to utilize fully the complex informational content of an image so that segmentation can be performed effectively. Major progress on the structural-syntactic approach to image segmentation has been reported recently at the Saratoga Springs Workshop [14]. The fundamental problem is the primitive selection which does not appear to have a formal solution. A feedback link has been suggested that allows the re-selection of primitives after making the decision based on the original primitives. Another interesting procedure suggests the joint use of the local and the global procedures. These directions remain to be explored.

References

1. K. S. Fu and J. K. Mui, "A survey on image segmentation," Pattern Recognition, vol. 13, pp. 3-16, 1981.
2. S. Kanade and J. M. S. Prewitt, "A comparison of some segmentation algorithms for cytology," Proc. of the 5th IJCPR, Dec. 1980.
3. S. W. Zucker, "Region growing: childhood and adolescence," Computer Graphics and Image Processing, vol. 5, pp. 382-399, 1976.
4. E. M. Riseman and M. A. Arbib, "Segmentation of static scenes," Computer Graphics and Image Processing, vol. 6, pp. 221-276, 1977.
5. Kanade, T., "Region segmentation: signal vs. semantics," Computer Graphics and Image Processing, vol. 13, pp. 279-297, 1980.
6. N. Ahuja, A. Rosenfeld and R. M. Haralick, "Neighbor gray level as features in pixel classification," Pattern Recognition, vol. 12, no. 4, pp. 251-260, 1980.
7. C. H. Chen, "On the statistical image segmentation techniques," Proc. of the IEEE Pattern Recognition and Image Processing Conference, Aug. 1981.
8. C. H. Chen and C. Yen, "Object isolation in FLIR images using Fisher's linear discriminant," to appear in Pattern Recognition.
9. C. H. Chen, "An integrated approach to signal and image processing for ocean acoustics," Technical Report, SMU-EE-TR-81-12, June 1981.
10. D. B. Cooper, et. al., "Stochastic boundary estimation and object recognition," Computer Graphics and Image Processing, vol. 12, no. 4, pp. 326-356, April 1980.
11. P. C. Chen and T. Pavlidis, "Image segmentation as an estimation problem," Computer Graphics and Image Processing, vol. 12, no. 2, pp. 153-172, Feb. 1980.
12. K. S. Fu, "Statistical Pattern Classification Using Contextual Information," Wiley-Interscience, 1980.
13. A. Rosenfeld, "Quadrees and pyramids for pattern recognition and image processing," Proc. of the 5th IJCPR, Dec. 1980.
14. Structural and Syntactic Pattern Recognition Workshop, June 22-24, 1981 at Saratoga Springs, N. Y.

REFERENCES FOR IMAGE SEGMENTATION

-
- AUTHOR : AGGARWAL R. K.
TITLE : ADAPTIVE IMAGE SEGMENTATION USING PROTOTYPE
SIMILARITY
PUBLICATION-NAME : PROC., IEEE COMPUTER SOCIETY CONFERENCE ON
PATTERN RECOGNITION AND IMAGE PROCESSING
(CHICAGO, IL., JUNE 1978), IEEE, NEW YORK
PAGE : 354-359
PUBLICATION-DATE : 1978
KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : AGGARWAL R. K. AND BACUS J. W.
TITLE : A MULTI-SPECTRAL APPROACH FOR SCENE ANALYSIS OF
CERVICAL CYTOLOGY SMEARS
PUBLICATION-NAME : J. HISTOCHEM. CYTOCHEM. 25
PAGE : 668-680
PUBLICATION-DATE : 1977
KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : AHUJA N. AND ROSENFELD A.
TITLE : A NOTE ON THE USE OF SECOND-ORDER GRAY LEVEL
STATISTICS FOR THRESHOLD SELECTION
PUBLICATION-NAME : IEEE TRANS. ON SYSTEMS, MAN, AND CYBERNETICS 8
PAGE : 895-898
PUBLICATION-DATE : 1978
KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : AHUJA N., HARALICK R. M. AND ROSENFELD A.
TITLE : NEIGHBOR GRAY LEVELS AS FEATURES IN PIXEL
CLASSIFICATION
PUBLICATION-NAME : PATTERN RECOGNITION 12
PAGE : 251-260
PUBLICATION-DATE : 1980
KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : BRENNER J. F. ET AL.
TITLE : SCENE SEGMENTATION TECHNIQUES FOR THE ANALYSIS
OF ROUTINE BONE MARROW SMEARS FROM ACUTE
LYMPHOBLASTIC LEUKEMIA PATIENTS
PUBLICATION-NAME : J. HISTOCHEM. CYTOCHEM 25
PAGE : 601-613
PUBLICATION-DATE : 1977
KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : PRICE C. AND FENNEMA C.
TITLE : SCENE ANALYSIS USING REGIONS
PUBLICATION-NAME : ARTIFICIAL INTELL. 1
PAGE : 205-226
PUBLICATION-DATE : 1970

REFERENCES FOR IMAGE SEGMENTATION

KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : BULLOCK B. L.
 TITLE : FINDING STRUCTURE IN OUTDOOR SCENES
 PUBLICATION-NAME : IN 'PATTERN RECOGNITION AND ARTIFICIAL
 INTELLIGENCE', G. H. CHEN (ED.), ACADEMIC PRESS,
 NEW YORK

PAGE :
 PUBLICATION-DATA : 1976
 KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : CAHN R. L., POULSEN R. S. AND TOUSSAINT G.
 TITLE : SEGMENTATION OF CERVICAL CELL IMAGE
 PUBLICATION-NAME : J. HISTOCHEM. CYTOCHEM. 25
 PAGE : 81-688
 PUBLICATION-DATA : 1977
 KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : CARLTON S. G. AND MITCHELL O. R.
 TITLE : IMAGE SEGMENTATION USING TEXTURE AND GRAY LEVEL
 PUBLICATION-NAME : PROC. IEEE CONF. PATTERN RECOGNITION AND IMAGE
 PROCESSING, TROY, NEW YORK
 PAGE : 387-391
 PUBLICATION-DATA : JUNE 1977
 KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : CASTLEMAN K. R. AND MELNYK J. H.
 TITLE : AN AUTOMATED SYSTEM FOR CHROMOSOME ANALYSIS
 PUBLICATION-NAME : FINAL REPORT JET PROPULSION LABORATORY 5040-30
 PASADENA
 PAGE :
 PUBLICATION-DATA : 1976
 KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : CHEN P. C.
 TITLE : SEGMENTATION BY TEXTURE USING A SPLIT-AND MERGE
 ALGORITHM
 PUBLICATION-NAME : SUMMARIES OF PRESENTATION, IEEE COMPUTER SOCIETY
 WORKSHOP ON PATTERN RECOGNITION AND ARTIFICIAL
 INTELLIGENCE (PRINCETON, NJ, APRIL 1978)
 PAGE : 190
 PUBLICATION-DATA : 1978
 KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : CHEN P. C. AND PAULIDIS
 TITLE : SEGMENTATION BY TEXTURE USING A CO-OCCURRENCE
 MATRIX AND A SPLIT-AND-MERGE ALGORITHM
 PUBLICATION-NAME : COMPUTER GRAPHICS AND IMAGE PROCESSING 10

REFERENCES FOR IMAGE SEGMENTATION

PAGE : 172-182
 PUBLICATION-DATA : 1979
 KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : CHEN P. C. AND PAVLIDIS T.
 TITLE : IMAGE SEGMENTATION AS AN ESTIMATION PROBLEM
 PUBLICATION-NAME : COMPUTER GRAPHICS AND IMAGE PROCESSING 12
 PAGE : 153-172
 PUBLICATION-DATA : 1980
 KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : CHEN P. C. AND PAVLIDIS T.
 TITLE : SEGMENTATION BY TEXTURE USING CORRELATION
 PUBLICATION-NAME : PROC. 5TH INT. CONF. ON PATTERN RECOGNITION
 (MIAMI BEACH, FL, DEC. 1980; IEEE PUBL.
 80CH1499-3)
 PAGE : 551-553
 PUBLICATION-DATA : 1980
 KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : CHIEN Y. P. AND FU K. S.
 TITLE : PREPROCESSING AND FEATURE EXTRACTION OF PICTURE
 PATTERNS
 PUBLICATION-NAME : TR-EE 74-20, PURDUE UNIVERSITY, WEST LAFAYETTE,
 INDIANA
 PAGE :
 PUBLICATION-DATA : 1974
 KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : COLEMAN G. B.
 TITLE : IMAGE SEGMENTATION BY CLUSTERING
 PUBLICATION-NAME : REPORT 750, UNIVERSITY OF SOUTHERN CALIFORNIA
 IMAGE PROCESSING INSTITUTE
 PAGE :
 PUBLICATION-DATA : JULY 1977
 KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : DAVIS L. S., ROSENFELD A. AND WESZKA J. S.
 TITLE : REGION EXTRACTION BY AVERAGING AND THRESHOLDING
 PUBLICATION-NAME : IEEE TRANS. SYSTEMS, MAN, AND CYBERNET 5
 PAGE : 383-388
 PUBLICATION-DATA : 1975
 KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : DUDA R. O. AND HART P. E.
 TITLE : USE OF THE HOUGH TRANSFORMATION TO DETECT LINES
 AND CURVES IN PICTURES
 PUBLICATION-NAME : COMMUNIS ACM 15

REFERENCES FOR IMAGE SEGMENTATION

PAGE : 11-15
PUBLICATION-DATA : 1972
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : DUDA R. O. AND HART P. L. E.
TITLE : PATTERN CLASSIFICATION AND SCENE ANALYSIS
PUBLICATION-NAME : WILEY, NEW YORK
PAGE :
PUBLICATION-DATA : 1973
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : EHRLICH R. W. AND FOITH J. P.
TITLE : TOPOLOGY AND SEGMENTATION OF INTENSITY ARRAY
PUBLICATION-NAME : IN 'COMPUTER VISION SYSTEMS', HANSON A. R. AND
RISEMAN E. H. (EDS.), ACADEMIC PRESS, NEW YORK
PAGE : 111-127
PUBLICATION-DATA : 1978
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : FELDMAN J. A. AND YAKIMOVSKY Y.
TITLE : DECISION THEORY AND ARTIFICIAL INTELLIGENCE, I.
A SEMANTICS BASED REGION ANALYZER
PUBLICATION-NAME : ARTIFICIAL INTELL. 5
PAGE : 349-371
PUBLICATION-DATA : 1974
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : FRAH J. R. AND DEUTSCH E. S.
TITLE : ON THE QUANTITATIVE EVALUATION OF EDGE DETECTION
SCHEMES AND THEIR COMPARISON WITH HUMAN
PERFORMANCE
PUBLICATION-NAME : IEEE TRANS. COMPUT. C-24
PAGE : 616-628
PUBLICATION-DATA : 1975
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : FU K. S., CHIEN Y. P. AND PERSOON E.
TITLE : COMPUTER SYSTEMS FOR THE ANALYSIS OF CHEST
X-RAY'S
PUBLICATION-NAME : PROC. EASCON '75, WASHINGTON, D.C.
PAGE : 72A-72F
PUBLICATION-DATA : 1975
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : FUKADA Y.
TITLE : SPATIAL CLUSTERING PROCEDURES FOR REGION
ANALYSIS
PUBLICATION-NAME : PROC. OF 4TH INT. JOINT CONF. ON PATTEN

REFERENCES FOR IMAGE SEGMENTATION

- RECOGNITION, KYOTO, JAPAN, NOV. 1978
 PAGE : 329-331
 PUBLICATION-DATA : 1978
 KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : GOLDBERG M. AND SHLIEN S.
 TITLE : A CLUSTER SCHEME FOR MULTISPECTRAL IMAGES
 PUBLICATION-NAME : IEEE TRANS. SYSTEMS, MAN CYBERNET. SCH-8
 PAGE : 86-92
 PUBLICATION-DATA : 1978
 KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : GREEN J. R.
 TITLE : PARALLEL PROCESSING IN A PATTERN RECOGNITION
 BASED IMAGE PROCESSING SYSTEMS: THE ABBOTT
 ADC-500 DIFFERENTIAL COUNTER
 PUBLICATION-NAME : PROC. IEEE CONF. PATTERN RECOGNITION AND IMAGE
 PROCESSING, JUNE, CHICAGO
 PAGE : 492-498
 PUBLICATION-DATA : 1978
 KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : GRINAKER S.
 TITLE : EDGE BASED SEGMENTATION AND TEXTURE SEPARATION
 PUBLICATION-NAME : PROC. 5TH INT. CONF. ON PATTERN RECOGNITION
 (MIAMI BEACH, FL, DEC. 1980; IEEE PUBL.
 80CH1499-3)
 PAGE : 554-557
 PUBLICATION-DATA : 1980
 KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : GUPTA J. N. AND WINTZ P. A.
 TITLE : MULTI-IMAGE MODELING
 PUBLICATION-NAME : TR-EE 74-24, PURDUE UNIVERSITY
 PAGE :
 PUBLICATION-DATA : SEPTEMBER 1974
 KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : GUPTA J. N. AND WITZ P. A.
 TITLE : COMPUTER PROCESSING ALGORITHM FOR LOCATING
 BOUNDARIES IN DIGITAL PICTURES
 PUBLICATION-NAME : PROC. INT. JOINT CONF. PATTERN RECOGNITION
 PAGE : 155-156
 PUBLICATION-DATA : 1974
 KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : HANSON A. R. AND RISEMAN E. M.
 TITLE : SEGMENTATION OF NATURAL SCENES

REFERENCES FOR IMAGE SEGMENTATION

PUBLICATION-NAME : IN 'COMPUTER VISION SYSTEMS (PROC. OF A
WORKSHOP, AMHERST, MA, JUNE 1977), HANSON A. R.
AND RISEMAN E. M. (EDS), ACADEMIC PRESS, NY
PAGE : 129-163
PUBLICATION-DATA : 1978
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : HARALICK R. M.
TITLE : EDGE AND REGION ANALYSIS FOR DIGITAL IMAGE DATA
PUBLICATION-NAME : COMPUTER GRAPHICS AND IMAGE PROCESSING, 12
PAGE : 60-73
PUBLICATION-DATA : JAN. 1980
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : HARALICK R. M. AND DINSTEN I.
TITLE : A SPATIAL CLUSTERING PROCEDURE FOR MULTI-IMAGE
DATA
PUBLICATION-NAME : IEEE TRANS. CIRCUITS SYSTEMS
PAGE : CAS-22, 440-450
PUBLICATION-DATA : 1975
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : HORN B. K. P. AND SJOBERG R. W.
TITLE : CALCULATING THE REFLECTANCE MAP
PUBLICATION-NAME : BAUMANN L. S. (ED.), PROC.: IMAGE UNDERSTANDING
WORKSHOP (PITTSBURGH, PA, NOV. 1978), SCIENCE
APPLICATIONS, INC. ARLINGTON, VA,
PAGE : 115-126
PUBLICATION-DATA : 1978
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : HOROWITZ S. L. AND PAVLIDIS T.
TITLE : PICTURE SEGMENTATION BY A TREE TRAVERSAL
ALGORITHM
PUBLICATION-NAME : J. ASS. COMPUT. MACH.
PAGE : 368-388
PUBLICATION-DATA : 1976
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : HOROWITZ S. L. AND PAVLIDIS T.
TITLE : PICTURE SEGMENTATION BY A DIRECTED
SPLIT-AND-MERGE PROCEDURE
PUBLICATION-NAME : PROC. 2ND INT. JOINT CONF. PATTERN RECOGNITION
PAGE : 424-433
PUBLICATION-DATA : 1974
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : QUECKEL R.

REFERENCES FOR IMAGE SEGMENTATION

- TITLE : AN OPERATOR WHICH LOCATES EDGES IN DIGITAL PICTURES
PUBLICATION-NAME : J. ASS. COMPUT. MACH. 18
PAGE : 113-125
PUBLICATION-DATE : 1971
KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : HUECKEL M.
TITLE : A LOCAL OPERATOR WHICH RECOGNIZES EDGES AND LINES
PUBLICATION-NAME : J. ASS. COMPUT. MACH. 20
PAGE : 634-647
PUBLICATION-DATE : 1973
KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : HWANG J. J., LEE, C. C. AND HALL E. L.
TITLE : SEGMENTATION OF SOLID OBJECTS USING GLOBAL AND LOCAL EDGE COINCIDENCE
PUBLICATION-NAME : IEEE COMPUTER SOCIETY CONF. ON PATTERN RECOGNITION AND IMAGE PROCESSING, CHICAGO, IL., IEEE PUBL. 79CH1428-2C
PAGE : 114-121
PUBLICATION-DATE : AUGUST 1979
KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : ICHIKAWA T.
TITLE : HIERARCHICAL SMOOTHING OF GRAY TONE IMAGES WITH ADAPTIVE REGION MERGING CAPABILITY
PUBLICATION-NAME : PROC. 5TH INT. CONF. ON PATTERN RECOGNITION (MIAMI BEACH, FL, DEC. 1980; IEEE PUBL. 80CH1499-3)
PAGE : 831-834
PUBLICATION-DATE : 1980
KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : INGRAM M. AND PRESTON K. JR.
TITLE : AUTOMATIC ANALYSIS OF BLOOD CELLS
PUBLICATION-NAME : SCI. AM. 223
PAGE : 72-82
PUBLICATION-DATE : 1970
KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : ITO T. AND FUKUSHIMA M.
TITLE : COMPUTER ANALYSIS OF COLOR INFORMATION WITH APPLICATIONS TO PICTURE PROCESSING
PUBLICATION-NAME : PROC. INT. JOINT CONF. PATTERN RECOGNITION, CORONADO
PAGE : 833-837
PUBLICATION-DATE : 1976

REFERENCES FOR IMAGE SEGMENTATION

KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : JARVIS R.A.
TITLE : REGION BASED IMAGE SEGMENTATION USING SHARED
NEAR NEIGHBOR CLUSTERING
PUBLICATION-NAME : 7TH INT. CONF. ON CYBERNETICS AND SOCIETY,
WASHINGTON, D.C.
PAGE : 19-21
PUBLICATION-DATE : SEPTEMBER 1977
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : KANADE T.
TITLE : REGION SEGMENTATION: SIGNAL VS SEMANTICS
PUBLICATION-NAME : COMPUTER GRAPHICS AND IMAGE PROCESSING, 13
PAGE : 279-297
PUBLICATION-DATE : 1980
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : KASVAND T.
TITLE : ITERATIVE EDGE DETECTION
PUBLICATION-NAME : COMPUTER GRAPHICS AND IMAGE PROCESSING 4
PAGE : 279-286
PUBLICATION-DATE : 1975
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : KASVAND T.
TITLE : SCENE SEGMENTATION AND SEGMENT CLUSTERING
EXPERIMENT
PUBLICATION-NAME : PROC. 4TH INT. JOINT CONF. ON PATTERN
RECOGNITION (KYOTO, JAPAN, NOV. 1978)
PAGE : 426-429
PUBLICATION-DATE : 1978
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : KELLY M.
TITLE : EDGE DETECTION BY COMPUTER USING PLANNING
PUBLICATION-NAME : IN 'MACHINE INTELLIGENCE VI, EDINBURGH
UNIVERSITY PRESS, EDINBURGH
PAGE : 397-409
PUBLICATION-DATE : 1971
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : KENG J.
TITLE : SYNTACTIC ALGORITHMS FOR IMAGE SEGMENTATION AND
A SPECIAL COMPUTER ARCHITECTURE FOR IMAGE
PROCESSING
PUBLICATION-NAME : PH.D. THESIS, PURDUE UNIVERSITY, WEST LAFAYETTE,
INDIANA

REFERENCES FOR IMAGE SEGMENTATION

PAGE :
PUBLICATION-DATA : 1977
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : KENG J. AND FU K. S.
TITLE : A SYNTAX-DIRECTED METHOD FOR LAND-USE
CLASSIFICATION OF 'LANDSAT' IMAGES
PUBLICATION-NAME : PROC. SYMP. CURRENT MATHEMATICAL PROBLEMS IN
IMAGE SCIENCE, MONTEREY, CA.
PAGE : 261-265
PUBLICATION-DATA : NOV. 1976
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : KIMME C., BALLARD D. H. AND SKLANSKY J.
TITLE : FINDING CIRCLES BY AN ARRAY OF ACCUMULATORS
PUBLICATION-NAME : COMMUNIS ACM 18
PAGE : 120-122
PUBLICATION-DATA : 1975
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : KIRBY R. AND ROSENFELD A.
TITLE : A NOTE ON THE USE OF (GRAY LEVEL, AVERAGE GRAY
LEVEL) SPACE AS AN AID IN THRESHOLD SELECTION
PUBLICATION-NAME : TRANS. IFSE SYSTEMS, MAN, AND CYBERNETICS 9
PAGE : 860-864
PUBLICATION-DATA : 1979
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : KIRSCH R.
TITLE : COMPUTER DETERMINATION OF THE CONSTITUENT
STRUCTURE OF BIOLOGICAL IMAGES
PUBLICATION-NAME : COMPUTER BIOMED. RES. 4
PAGE : 315-328
PUBLICATION-DATA : 1971
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : KLINGER A.
TITLE : DATA STRUCTURES AND PATTERN RECOGNITION
PUBLICATION-NAME : PROC. 1ST INT. JOINT. CONF. PATTERN RECOGNITION
PAGE : 497-498
PUBLICATION-DATA : 1973
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : KLINGER A. AND DYER C. R.
TITLE : EXPERIMENTS ON PICTURE REPRESENTATION USING
REGULAR DECOMPOSITION
PUBLICATION-NAME : COMPUTER GRAPHICS AND IMAGE PROCESSING 4
PAGE : 68-105

REFERENCES FOR IMAGE SEGMENTATION

PUBLICATION-DATA : 1975

KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : KOHLER R.

TITLE : A SEGMENTATION SYSTEM BASED ON THRESHOLDING

PUBLICATION-NAME : COMPUTER GRAPHICS AND IMAGE PROCESSING, 15

PAGE : 319-338

PUBLICATION-DATA : 1981

KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : KOONTZ W., NARENDRA P. M. AND FUKUNAGA K.

TITLE : A GRAPH THEORETIC APPROACH TO NONPARAMETRIC
CLUSTER ANALYSIS

PUBLICATION-NAME : IEEE TRANS. COMPT. C-25

PAGE : 936-944

PUBLICATION-DATA : 1976

KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : KRUGER K. P., THOMPSON W. B. AND TURNER A. F.

TITLE : COMPUTER DIAGNOSIS OF PNEUMOCONIOSIS

PUBLICATION-NAME : IEEE TRANS. SYSTEMS, MAN CYBERNET

PAGE : SMC-4, 40-49

PUBLICATION-DATA : 1974

KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : LAI P. G. AND EHRLICH R. W.

TITLE : SEGMENTATION OF IMAGES WITH INCOMPLETELY
SPECIFIED REGIONS

PUBLICATION-NAME : IEEE TRANS. ON SYSTEMS, MAN, AND CYBERNETICS 9

PAGE : 864-868

PUBLICATION-DATA : 1979

KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : LEBOUCHER G. AND LOWITZ G. E.

TITLE : WHAT A HISTOGRAM CAN REALLY TELL THE CLASSIFIER

PUBLICATION-NAME : PATTERN RECOGNITION 10

PAGE : 351-357

PUBLICATION-DATA : 1978

KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : LEMKIN P.

TITLE : THE BOUNDARY TRACE TRANSFORM: AN EDGE AND REGION
ENHANCEMENT TRANSFORM

PUBLICATION-NAME : COMPUTER GRAPHICS AND IMAGE PROCESSING 9

PAGE : 150-165

PUBLICATION-DATA : 1979

KEY-WORDS : IMAGE SEGMENTATION

REFERENCES FOR IMAGE SEGMENTATION

-
- AUTHOR : LEMKIN P.
TITLE : AN APPROACH TO REGION SPLITTING
PUBLICATION-NAME : COMPUTER GRAPHICS AND IMAGE PROCESSING 10
PAGE : 281-288
PUBLICATION-DATA : 1979
KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : LESTER L. M., WILLIAMS H. A., WEINTRAUB B. A.
AND BRENNER J.F.
TITLE : TWO GRAPH SEARCHING TECHNIQUES FOR BOUNDARY
FINDING IN WHITE BLOOD CELL IMAGES
PUBLICATION-NAME : COMPUT. BIOL. MED. 8
PAGE : 293-308
PUBLICATION-DATA : 1978
KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : LEVINE M. D.
TITLE : REGIONAL ANALYSIS USING A PYRAMID DATA STRUCTURE
PUBLICATION-NAME : IN 'STRUCTURED COMPUTER VISION', TANIMOTO S. AND
KLINGER A. (EDS.), ACADEMIC PRESS
PAGE :
PUBLICATION-DATA : 1980
KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : LOWITZ G. E.
TITLE : WHAT THE FOURIER TRANSFORM CAN REALLY BRING TO
CLUSTERING
PUBLICATION-NAME : PROC. 5TH INT. CONF. ON PATTERN RECOGNITION,
MIAMI BEACH, FL., IEEE PUBL. 80CH1499-3
PAGE : 445-454
PUBLICATION-DATA : DEC. 1980
KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : LUTTON S. M. AND MITCHELL O. R.
TITLE : ADAPTIVE SEGMENTATION OF UNIQUE OBJECTS
PUBLICATION-NAME : PROC. 5TH INT. CONF. ON PATTERN RECOGNITION
(MIAMI BEACH, FL, DEC. 1980; IEEE PUBL.
80CH1499-3)
PAGE : 548-550
PUBLICATION-DATA : 1980
KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : MACLEOD I. D. G.
TITLE : ON FINDING STRUCTURES IN PICTURES
PUBLICATION-NAME : IN 'PICTURE LANGUAGE MACHINES', KANEFF S. (ED.),
ACADEMIC PRESS, NEW YORK
PAGE :
PUBLICATION-DATA : 1970

REFERENCES FOR IMAGE SEGMENTATION

KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : MARTELLI A.
TITLE : EDGE DETECTION USING HEURISTIC SEARCH METHODS.
PUBLICATION-NAME : COMPUTER GRAPHICS AND IMAGE PROCESSING 1
PAGE : 169-182
PUBLICATION-DATE : 1972
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : MARTELLI A.
TITLE : AN APPLICATION OF HEURISTIC SEARCH METHODS TO
EDGE AND CONTOUR DETECTION
PUBLICATION-NAME : COMMUNIS ACM 19
PAGE : 73-83
PUBLICATION-DATE : 1974
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : MILGRAM D. L.
TITLE : SEGMENTATION USING CONVERGENT EVIDENCE
PUBLICATION-NAME : SUMMARIES OF PRESENTATION, IEEE COMP. SOCIETY
WORKSHOP ON PATTERN RECOGNITION AND ARTIFICIAL
INTELLIGENCE, PRINCETON, NJ
PAGE : 73-77
PUBLICATION-DATE : APRIL 1978
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : MILGRAM D. L.
TITLE : REGION EXTRACTION USING CONVERGENT EVIDENCE
PUBLICATION-NAME : COMPUTER GRAPHICS AND IMAGE PROCESSING 11
PAGE : 1-12
PUBLICATION-DATE : 1979
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : MILGRAM D. L. AND HERMAN M.
TITLE : CLUSTERING EDGE VALUES FOR THRESHOLD SELECTION
PUBLICATION-NAME : COMPUTER GRAPHICS AND IMAGE PROCESSING 10
PAGE : 272-280
PUBLICATION-DATE : 1979
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : MILGRAM D. L. AND KAHL D. J.
TITLE : RECURSIVE REGION EXTRACTION
PUBLICATION-NAME : COMPUTER GRAPHICS AND IMAGE PROCESSING 9
PAGE : 82-88
PUBLICATION-DATE : 1979
KEY-WORDS : IMAGE SEGMENTATION

REFERENCES FOR IMAGE SEGMENTATION

AUTHOR : MITCHELL D. R., LUTTON S. P. AND SU S. P.
TITLE : TEXTURE IMAGE SEGMENTATION USING LOCAL EXTREMA
PUBLICATION-NAME : PROC. IEEE COMPUTER SOCIETY CONF. ON PATTERN
RECOGNITION AND IMAGE PROCESSING, CHICAGO, IL,
AUGUST 1979; IEEE PUBL. 79 CH1428-2C
PAGE : 508-511
PUBLICATION-DATE : 1979
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : MONTANARI U.
TITLE : ON THE OPTIMAL DETECTION OF CURVES IN NOISY
PICTURES
PUBLICATION-NAME : COMMUN. ACM 14
PAGE : 335-345
PUBLICATION-DATE : 1971
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : MURLE J. L. AND ALLEN D.C.
TITLE : EXPERIMENTAL EVALUATION OF TECHNIQUES FOR
AUTOMATIC SEGMENTATION OF OBJECTS IN A COMPLEX
SCENE
PUBLICATION-NAME : IN 'PICTORIAL PATTERN RECOGNITION', C. C. CHENG
ET AL (EDS.), THOMPSON, WASHINGTON
PAGE : 3-13
PUBLICATION-DATE : 1968
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : MUI J. K., BACUS J. W. AND FU K. S.
TITLE : A SCENE SEGMENTATION TECHNIQUE FOR MICROSCOPIC
CELL IMAGES
PUBLICATION-NAME : INJ. PROC. SYMP. COMPUTER AIDED DIAGNOSIS OF
MEDICAL IMAGES, SKLAANSKY (ED.), SAN DIEGO,
CA., IEEE PUBL. NO. 76 CH1170-0C
PAGE : 99-106
PUBLICATION-DATE : 1976
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : NAGIN P., HANSON A. AND RISEMAN E.
TITLE : RELAXATION-BASED SEGMENTATION BASED ON SPATIAL
CONTEXT AND FEATURE SPACE CLUSTER LABELS
PUBLICATION-NAME : PROC. IEEE CONF. PATTERN RECOGNITION AND IMAGE
PROCESSING, CHICAGO, ILLINOIS
PAGE : 421
PUBLICATION-DATE : MAY 1978
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : OHTA Y. I., KANADE T. AND SAKAI T.
TITLE : COLOR INFORMATION FOR REGION SEGMENTATION
PUBLICATION-NAME : COMPUTER GRAPHICS AND IMAGE PROCESSING 13

REFERENCES FOR IMAGE SEGMENTATION

PAGE : 222-241
PUBLICATION-DATA : 1980
KEY WORDS : IMAGE SEGMENTATION

AUTHOR : PANDA D. P. AND ROSENFELD A.
TITLE : IMAGE SEGMENTATION BY PIXEL CLASSIFICATION IN
(GRAY LEVEL, EDGE VALUE) SPACE
PUBLICATION-NAME : IEEE TRANS. ON COMPUTERS 27
PAGE : 875-879
PUBLICATION-DATA : 1978
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : PAVLIDIS T.
TITLE : STRUCTURAL PATTERN RECOGNITION
PUBLICATION-NAME : SPRINGER, NEW YORK
PAGE :
PUBLICATION-DATA : 1977
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : PAVLIDIS T.
TITLE : A MINIMUM STORAGE BOUNDARY TRACING ALGORITHM AND
ITS APPLICATION TO AUTOMATIC INSPECTION
PUBLICATION-NAME : IEEE TRANS. SYSTEMS, MAN, AND CYBERNETICS 8
PAGE : 66-69
PUBLICATION-DATA : 1978
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : PAVLIDIS T.
TITLE : SEGMENTATION OF PICTURES AND MAPS THROUGH
FUNCTIONAL APPROXIMATION
PUBLICATION-NAME : COMPUTER GRAPHICS AND IMAGE PROCESSING 1
PAGE : 363-372
PUBLICATION-DATA : 1972
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : PERKIN W. A.
TITLE : AREA SEGMENTATION OF IMAGES USING EDGE POINTS
PUBLICATION-NAME : TRANS. IEEE PATTERN ANALYSIS AND MACHINE
INTELLIGENCE
PAGE : 8-15
PUBLICATION-DATA : 1980
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : PERKINS W. A.
TITLE : REGION SEGMENTATION OF IMAGES BY EXPANSION AND
CONTRACTION OF EDGE POINTS
PUBLICATION-NAME : PROC. 6TH INT. JOINT CONFERENCE ON ARTIFICIAL
INTELLIGENCE, TOKYO, JAPAN

REFERENCES FOR IMAGE SEGMENTATION

PAGE : 699-701
PUBLICATION-DATA : AUGUST 1979
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : PERSOON E.
TITLE : A NEW EDGE DETECTION ALGORITHM AND ITS
APPLICATIONS IN PICTURE PROCESSING
PUBLICATION-NAME : TR-EE 75-38, PURDUE UNIVERSITY, WEST LAFAYETTE,
INDIANA
PAGE :
PUBLICATION-DATA : 1975
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : PREWITT J. M. S.
TITLE : OBJECT ENHANCEMENT AND EXTRACTION
PUBLICATION-NAME : IN 'PICTURE PROCESSING AND PSYCHOFICTORICS'
LIPKIN B. S. AND ROSENFELD A. (ED.), ACADEMIC
PRESS, NEW YORK
PAGE : 74-149
PUBLICATION-DATA : 1970
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : PREWITT J. M. S. AND MENDELSON M. L.
TITLE : THE ANALYSIS OF CELL IMAGES
PUBLICATION-NAME : TRANS. N.Y. ACAD. SCI. 128
PAGE : 1035-1053
PUBLICATION-DATA : 1966
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : RANADE S. AND PREWITT J. M. S.
TITLE : A COMPARISON OF SOME SEGMENTATION ALGORITHMS FOR
CYTOLOGY
PUBLICATION-NAME : PROC. 5TH INT. CONF. ON PATTERN RECOGNITION
(MIAMI BEACH, FL. DEC. 1980; IEEE PUBL.
80CH1499-3)
PAGE : 561-564
PUBLICATION-DATA : 1980
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : RISEMAN E. M. AND ARBIB M. A.
TITLE : COMPUTATIONAL TECHNIQUES IN THE VISUAL
SEGMENTATION OF STATIC SCENES
PUBLICATION-NAME : COMPUTER GRAPHICS AND IMAGE PROCESSING 6
PAGE : 221-276
PUBLICATION-DATA : 1977
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : ROBERTSON T. V., FU K. S. AND SWAIN P. H.

REFERENCES FOR IMAGE SEGMENTATION

- TITLE : MULTISPECTRAL IMAGE PARTITIONING
PUBLICATION-NAME : TR-EE 73-26, PURDUE UNIVERSITY, WEST LAFLETTE,
INDIANA
PAGE :
PUBLICATION-DATE : AUGUST 1973
KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : ROSENFELD A.
TITLE : ITERATIVE METHODS IN IMAGE ANALYSIS
PUBLICATION-NAME : PROC. IEEE CONF. PATTERN RECOGNITION AND IMAGE
PROCESSING, TROY, NEW YORK
PAGE : 14-20
PUBLICATION-DATE : JUNE 1977
KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : ROSENFELD A.
TITLE : SOME USE OF PYRAMIDS IN IMAGE PROCESSING AND
SEGMENTATION
PUBLICATION-NAME : IN 'PROCEEDING : IMAGE UNDERSTANDING WORKSHOP',
BAUMANN L. S. (ED.), COLLEGE PARK, MD.
PAGE : 112-120
PUBLICATION-DATE : APRIL 1980
KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : ROSENFELD A.
TITLE : QUADTREES AND PYRAMIDS FOR PATTERN RECOGNITION
AND IMAGE PROCESSING
PUBLICATION-NAME : PROC. 5TH INT. CONF. ON PATTERN RECOGNITION
(MIAMI BEACH, FL, DEC. 1980; IEEE PUBL.
80CH1499-3)
PAGE : 802-811
PUBLICATION-DATE : 1980
KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : ROSENFELD A. AND DAVIS L. S.
TITLE : IMAGE SEGMENTATION AND IMAGE MODELS
PUBLICATION-NAME : PROC. IEEE 67
PAGE : 764-772
PUBLICATION-DATE : 1979
KEY-WORDS : IMAGE SEGMENTATION
-
- AUTHOR : ROSENFELD A. AND THURSTON M.
TITLE : EDGE AND CURVE DETECTION FOR VISUAL SCENE
ANALYSIS
PUBLICATION-NAME : IEEE TRANS. COMPUT. C-20
PAGE : 562-569
PUBLICATION-DATE : 1971
KEY-WORDS : IMAGE SEGMENTATION

REFERENCES FOR IMAGE SEGMENTATION

AUTHOR : ROSENFELD A. AND WESZKA J. S.
TITLE : PICTURE RECOGNITION AND SCENE ANALYSIS
PUBLICATION-NAME : COMPUTER
PAGE : 23-38
PUBLICATION-DATE : 1976
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : ROSENFELD A., HUMMEL R. AND ZUCKER S. W.
TITLE : SCENE LABELING BY RELAXATION OPERATIONS
PUBLICATION-NAME : IEEE TRANS. SYSTEMS, MAN, CYBERNET. SMC-6
PAGE : 420-433
PUBLICATION-DATE : 1976
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : ROSENFELD A., THURSTON M. AND LEE Y.
TITLE : EDGE AND CURVE DETECTION FURTHER EXPERIMENT
PUBLICATION-NAME : IEEE TRANS. COMPUT. C-21
PAGE : 677-715
PUBLICATION-DATE : 1972
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : ROSENFELD A. AND DAVIS L. S.
TITLE : ITERATIVE HISTOGRAM MODIFICATION
PUBLICATION-NAME : UNIVERSITY OF MARYLAND, COMPUTER SCIENCE CENTER,
TR-519
PAGE :
PUBLICATION-DATE : APRIL, 1977
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : SAKAI T., NAGAO M. AND KIDODE M.
TITLE : PROCESSING OF MULTILEVEL PICTURES BY
COMPUTER-THE CASE OF PHOTOGRAPHS OF HUMAN FACE
PUBLICATION-NAME : SYSTEMS, COMPUTERS CONTROLS 2
PAGE : (3) 47-54
PUBLICATION-DATE : 1971
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : SCHACHTER B. J., DAVIS L. S. AND ROSENFELD A.
TITLE : SCENE SEGMENTATION BY CLUSTER DETECTION IN COLOR
SPACE
PUBLICATION-NAME : TR-424, COMPUTER SCIENCE CENTER, UNIVERSITY OF
MARYLAND
PAGE :
PUBLICATION-DATE : NOV. 1975
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : SCHACHTER B. J., DAVIS L. S. AND ROSENFELD A.

REFERENCES FOR IMAGE SEGMENTATION

TITLE : SOME EXPERIMENTS IN IMAGE SEGMENTATION BY
CLUSTERING OF LOCAL FEATURE VALUES
PUBLICATION-NAME : TR-510, COMPUTER SCIENCE CENTER, UNIVERSITY OF
MARYLAND
PAGE :
PUBLICATION-DATA : MARCH 1977
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : SCLOVE S. L.
TITLE : APPLICATION OF THE CONDITIONAL
POPULATION-MAXTURI MODEL TO IMAGE SEGMENTATION
PUBLICATION-NAME : PROC. 5TH INT. CONF. ON PATTERN RECOGNITION
(MIAMI BEACH, FL, DEC. 1980; IEEE PUBL.
80CH1499-3
PAGE : 518-521
PUBLICATION-DATA : 1980
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : SHANKER P. M. AND GUPTA H. M.
TITLE : IMAGE DETECTION IN PRESENCE OF SPECKLE
PUBLICATION-NAME : PROC. IEEE 67
PAGE : 326-328
PUBLICATION-DATA : 1979
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : SHAPIRO S. D.
TITLE : TRANSFORMATION FOR THE COMPUTER DETECTION OF
CURVES IN NOISY PICTURES
PUBLICATION-NAME : COMPUTER GRAPHICS AND IMAGE PROCESSING 4
PAGE : 328-338
PUBLICATION-DATA : 1975
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : SKLANSKY J.
TITLE : IMAGE SEGMENTATION AND FEATURE EXTRACTION
PUBLICATION-NAME : IEEE TRANS. SYSTEMS, MAN, AND CYBERNETICS 8
PAGE : 237-247
PUBLICATION-DATA : 1978
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : TENENBAUM J. M. AND BARROW H. G.
TITLE : IGS: A PARADIGM FOR INTEGRATING IMAGE
SEGMENTATION AND INTERPRETATION
PUBLICATION-NAME : PROC. 3RD INT. JOINT CONF. PATTERN RECOGNITION
PAGE : 504-513
PUBLICATION-DATA : NOVEMBER 1976
KEY-WORDS : IMAGE PROCESSING

REFERENCES FOR IMAGE SEGMENTATION

AUTHOR : TOMITA F., YACHIIDA K. AND TSUJI S.
TITLE : DETECTION OF HOMOGENEOUS REGIONS BY STRUCTURAL
ANALYSIS
PUBLICATION-NAME : PROC. 3RD 'IJCAI'
PAGE : 564-571
PUBLICATION-DATE : 1973
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : TORIWAKI J. I. AND FUKUMURA T.
TITLE : EXTRACTION OF STRUCTURAL INFORMATION FROM GREY
PICTURES
PUBLICATION-NAME : COMPUTER GRAPHICS AND IMAGE PROCESSING 7
PAGE : 30-51
PUBLICATION-DATE : 1978
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : TOU J. T.
TITLE : ZOOM-THRESHOLDING TECHNIQUE FOR BOUNDARY
DETERMINATION
PUBLICATION-NAME : J. COMPUTER INFORMATION SCIENCES 8
PAGE : 3-8
PUBLICATION-DATE : 1979
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : TSUJI S. AND FUJIWARA R.
TITLE : LINGUISTIC SEGMENTATION OF SCENE INTO REGIONS
PUBLICATION-NAME : PROC. 2ND INT. JOINT CONF. PATTERN RECOGNITION
PAGE : 104-108
PUBLICATION-DATE : 1974
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : TSUJI S. AND TOMITA F.
TITLE : A STRUCTURAL ANALYZER FOR A CLASS OF TEXTURES
PUBLICATION-NAME : COMPUTER GRAPHICS AND IMAGE PROCESSING 2
PAGE : 216-231
PUBLICATION-DATE : 1973
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : VELASCO F. R. D. AND ROSENFELD A.
TITLE : SOME METHODS FOR THE ANALYSIS OF SHARPLY BOUNDED
CLUSTERS
PUBLICATION-NAME : IEEE TRANS. SYSTEMS, MAN, AND CYBERNETICS 10
PAGE : 511-518
PUBLICATION-DATE : 1980
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : WECHSLER H.
TITLE : A NEW LOW-LEVEL PROCEDURE FOR IMAGE SEGMENTATION

REFERENCES FOR IMAGE SEGMENTATION

PUBLICATION-NAME : COMPUTER GRAPHICS AND IMAGE PROCESSING 7
PAGE : 120-129
PUBLICATION-DATA : 1978
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : WECHSLER H. AND KIKODE M.
TITLE : A NEW EDGE DETECTION TECHNIQUE AND ITS
IMPLEMENTATION
PUBLICATION-NAME : IEEE TRANS. SYSTEMS, MAN CYBERNET, SMC-7
PAGE : 827-836
PUBLICATION-DATA : 1977
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : WECHSLER H. AND SKLANSKY J.
TITLE : FINDING THE RIB CAGE IN CHEST RADIOGRAPHS
PUBLICATION-NAME : PATTERN RECOGNITION, 9
PAGE : 21-30
PUBLICATION-DATA : 1976
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : WESZKA J. S. AND ROSENFELD A.
TITLE : THRESHOLD SELECTION TECHNIQUES 5
PUBLICATION-NAME : UNIVERSITY OF MARYLAND, COMPUTER SCIENCE CENTER,
TR-349
PAGE :
PUBLICATION-DATA : FEB. 1975
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : WESZKA J. S. AND ROSENFELD A.
TITLE : THRESHOLD EVALUATION TECHNIQUES
PUBLICATION-NAME : IEEE TRANS. ON SYSTEMS, MAN, AND CYBERNETICS 8
PAGE : 622-629
PUBLICATION-DATA : 1978
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : WESZKA J. S., VERNON J. A. AND ROSENFELD A.
TITLE : THRESHOLD SELECTION TECHNIQUES 2
PUBLICATION-NAME : UNIVERSITY OF MARYLAND COMPUTER SCIENCE CENTER,
TR-260
PAGE :
PUBLICATION-DATA : AUGUST 1973
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : WU S. C., PREWITT J. M. S AND LEHMAN J.
TITLE : TO EXTRACT A CONNECTED OBJECT OF ARBITRARY SHAPE
FROM ITS BACKGROUND BY DECISION TREE METHOD
PUBLICATION-NAME : PROC., IEEE COMP. SOCIETY CONF. ON PATTERN
RECOGNITION AND IMAGE PROCESSING (CHICAGO, IL,

REFERENCES FOR IMAGE SEGMENTATION

 JUNE 1978), IEEE, NEW YORK
PAGE : 352-353
PUBLICATION-DATA : 1978
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : YAKIMOVSKY Y. AND FELDMAN J.
TITLE : A SEMANTICS-BASED DECISION THEORY REGION
 ANALYZER
PUBLICATION-NAME : PROC. INT. JOINT CONF. ARTIFICIAL INTELLIGENCE,
 STANFORD, CALIFORNIA
PAGE : 580-588
PUBLICATION-DATA : 1973
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : YASNOFF W. A., MUI J. K. AND BACUS J. W.
TITLE : ERROR MEASURES FOR SCENE SEGMENTATION
PUBLICATION-NAME : PATTERN RECOGNITION 9
PAGE : 217-231
PUBLICATION-DATA : 1977
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : YASNOFF W. A., MUI J. K. AND BACUS J. W.
TITLE : ERROR MEASURES FOR SCENE SEGMENTATION
PUBLICATION-NAME : PATTERN RECOGNITION 9
PAGE : 217-231
PUBLICATION-DATA : 1977
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : YOO J. R. AND HUANG T. S.
TITLE : IMAGE SEGMENTATION BY UNSUPERVISED CLUSTERING
 AND ITS APPLICATIONS
PUBLICATION-NAME : TR-EE 78-19, PURDUE UNIVERSITY, WEST LAFAYETTE,
 INDIANA
PAGE :
PUBLICATION-DATA : 1978
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : YOUNG I. T. AND PASKOWITZ I. L.
TITLE : LOCALIZATION OF CELLULAR STRUCTURES
PUBLICATION-NAME : IEEE TRANS. BIOMED. ENGG BME-22
PAGE : 35-40
PUBLICATION-DATA : 1975
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : ZUCKER S. W.
TITLE : REGION GROWING: CHILDHOOD AND ADOLESCENCE
PUBLICATION-NAME : COMPUTER GRAPHICS AND IMAGE PROCESSING 5
PAGE : 382-399

REFERENCES FOR IMAGE SEGMENTATION

PUBLICATION-DATA : 1976
KEY-WORDS : IMAGE SEGMENTATION

AUTHOR : ZUCKER S. W., ROSENFELD A. AND DAVIS L. S.
TITLE : PICTURE SEGMENTATION BY TEXTURE DISCRIMINATION
PUBLICATION-NAME : IEEE TRANS. COMPUT. 24
PAGE : 1228-1233
PUBLICATION-DATA : 1975
KEY-WORDS : IMAGE SEGMENTATION
