Technical Committee
NEWSLETTER

IEEE Computer Society Technical Committee on
PATTERN ANALYSIS AND MACHINE INTELLIGENCE
July 1996

Contents

Membership in the Technical Committee on Pattern Analysis and Machine Intelligence is open to individuals who demonstrate willingness to actively participate in the various activities of the TC. A member if the IEEE Computer Society may join the TC as a full member. A non-member of the Computer Society may join as a participating member, with approval from at least one officer of the TC.

This newsletter is an irregular publication of the TC. Contributions are certainly welcome. Opinions expressed in contributions are those of the individual author rather than the official position of the TC, the IEEE Computer Society, or organizations with which the author may be affiliated.

Editors:

- **Dmitry Goldgof**, Department of Computer Science and Engineering, University of South Florida, Tampa, FL 33620.
- **Jill Crisman**, Department of Electrical and Computer Engineering, 409 Dana Research Blgd., Northeastern University, Boston, MA 02115.

Notes from the TC Chair

The period of time between newsletters seems to pass very quickly! But the news since the last newsletter is generally quite positive. There are two main things – the TC membership list continues to grow, and the meetings sponsored by the TC continue to improve.

As I write this, *CVPR '96* has just ended. It was quite successful – all of the conference organizers deserve a round of applause! *CVPR '96* was organized to get three reviews of each paper, and ended up accepted about 25% of the submitted papers. The paid attendance for the meeting exceeded 450 – a new record! In addition, the "demos room" was quite popular and promises to become a regular part of the conference. All in all, the meeting seems to have achieved a simultaneous increase in both quality and quantity! (See the review of the meeting elsewhere in this newsletter.)

The Workshop on Applications of Computer Vision will be held in Sarasota in December. The paper submission deadline for this workshop has now passed, with an increased number of submissions relative to the first two instances of this workshop. See the web page `http://www.ee.vt.edu/wacv96` for more information on this meeting. (Sarasota in early December can be quite nice ...)

`http://marathon.csee.usf.edu/cvpr97.html` is the url for the *CVPR 97* web page. Check out the most recent information there on the conference and its associated workshops. It promises to be an excellent meeting...

At the PAMI TC meeting at *CVPR 96*, Professor Kasturi announced that the *Transactions on PAMI* has received an increase in its page budget. Professor Kasturi put a substantial amount of work into preparing the case for this. No other transactions received a page increase at this time. Also, *Transactions on PAMI* is now getting a first response back to the authors within six months on 90% of the submissions. (Many papers, of course, beat the six month deadline by a substantial amount.)

The summer issue of the AAAI publication *AI Magazine* contains an article about rankings of journals in the artificial intelligence field ("Citation-based journal rankings for AI research," by Cheng, Holsapple and Lee, pages 87–97). The methodology is a bit more involved than that used in the journal rankings produced by Science Citations Index. Also, the authors approach the study from the perspective of a faculty member in a business school. But the basic idea is similar – to attempt to rank journals according to some combination of the average quality and impact of the articles that they publish. Some selected entries from Table 6 of the article appear in the table below.

journal name	normalized rank	unnormalized rank
Artificial Intelligence	1	1
Trans. PAMI	2	2
CVGIP	8	5
Trans. SMC	11	8
IJCV	13	20
Pattern Recognition	23	15
Pattern Recognition Letters	30	32

The "Advances in Image Understanding" book: On the evening before the start of *CVPR '96*, a reception was held to announce the book "Advances in Image Understanding – A Festschrift for Azriel Rosenfeld." This book is an edited volume of original papers published by CS Press. (See the advertisement that appears elsewhere in the newsletter.) The royalties from this book will go to the PAMI TC to help fund student travel to TC-sponsored meetings.

Next meeting of the PAMI TC: The next meeting of the PAMI TC will be at *CVPR '97*. *CVPR '98* will be in Santa Barbara. Proposals for *CVPR '99* can be presented at the *CVPR 97* TC meeting. As I understand it, there are already plans for a proposal to have *CVPR 99* in Chicago. Proposals should at least include the dates (in the second half of June), location, a possible particular site (hotel) and its cost, and the names of the general chair(s) and program chair(s). The next *ICCV* will be in January 1998, in India.

Kevin Bowyer
PAMI TC Chair
University of South Florida

IEEE Computer Society PAMI Technical Committee Meeting
June 18, 1996: 9 p.m. at CVPR96

Meeting called to order, by Kevin Bowyer at 9:00
(approximately 75 attending)

1. **K. Bowyer:** budget and membership update, budget is in good shape, part was used for extra pages in T-PAMI journal, membership is 1200 and growing.
2. **D. Goldgof:** new items include list of papers accepted by T-PAMI journal; little interest in submitting items to the newsletter; however, was noted that newsletter can not be cancelled.
3. **R. Kasturi:** status of PAMI Transactions (T-PAMI), more timely publication, close to 6/12/18 (first response/final decision/published) model, now accepting in-depth reviews, experimental comparison, special issues, table of T-PAMI status - number of accepted papers, 15% page increase was granted!. Question: did printing quality decreased? No, except error in one issue.
4. **K. Price:** Tables comparing costs of various conferences (see later in the Newsletter), this hotel is very expensive. Discussion: drop dinner? optional dinner? only some members of program committee should meet since very large (75 people for CVPR97).
5. **G. Medioni:** ISCV96, 40% acceptance, 105 papers, review based on final (camera-ready) version of the paper. This practice has been adopted for CVPR97.
6. **B. Bhanu:** received 551 papers, accepted 137, in proceedings no distinction between regular and poster papers, attendance is over 450 (401 for CVPR'94 in Seattle), 25% from outside US, 100 registrations on the web. New: large program committee - 50, 3 reviews per paper, demo session. Suggestions: (a) need expanded call for papers with more details, (b) should not allow double submission with ECCV or other meetings (vote was called and passed), (c) should be 2 awards: theory and applications, (d) suggest travel support for students.
7. **S. Sarkar:** WACV'96, 97 papers submitted, decision end of July, expected hotel cost $80 + tax.
8. **R. Nevatia, G. Medioni:** CVPR'97: meeting was moved to a different hotel (see web page), video submission will be possible. Four workshops: nonrigid and articulated motion, generic object recognition, content-based access to images and video libraries, document recognition. Some discussion on overlap of workshops and CVPR itself.
9. **ICCV'98**: Bombay, January 1998, reservations have to be done 6-8 months ahead.
10. **D. Goldgof:** CVPR'98 in Santa Barbara, Organizing committee: Anil Jain, D. Goldgof, D. Terzopoulos, Y. Wang. Discussed locating in the hotel (Red Lion) or on campus. Discussions: preference for inexpensive hotels, campus option should provide hotels in addition to dorms. Voted: approved.
11. **ICPR 2000** Should there be a proposal from US?
12. **K. Bowyer:** Message from Avi Kak:

    > "I have not received a sufficient number of signatures on the petition. It seems to me that the best thing to do at this time is to drop the whole matter of forming a new society (or, at least do so temporarily). It also seems that our problems with the IEEE Computer Society are not as severe now as they have been in the past. Whether the change in their attitude has occured because of our militancy during the last couple of years, I do not know. So unless I hear strong opinions to the contrary, I will consider the matter of forming a separate society closed for the time being."

13. **B. Bhanu:** CVPR mailing list - should be given to PAMI TC? voted - yes.
14. **K. Bowyer:** Multisensor fusion workshop. Jake Aggarwal plans to organize one.

Meeting adjourned at approximately 11:00pm.

Dmitry Goldgof
University of South Florida

Cost of Meetings

Keith Price
University of Southern California

- Average Registration (excluding the extremely high ones.)
  - 1995: $334
  - 1996: $336
- Average Hotel Cost
  - 1995: $110
  - 1996: $115

Vision Conferences

Year	Conference	Cost	Hotel	City	
1976	CVWS	195		Rindge NH	Inc. Rm/Meals
1987	CVWS	150		Miami	
1995	SCV	340/ 140	$105	Miami	
1988	CVPR	175/ 50	$57	Mich	
1989	CVPR	200/ 100	$102	SanDiego	
1991	CVPR	265		Maui	
1993	CVPR	330/ 180	$109	NYC	
1994	CVPR	325/ 105	$96	Seattle	
1996	CVPR	340/ 150	$145	San Francisco	BQ:50
1987	ICCV	180/ 50	£38	London	
1988	ICCV	180/ 50	$85	Fla	
1990	ICCV	270/ 60	Y11000	Osaka	
1995	ICCV	365/ 200	$125	Cambridge	BQ:45
1996	ECCV	£295/£190	£89(H) (£40U)	Cambridge England	
1990	IUW ARPA	100	$85	Pittsburgh	
1994	IUW ARPA	220/ 120	$74	Monterey	Inc Lu
1996	IUW ARPA	300/ 150	$82	PalmSgs	BQ:+40;incLu
1989	Motion	170/ 50	$---	Newport Beach	
1991	Motion	190/ 75	$85	Princeton	
1991	SPIE	305 /40	$	Orlando	
1992	WACV	290/ 100	$80	Palm Spgs	
1995	ICIP	350/ 80	$129	DC	

Other Conferences

Year	Conference	Cost	Hotel	City	
1996	MFI96	380/ 250	$77-106	Atlanta	BQ:43
1996	SDAIR	425/	$100	Las Vegas	BQ:20
1995	SMC	425/ 100	C$135+	Vancouver	45/35
1995	CIKM(ACM)	305/ 205	$85	Baltimore	
1995	ILPS(ACM)	375/ 150		Portland	BQ: 50
1995	ICSC	347/ 155	$100+	Hong Kong	
1995	Ada	350/ 99	$122	Anaheim	
1995	ICCAD	255/ 125		San Jose	
1995	ECCS	375/ 195	$85	Ft. Lauderdale	
1995	ICNP	400/ 150	Y84-275	Tokyo	00 Yen
1995	KBSE	250/125	$115	Boston	
1995	Supercomputing	300/ 100	$125	San Diego	
1995	HiPC	175/ 175	$152	Delhi	
1995	RTSS	380/ 150	$45-100	Italy	
1996	CSC(ACM)	195/ 75	$144	Philadelphia	BQ: +50
1996	FCRC(ACM)	Various	$133 - 70	Philadelphia	
1996	ASSETS ACM Assistive Tech.	395/ 220	C$140	Vancouver	BQ: 50
1996	ICASSP	350/ 75	$	Atlanta	
1996	Cifer Comp Intell for Fin.	400/	$xxx	New York	
1996	NDSS Internet Conf	295/	$121	San Diego	
1996	Usenix	330/ 75	$129	San Diego	
1996	MMVR	450/	$142	San Diego	
1996	HICSS	450/	$133	Hawaii	CD&paper+60
1996	ICDE	320/ 80	$119	New Orleans	BQ:48/R:40
1996	Genetic Prog.	395/ 195		Stanford	
1996	IPCCC		$125	Scottsdale	
1996	IPPS IEEE-CS	295/ 165	$90 - 185	Honolulu	
1996	Info Anal&Syn	300/		Orlando	
1996	IEEEPES	175/ 0	$95/130	LA	Power Syst
1996	DAC	220/ 100	$142	Las Vegas	
1996	CSEE(ACM)	325/ 100	$92/$54G	Daytona Beach	
1996	4AST	350/ 150	US$100	Toronto	BQ:25
1996	DCC	345/ 275	$77-106	Snowbird	
1996	SSP	310/ 100	$102	Oakland	Security/Priv
1996	Tcl/TkUsenix	330/ 75	$110	Monterery	
1996	Security Usenix	310/ 75	$125	San Jose	
1996	SigGraph	775/ 395	$118-$65	New Orleans	Everything
1996	SigGraph	380/ 190			
1996	CIPS	900 /--	$---	Vancouver	Inc. Meals
1996	Testing	945/ --	$---	DC	Inc. Lunch
1996	AAAI	395/ 120	$110-$70	Portland	NOBQ Rec:20
1996	Coots (Usenix)	310/ 75	C$139	Toronto	
1996	WET ICE	375/ 375	$99	Stanford	NOBQ
1996	NNSP IEEE	410/ 360	Y132-98	Kyoto 00Yen	inc. Lu/Supper

Review of Workshop on Function, Formation, and Facilitation

Louise Stark
Department of Electrical and Computer Engineering
University of the Pacific

The Workshop on Function, Formation, and Facilitation was held on June 17, 1996, prior to the CVPR'96 conference in San Francisco, California. The organizers of the workshop were Azriel Rosenfeld, University of Maryland and Ehud Rivlin, Technion and University of Maryland. Azriel Rosenfeld was instrumental in organizing the first function workshop on The Role of Functionality in Object Recognition, along with Yiannis Aloimonos, and Don Perlis, also from the University of Maryland, which was held in Harper's Ferry, West Virginia in August, 1993. Since that time there have been several workshops in both computer vision and AI exploring issues related to functional representation and reasoning. The function-based vision workshop that preceded CVPR'94 in Seattle, Washington resulted in a special issue of CVIU (Volume 61, Number 2, September 1995).[1]

The workshop program consisted of eight presentations of ongoing research and one keynote address by Irving Biederman, University of Southern California, on "The Perception of Shape-Based Functionality." With approximately twenty attendees, the small workshop atmosphere fostered some lively discussions and exchange of ideas.

The presentations were quite diverse.

- Two presentations dealt with ways of recognizing function through observation of some type of action or motion (e.g. functional features in chopping).
- Two presentations were concerned with object recognition using functional models. One approach concentrated on recognition of simple hand tools while the other discussed how, once an object's functional parts have been identified, can interaction be used to confirm functionality.
- Constraints can be imposed on a situation when you consider the setting of objects according to their functional relationships. One presentation discussed how the functionality of a site could be reasoned about by grouping key features. For example, the organization of buildings gives cues as to the functionality of the scene. Also, if some a priori knowledge about the functionality of a scene is known, constraints on feature groupings can be applied to adjacent areas.
- One presentation uses functional descriptions of objects commonly found in an environment to aid a robot in its task of navigating through that environment. The generic functional descriptions of common objects such as door or desk are used to help reason in such situations as move from one room to another. To accomplish this task the robot must identify the area that can function as a doorway to the next room.
- One presenter looked at how to capture the function-based design rationale of object classes such as hand tools. For example, the overall function of a power saw or power drill is known, however how do the individual parts of the object function to perform the final job. Each of the parts of the power drill or power saw has a specific purpose. By decomposing an object into its parts and describing the function of each of the parts and their relationships, a better understanding of the design of such objects is hoped to be attained.
- Function-based reasoning is not restricted to physical objects. One presentation dealt with the use of functionality to construct the semantic organization of documents given the physical organization. The approach characterizes documents by the functions of their components. This information can be used in document understanding tasks.

It is obvious that there are many applications of the use of function in reasoning and recognition being explored. A point of concern noted by Rosenfeld in his opening comments of the workshop is the lack of interaction between the AI research and the computer vision research communities in this area. The trend

[1] An excellent source for more information on the diverse research approaches in *The World of Function* can be found at URL: http://futon.sfsu.edu/%7ehodges/FR/fr-home.html.

has been for the computer vision efforts to focus on issues such as material properties of objects and shape-based reasoning. Biederman expressed that using shape-based functional recognition is only the "tip of the iceberg." What may be needed is to merge the high level AI efforts in order to fully explore the capabilities of function-based reasoning.

Advances in Image Understanding – A Festschrift for Azriel Rosenfeld

edited by Kevin Bowyer and Narendra Ahuja

This volume of original papers has been assembled to honor Azriel Rosenfeld, a dominant figure in the field of computer vision and image processing for over 30 years. Over this period he has made many fundamental and pioneering contributions to nearly every area in this field. Azriel Rosenfeld wrote the first textbook in the field (1969) and was founding editor of the first journal (1972). The contributions in this book illustrate the changes that have occurred in dealing with crucial research problems and the methodologies employed to solve them. The 22 papers specifically written for this text are by a handful of the many researchers who have known and worked with Azriel over the years. These papers address five major themes: image segmentation, feature extraction, 3D shape estimation from 2D images, object recognition, and applications technologies.

Chapters:

- Texture Segregation in Chromatic Element-Arrangement Patterns, *Jacob Beck*
- Multiresolution GMRF Models for Image Segmentation, *Rama Chellappa and Anthana Krishnamachari*
- Feature Selection for Texture Segmentation, *Michael Brady and Zhi-Yan Xie*
- A Transform for Multiscale Image Segmentation, *Narendra Ahuja*
- Image Segmentation Using Clustering *Anil K. Jain and Patrick J. Flynn*
- Boundary Encoding Revisited *Herbert Freeman*
- Optimal Edge Detection in Images, *Richard J. Qian and Thomas S. Huang*
- Metamerism in Complete Sets of Image Operators *Jan J. Koenderink and A.J. van Doorn*
- Structural Scales in Computational Vision, *Steven W. Zucker*
- Propagating Covariance in Computer Vision, *Robert M. Haralick*
- Improving the Vision of Magic Eyes: A Guide to Better Autostereograms, *A.M Bruckstein, R Onn, and T. J. Richardson*
- Shape Recovery from Stationary Surface Contours by Controlled Observer Motion, *Liangyin Yu and Charles R. Dyer*
- Object Recognition Research: Matched Filtering becomes Bayesian Reasoning, *Robert Hummel* Finding and Describing Objects in Complex Images, *Michael F. Kelly and Martin D. Levine* Networks that Learn for Image Understanding, *Tomaso Poggio and Rah-Kay Sung*
- A Comparative Study of Three Paradigms for Object Recognition: Bayesian Statistics, Neural Networks, and Expert Systems, *J.K. Aggarwal, J. Ghosh, D. Nair and I. Taha*
- Towards 3-D Model-Based Tracking of Humans in Action, *D.M. Gavrila and L.S. Davis*
- Descriptive and Prescriptive Languages for Mobility Tasks: Are They Different?, *R. Bajcsy and H.-H. Nagel*
- Computer Vision and Visual Information Retrieval, *Ramesh Jain and Amarnath Gupta*
- Object-Based and Image-Based Representations of Objects by their Interiors, *Hanan Samet*
- Perceptual Intelligence, *Alex Pentland*

352 pages. 6 x 9; Softcover. June 1996. ISBN 0-8186-7644-2. Catalog # BP07644. $40.00 Members / $45.00 List. In the U.S. and Canada, call 1-800-CS-BOOKS. Online Web catalog: www.computer.org/cspress. IEEE Computer Society Press / 10662 Los Vaqueros Circle / Los Alamitos, CA 90720-1314.

The royalties from this book go to the PAMI TC to establish travel scholarships for students.

Papers to appear in PAMI [2]

Papers accepted (to be transmitted to the printer).

1. 95-05-2 Adini, Moses and Ullman Face Recognition: The Problem of Compensating for Changes in Illumination Direction
2. 95-03-20 C Madsen, H Christensen Probability Guided View Point Planning Strategies for Determining True Angles on Polyhedral Objects
3. 95-07-48 Morita and Kanade A Sequential Factorization Method for Recovering Shape and Motion from Image Streams
4. 95-03-30 Nogawa, Sato, Nakajima and Tamura Acquisition of Symbolic Description from flow Fields: A New Approach based on a Fluid Model
5. 95-09-14 Weng and Cui Transitory Image Sequences, Asymptotic Properties adn Estimation of Motion and Structure
6. 95-02-11 Z Zhang, R Weiss, A Hanson Obstacle Detection Based on Qualitative and Quantitative 3D Reconstruction
7. 95-08-13 Zhong, Huang and Adrian Extracting 3-D Vortices in Turbulent Fluid Flow
8. 95-03-29 Essa and Pentland Coding, Analysis, Interpretation and Recognition of Facial Expressions
9. 94-01-07 Ahuja A Transform for Multiscale Image Segmentation
10. 95-05-16 Bimbo and Pala Visual Image Retrieval by Elastic Matching of User Sketches
11. 95-03-17 C Nastar and N Ayache Frequency-Based Nonrigid Motion Analysis: Application to 4 Dimensional Medical Images
12. 95-03-09 D Maio, D Maltoni and S Rizzi Dynamic Clustering of Maps in Autonomous Agents
13. 95-01-31 D McReynolds and D Lowe Rigidity Checking of 3D Pint Correspondences Under Perspective Projection
14. 95-05-07 Highnam and Brady Model-Based Image Enhancement of Far Infra-Red Images
15. 93-05-12 Hull A Hidden Markov Model for Language Syntax in Text Recognition
16. 95-04-11 Lanitis, Taylor and Cootes Automatic Interpretation and Coding of Face Images using Flexible Models
17. 94-03-13 Matalas, Benjamin, Kitney An Edge Detection Technique Using the Facet Model & Parametrized Relaxation Labeling
18. 94-11-09 Najman, Schmitt Dynamics of Contours and Hierarchical Segmentation
19. 94-06-14 Poelman, Kanade A Paraperspective Factorization Method for Shape and Motion Recovery
20. 94-05-15 Sarachik The Effect of Gaussian Error in Object Recognition
21. 95-05-31 Shpitalni and Lipson Identification of Faces in a 2D Line Drawing Projection of a Wireframe Object
22. 95-11-12 Sussner and Ritter Decomposition of Gray-Scale Morphological Templates using the Rank Method
23. 95-04-08 Weinshall and Werman Disambiguation Techniques for Recognition in Large Databases and for Under-Constrained Reconstruction =
24. 94-03-22 Whaite, Ferrie Autonomous Exploration: Drive by Uncertainty
25. 95-06-08 Yong and Brady Efficient Image Component Labeling on Data Parallel Processor Arrays
26. 95-06-18 Zheng, Fukagawa and Abe 3D Shape Estimation and Model Construction from Specular Motion in the Images
27. 95-01-24 Bharath Modayur and Linda Shapiro PERFORM: A Fast Object Recognition Method Using Intersection of Projection Error
28. 95-04-10 Darrell, Essa and Pentland Task-Specific Gesture Analysis using Interpolated Views
29. 95-10-04 Gardner and Lawton Interactive Model-Based Vehicle Tracking
30. 95-05-12 Gruber and Hsu Moment-Based Image Normalization with High Noise-Tolerance
31. 95-05-19 Gunn and Nixon A Rubust Snake Implementation; A Dual Active Contour

[2] Both lists were provided by R. Kasturi. Transmitted papers will appear shortly.
Accepted papers are still in T-PAMI office. - D. Goldgof

32. 96-01-09 Hartley Kruppa's Equations Derived from the Fundamental Matrix
33. 95-02-32 M Goodrich, J Mitchell and M Orletsky Practical Methods for Approximate Geometric Pattern Matching under Rigid Motions
34. 94-12-31 Ng, Lee Comment on Using the Uniformity Measure for Performance Measure in Image Segmentation
35. 95-01-39 S Christy and R Horaud Euclidian Shape and Motion from Multiple Perspective Views by Affine Iterations
36. 95-03-11 S Lee and D Lee A New Methodology for Gray-Scale Character Segmentation and Recognition
37. 96-02-28 Shneier and Abdel-Mottaleb Expliting the JPEG Compression Scheme for Image Retrieval
38. 95-05-11 Shum, Hebert, Ikeuchi and Reddy An Integral Approach to Free-Form Object Modeling
39. 94-10-29 Tistarelli Multiple Constraints for Optical Flow
40. 94-09-15 Whaite, Ferrie On the Sequential Determination of Model Misfit
41. 95-02-24 Y Sato, M Moriyama, M Hanayama, H Naito and S Tamura Acquiring 3-D Models of Non-Rigid Moving Objects from Time and View point Varying Image Sequences: A Step Toward Levt Ventrical Recovery

Papers already transmitted to the printer.

1. 94-07-14 Barzohar, Cooper Automatic Finding of Main Roads in Aerial Images by Using Geometric-Stochastic Models and Estimation
2. 95-07-03 Chen, Schatz, Ng, Martinex, Kirchhoff and Lin A Parallel Computing Approach to Creating Engineering Concept Spaces for Se= mantic Retrieval: The Illinois Digital Library Initiative Project
3. 94-11-11 Cowell On Compatible Priors for Bayesian Networks
4. 94-12-06 Ge, Fitzpatrick On the Generation of Skeletons from Discrete Euclidean Distance Maps
5. 95-06-27 Jung, Krishnamoorthy, Nagy, Shapira N-Tuple Features for OCR Revisited
6. 94-04-26 Kita Elastic-Model Driven Analysis of Several Views of a Deformable Object
7. 95-03-37 Liu and Picard Periodicity, Directionality and Randomness: Wold Features for Image Modeling and Retrieval
8. 93-06-16 Olstad, Torp Encoding of a Priori Information in Active Contour Models
9. 95-03-26 P Larranaga, M Poza, Y Yurramendi, R Murga and C Kuijpers Structure Learning of Bayesian Networks by Genetic Algorithms: A = Performance Analysis of Control Parameters
10. 95-07-35 Ratha, Karu, Chen and Jain A Real-time Matching System for Large Fingerprint Databases
11. 95-06-43 Samet and Soffer MARCO: Map Retrieval by Content
12. 95-07-12 Sawhney and Ayer Compact Representations of Videos Through Dominat and Multiple Motion Estimation
13. 94-06-15 Shashua, Navab Relative Affine Structure: Canonical Model for 3D from 2D Geometry and Applications
14. 94-12-25 Zhu and Yuille Region Competition: Unifying Snakes, Region Growing and Bayes/MDL for Multi-band Image Segmentation lar paper
15. 95-02-04 A Earnshaw and S Blostein The Performance of Camera Translation Direction Estimators from Optical Flow: Analysis, Comparison and Theoretical Limits
16. 94-12-14 Burlina, Chellappa Spectral Methods for the Spatio-Temporal Analysis of Visual Information
17. 95-06-10 Cabrera, Meer and Leung Unbiased Estimation of Ellipses by Bootstrapping
18. 95-06-03 Finlayson Color in Perspective
19. 95-01-14 G.L. Gimel'farb Texture Modelling by Multiple Pairwise Pixel Interactions
20. 94-11-07 Goudail, Lange, Iwamoto, Kyuma, Otsu Face Recognition System Using Local Autocorrelations and Multi-Scale Integration hort Paper
21. 95-07-05 Healey and Jain Retrieving Multispectral Satellite Images using Physics-based Invariant Representations
22. 95-08-10 Hochberg, Kelly, Thomas and Kerns Automatic Script Indentification from Document Images using Cluster-Based Templates hort Paper
23. 94-12-30 Hoffbeck, Landgrebe Covariance Estimation & Classification with Limited Training Data

24. 95-02-13 J. Hu, M.K. Brown and W. Turin HMM Based On-Line Handwriting Recognition
25. 95-01-07 J.M. Reinhardt, W.E. Higgins Comparison Between the Morphological Skeleton and Morphological Shape Decomposition Paper
26. 95-03-10 J Weber and J Malik Rigid Body Segmentation and Shape Description from Dense Optical Flow under Weak Perspective rt Paper
27. 95-02-37 Kam, Kopec The Iterated Complete Path Algorithm
28. 94-10-10 Liou, Yang Handprinted Character Recognition Based on Spatial Topology Distance Measurement
29. 95-02-30 M Li and J Lavest Some Aspects of Zoom-Lens Camera Calibratio
30. 94-12-24 Malik, Whangbo, Angle Densities & Recognition of 3-D Objects
31. 95-06-36 Manjunath and Ma Pictorial Queries: Combining Feature Extraction with Database Search
32. 95-05-39 Neri and Saitta Genetic Algorithms for Pattern Recognition
33. 94-01-10 O'Gorman Subpixel Precision of Straight-Edged Shapes for Registration and Measurement
34. 95-03-24 P. Gader and M. Khabou Automatic Feature Generation for Handwritten Digit Recognition
35. 95-05-02 Park and Lee Scale-Space using Mathematical Morphology
36. 95-03-14 S Chien and H Mortensen Automated Image Processing for Scientific Data Analysis of a Large Image Database
37. 94-02-12 Seni, Nasrabadi, Srihari Large Vocabulary Recognition of On-Line Handwritten Cursive Words
38. 95-05-40 Strackee The Slope of a Straight Line; A Phoney Estimator
39. 95-07-17 Swets and Weng SHOSLIF: Hierachical Discriminant Analysis for Image Retrieval
40. 94-09-05 Wilfong, Sinden, Ruedisueli The On-Line Recognition of Handwritten Symbols
41. 95-10-11 Yu and Jain A Generic System for Form Dropout
42. 95-01-11 Z. Whang, K.R. Rao, J. Ben-Arie Optimal Ramp Edge Detection Using Expansion Matching
43. 96-03-25 Kanatani Comments on "Symmetry as a Continuous Feature"
44. 95-04-14 Casey and Lecolinet A Survey of Methods and Strategies in Character Segmentation
45. 95-07-44 Hoover, Jean-Baptiste, Jiang, Flynn, Bunke, Goldgof and Bowyer A Comparison of Range Image Segmentation Algorithms

Preliminary Announcement

ICCV 98

Sixth International Conference on Computer Vision

Bombay, India
January 4-8, 1998

General co-chairs
Narendra Ahuja *(University of Illinois)*
Uday Desai *(Indian Institute of Technology)*

Program co-chairs
Larry Davis *(University of Maryland)*
R. Narasimhan *(CMC Hyderabad)*
Masahiko Yachida *(Osaka University)*
Andrew Zisserman *(Oxford University)*

In cooperation with
IEEE Computer Society
IIT Bombay
University of Illinois
University of Maryland Institute for Advanced Computer Studies

The sixth ICCV will be held at the Tata Institute for Fundamental Research (TIFR) in Bombay, India. TIFR is located close to downtown Bombay and its wide variety of tourist attractions and accomodations. ICCV 98 has been scheduled "back-to-back" with the Asian Conference on Computer Vision, which will be held in Hong Kong immediately after ICCV.

Important (tentative) dates:

Call for Papers:	September 1996
Paper Submission Deadline:	April 1997
Author Notification:	July 1997
Manuscript Deadline:	September 1997

Information about exact dates, travel and hotels will be provided in late 1996.

CALL FOR PAPERS

IEEE NONRIGID AND ARTICULATED MOTION WORKSHOP

St. Thomas, US Virgin Islands June 15-16, 1997

URL: http://vismod.www.media.mit.edu/conferences/nramw97/

The purpose of this workshop, held in conjunction with CVPR'97, is to foster dialogue and debate through invited talks, panels and *previously unpublished* contributed papers on all aspects of nonrigid and articulated motion analysis, interpretation, estimation, tracking and synthesis. Special emphasis will be given to computer vision techniques for human motion understanding and the use of these techniques for computer graphics and virtual environment animation with enhanced realism and control. Suggestive themes for submitted papers, spanning dynamic shape/motion models, techniques, and applications, include:

- *Deformable/Articulated Models*
- *Dynamic Shape Segmentation, Estimation, Evolution*
- *Nonrigid/Articulated Motion Estimation, Understanding*
- *Analysis-by-Synthesis*
- *Object Tracking from Single/Multiple Cameras*
- *Monitoring Systems*
- *Biomedical Applications*
- *Interactive Environments*
- *Real-Time Applications*
- *Virtual and Virtualized Reality Applications*
- *Telemedicine Applications*

PAPER SUBMISSION

Four copies of complete manuscripts should be received no later than **FRIDAY, JANUARY 18, 1997** at the address: *Dimitris Metaxas, Dept. of Computer and Information Science, University of Pennsylvania, 200 South 33rd St., Philadelphia, PA 19104-6389, U.S.A.*

PAPERS SHOULD INCLUDE

1. A title page containing the names and addresses of the authors (including e-mail), an abstract of up to 200 words, and one or more categories as listed above or other keywords,
2. A summary page which includes the following: A) What is the original contribution of the paper?, B) What is the most closely related work by others?, and C) Has this paper been submitted elsewhere?
3. A second title page - title and abstract only (to allow for double blind reviewing),
4. Paper - limited to 25 double-space pages (11 points, 1 inch margins), including figures, references, etc.

NOTIFICATION OF ACCEPTANCE: **March 15, 1997;**
FINAL MANUSCRIPTS DUE AT IEEE: **April 15, 1997**.

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