



Summer 2000
Volume 22 No 3

Newsletter of the International Association for Pattern Recognition Inc
(An affiliate member of the International Federation for Information Processing)

IN MEMORIAM EDZARD GELSEMA

**Edzard Gelsema, Professor of Medical Informatics at the Erasmus University Rotterdam,
in particular for Medical Image Processing and Signal Analysis,
died on 2 March 2000.**

WE ALL REALIZED THAT THIS MOMENT WAS ABOUT TO COME, BECAUSE EDZARD HAD AN INCURABLE DISEASE. WHEN Edzard had heard about his disease, he fully comprehended the consequences, but at the same time he started to fight back. Together with his wife, Ellen, and his three children, and all his friends around him, he resisted, but had to surrender after about one year. For Edzard and all of us it was far too premature. He still had many ideas and plans. But let me start at the onset and briefly review Edzard's life as a researcher, a human being, and as a very close colleague.

Edzard was and remained with his entire heart and soul a physicist, an accurate observer, a truthful researcher, and a critical reviewer. After his Ph.D., Edzard went to CERN in Geneva where he was engaged in the observation and analysis of elementary particles in bubble chambers. Edzard became an expert in tracing the trajectories of such particles and laid, together with others, the foundation for the field of pattern recognition.

In 1974, Edzard returned to The Netherlands and reinforced the young Department of Medical Informatics at the Free University in Amsterdam. These were the years in which everything seemed possible. Edzard started a division for pattern recognition and processing of microscopic images, sharing the responsibility for a team of researchers and Ph.D. students. When in 1987 the entire group moved from Amsterdam to Rotterdam, Edzard obtained the well-deserved nomination as professor.

Edzard became professionally known worldwide. Together with Laveen Kanal of the University of Maryland he started the well-known series of working conferences *Pattern Recognition in Practice*, first in Amsterdam, later on the island of Vlieland in the north of Friesland, close to the province where he was born. With Erik Backer of Delft University of Technology he established the successful journal *Pattern Recognition Letters*. During a period of time Edzard was also the Chairman of the Dutch Society for Pattern Recognition and Image Processing and lately he was the President of the International Association for Pattern Recognition. During the years he coached many researchers and Ph.D. students.

Edzard's professional life was characterized by a multitude of activities and he was widely respected for his integrity and constructive contributions. No less he was highly regarded for his peaceful attitude. Edzard was not a person who sought conflicts. I don't think that he had any enemies other than the last enemy that took his life, death. ►



In our department, Edzard has always been a great inspirer, not only in his professional work, but also as author of many razor-sharp poems at special events. But above all, Edzard was the conductor of the choir of our department. Every lunch-break on Tuesdays was used for the rehearsal of elaborate compositions, accompanied by him on the keyboard. Performances were first given indoors, but later on also in small churches and on special occasions. We, at the department of Medical Informatics, are also missing his inspirations of this kind

We were very happy that the treatment of his disease initially had a good outcome. The summer of 1999 was enjoyable for Edzard. We organized for him an unforgettable celebration of his 25 years of research at our department. Together with his wife, children, relatives, friends and colleagues we made a boat-trip between Utrecht and Amsterdam and visited churches where his beloved choir offered him a concert and the organs played his favourite music.

The fall of 1999 was difficult and became increasingly burdensome. Edzard suffered visibly but silently from his severe disease. We all realized the vulnerability of life. In such circumstances we experienced also a great mutual dependability. I believe that the inspiration offered by the music that Edzard always selected is also accountable for the high respect we all had for him. We miss him dearly.

Jan H. van Bommel
Professor and Chairman of Medical Informatics
Erasmus University Rotterdam

A TRIBUTE TO EDZARD FROM THE DUTCH SOCIETY

THE NVPHBV EXPRESSES ITS DEEP REGRET WITH THE LOSS OF EDZARD GELSEMA, PRESIDENT OF THE IAPR.

Edzard Gelsema has passed away on 2 March 2000 amidst his family and friends. Suffering from illness for a year, Edzard initially responded very well to therapy, so hopes were positive. The sixth Pattern Recognition in Practice conference was held on his favourite island Vlieland, The Netherlands, 2-4 June 1999. A new PRP conference was announced. Unfortunately, death came around a second time - as was foretold by a poem entitled "De tuinman en de dood" that he had put on the cover of the ISPAHAN manual for years.

Edzard Gelsema was born on 4 February 1937. After studying physics, he was one of the first to enter into the new field of image processing and pattern recognition. At CERN in Geneva, he worked on bubble chamber interaction events. He designed the interactive software system for statistical pattern recognition, ISPAHAN, at a time when interaction was a dirty and rarely used word. Motivated by the

favourable reactions, he kept the package alive for many decades. After having moved back to Amsterdam he started working at the department of Medical Informatics at the Vrije Universiteit (Free University of Amsterdam), with a focus on the classification of white blood cells. He developed classification techniques for these cells up to a point where recognition could not be improved much further. His move to the Erasmus University in Rotterdam in 1988 brought a professorship in medical informatics and a broadening of pattern recognition activities.

Edzard Gelsema was one of the founders of the Dutch Society for Pattern Recognition and Image Processing NVPHBV. He served as its first chairman. In 1999, Edzard was appointed a honorary member of the NVPHBV. We are grateful the honour has reached him in time. Edzard was the organizer of the successful series of *Pattern Recognition in Practice* workshops. Also, jointly with Prof. Eric Backer he founded the international journal *Pattern Recognition Letters*. As Editors-in-Chief they brought the journal to a scientifically well respected level. PRL is now one of the IAPR-affiliated journals.

With the death of Edzard we loose a friend and a gentleman. We will remember him for all the words he said (and all he kept for him), never a word too much. Our condolences go to his wife and children and in addition to his colleagues at Erasmus University. We conclude with the poem which was on the inside cover of the ISPAHAN manual. The original is by the Dutch poet P.N. van Eyck, who lived from 1887 - 1954. The translation is by Edzard.

The Gardener and the Death Narrative of a Persian Nobleman

This morning runs my gardener ill at ease
Into my mansion: "Sit, one moment please,
There in the garden many trees I lopped
Then I saw death and lo, he stopped.

I ran away, started at the sight
The menace of his hand pervaded me with fright.
Master, your horse and let me hast'ly flee
Before the night in Ispahan I'll be".

This afternoon, during my daily walk
Out in the cedar park with death I had a talk
He waits in silence, so I ask him "Pray,
why did you scare my servant, so that he fled away?"

"No threat it was that made your valet flee"
He says, "I was amazed to see
So leisurely at work this morning yet
The one this evening in Ispahan I was to get".

Written on behalf of the Dutch Society for
Pattern Recognition and Image Processing
By Max Viergever, Arnold Smeulders and Guus Beckers

FROM THE



President Gelsema's Death

IT WAS WITH GREAT SADNESS THAT, AFTER THE SUDDEN death of Professor Simon, we also had the death of IAPR President E. Gelsema who passed away on March 2, 2000 after a long illness. He is missed by the IAPR community and, in particular, by the Executive Committee.

We will remember him as a leading scientist, active promoter of IAPR, and fine individual. Professor Gelsema was IAPR 1st Vice President (1996-98), President 1998-2000, GB-Member, The Netherlands (1990-1996). He was the 11th ICPR General Co-Chair (with E. Backer), The Hague 1992 and the first Chairman of the Dutch Society for Pattern Recognition, NVPBV. He was also Founder and Managing Editor (with E. Backer) of *Pattern Recognition Letters* and the Organiser of the successful series of IAPR sponsored conferences *Pattern Recognition in Practice*.

IAPR Website

Details of the new IAPR website are opposite and we thank Michal Haindl for setting this up and maintaining it so expertly. Members' address changes are regularly updated on the site so please check for full details. Both the new address www.iapr.org and <http://peipa.essex.ac.uk/iapr/> will be operative for a while to ensure a smooth change.

New Members

We are pleased to announce the 37th member association for the IAPR. The Cuban Association for Pattern Recognition (Asociacion Cubana para el Reconocimiento de Patrones, ACPR) joined the IAPR after a GB ballot with a deadline of April 29, 2000. ACPR currently has 36 individual members (the list of members is already in the IAPR archives together with copy of the English version of the ACPR C&B) and its GB representative is Dr. Roberto Rodríguez Morales. The complete addresses of ACPR, as well as that of Dr. Rodríguez Morales, can be found on the IAPR website

K.S. Fu Prize Recipient

We are pleased to announce the name of the year 2000 recipient of the K.S. Fu Prize: Professor Theo Pavlidis. Professor Pavlidis was unanimously recommended by the K.S. Fu Prize Committee (H. Freeman, L.N. Kanal, T. Kohonen, A. Rosenfeld (chair), the late J.C. Simon, K. Yamamoto) and there was a very large participation in the GB ballot. Of his many contributions to the field, the committee singled out his work on structural pattern recognition.

Barcelona ICPR

This ICPR is special for several reasons. First, it will be the last ICPR in the second millennium, or the first one in the third millennium, depending on the year you think a millennium starts with. Secondly, it received the most papers

ever submitted to an ICPR, and the organisers expect the largest number of people ever attending an ICPR. And thirdly, it marks 25 successful years of IAPR activities.

Indeed, IAPR was only founded at the 3rd International Conference on Pattern Recognition in Coronado, California, on November 8, 1976. But a significant portion of the work to set up the organisation was actually already done in the year 1975. On looking back, we see an increasing number of developments and activities. This clearly shows us that our association is in a very prosperous state.

As already pointed out in the Spring issue, the IAPR Governing Board meeting will be held on Tuesday (September 5). Among the issues to be discussed during the GB meeting is the selection of the venue for the 2004 ICPR.

Horst Bunke, Gabriella Sanniti di Baja

IAPR Domain on the Web



WE HAVE FINALLY SUCCEEDED IN REGISTERING OUR own IAPR domain (after time consuming problems with Network Solutions, Inc.), and our new address is www.iapr.org. This new server is located in Prague (IP 147.231.10.201) on its own dedicated machine connected through the 155 Mbit/s network to the rest of Europe.

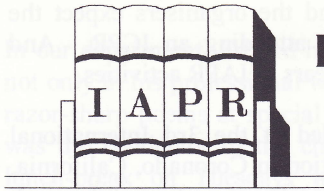
We plan to run both the current servers (Prague as well as the Essex server - peipa.essex.ac.uk/iapr/) in parallel for the next few months to ensure a smooth change (links updates by our member societies and TC web managers) and to have a reserve in the case of unexpected problems. Both servers share identical information with the exception of restricted access area data (Executive Committee working material, etc.) which are located only in the Prague server.

Not all our members have a free and high-speed access to the Internet so our recent web policy has been to prefer easily accessible information content rather than fancy page styles. Similarly our server avoids techniques which are not supported by all current major browsers.

The server is intended to keep IAPR information of general interest and to maintain links to other more specialised web sites, mainly to conferences, member societies and IAPR technical committee local sites. Unfortunately some important links are still missing (17 member societies out of 37, 6 TCs out of 16 and 2 IAPR sponsored conferences) either because these pages do not exist or we do not know about them. Our ambition is to provide current and correct information, so please, do not forget to inform me about any changes (affiliation, address, links, etc.) related to our data. Besides our official pages any member is welcome to contribute to our unmoderated correspondence *Forum* page.

Finally we invite your ideas as to how we may improve or complete our web pages

Michal Haindl - IAPR Web Site Manager



BOOK REVIEW

OPTICAL CHARACTER RECOGNITION An Illustrated Guide to the Frontier

by

Stephen V. Rice, George Nagy, & Thomas A. Nartker
Kluwer Academic Publisher 1999

LOOKING AT THE TITLE OF THE BOOK *Optical Character Recognition* and not noticing the subtitle, I was very much surprised by the content of the book. Instead of getting a fundamental overview of character recognition methods, I saw numerous pages with small images containing phrases or words in different font styles. However, not discouraged by this, I started to read the book and came to the conclusion that we need more of this kind of activity in order to be able to evaluate models in computer vision. It is the first book to give a systematic description of a standard test image set for system evaluation in character recognition.

Three different OCR systems were evaluated on different test images having different characteristics in image quality, typography and punctuation. At the beginning of the book, the authors try to give a systematic overview about the factors that influence the recognition rate of an OCR system. Then, they show on example images how the three systems can deal with these difficulties.

The illustrations show the original image and the results given by the three OCR systems. The reader can see what will go wrong when reading each type of image using a particular OCR system. Unfortunately, only very superficial descriptions of the systems are given, probably since the systems are commercial. That leaves the reader alone with his/her observation. The reader cannot draw out any conclusion why it went wrong. Finally, the authors give an overview as to what should be further research directions in order to overcome the described and visualized difficulties.

Certainly, these test images can be a good basis for other tests and comparisons of OCR algorithms and systems. The authors provide us with a long list of the source examples taken for the experiments in the appendix of the book. However, the real data set cannot be accessed from the Internet, as is the usual procedure in many other fields (e.g. in machine learning). The interested reader must write to the research institute of one of the authors in order to get the test set. That seems not to stimulate other researchers to test their algorithm on this test set of images. Other researchers are not invited to contribute to the test set. Besides that, the question arises: is this test set large enough in order to evaluate the model? Unfortunately, the authors don't give any formal discussion on that topic.

Petra Perner
*Institute of Computer Vision &
Applied Computer Sciences, Leipzig, Germany*

NEW GOVERNING BOARD MEMBERS

As we say goodbye to two retiring Governing Board Members, we are delighted welcome two new representatives to the Board:

For Italy

We welcome **Luigi Cordella** who replaces Alberto Del Bimbo as President of the Italian Chapter.

For Finland

We welcome **Jussi Parkkinen** who will replace Erkki Oja and join the second member for Finland, Matti Pietikäinen.

Full contact details for these new members can be found in the IAPR Directory on the web site.



NOTICE BOARD

IAPR NEWSLETTER

Published in association with
<http://www.iapr.org>



DEADLINE AUTUMN EDITION

25 SEPTEMBER 2000

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Welcome to the 37th Member of IAPR CUBAN ASSOCIATION FOR PATTERN RECOGNITION (ACPR)

THE CUBAN ASSOCIATION FOR PATTERN RECOGNITION (ACPR) was constituted in the Havana city. It has a national scope and constitutes a scientific section of the Cuban Association of Mathematics and Computation (SCMC), in accordance with Associations law No. 1320 of 26th November 1976.

At this moment our Association has 36 members, which belong to *Institute of Cybernetics, Mathematics & Physics (ICIMAF)*, *Havana University*, *Ciego de Avila University*, *Technical University of Havana (ISPJAE)*, *Medical Biophysics Centre*, amongst others.



President
Roberto Rodríguez Morales

The field of interest is Pattern Recognition and the allied branches of engineering, together with the related arts and sciences; the objective is the advancement of theory and practice in the field of interest.



Treasurer
Eduardo Alba Cabrera

Fields of interest of the association are:

- To promote, to co-ordinate and to develop activities in Pattern Recognition, such as: Image and Signal processing, Recognition, Analysis and Interpretation of Images, Mathematical Models of Statistical, Syntactic and Combinatorial Pattern Recognition, Recognition of Voice, Computer Vision and Remote Sensing.
- To help interchange of information and experience between researchers and professionals in Pattern Recognition.

- To establish scientific relations with other national and international organisation, in particular, with the association members of the IAPR.
- To divulge information to the general public on Pattern Recognition.
- To create committees and working groups in relational themes in Pattern Recognition.



Secretary
José Ruiz Shulcloper



Executive Board Member
Manuel S Lazo Cortés

The social site of the Cuban Association for Pattern Recognition is the Centre of Mathematics and Theoretical Physics of Institute of Cybernetics, Mathematics, and Physics (ICIMAF) in Calle E, No. 309, esquina a 15, Vedado, Ciudad de La Habana, CP 10400, Cuba



FROM OUR OWN CORRESPONDENT

BABU MEHTRE

Indian Sub Continent

Pattern Recognition and Related Activities In the Indian Statistical Institute Calcutta, India

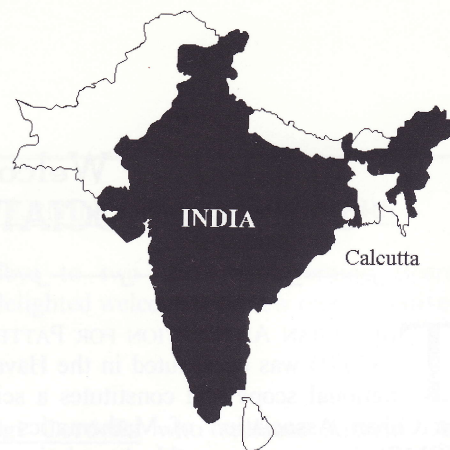
THE INDIAN STATISTICAL INSTITUTE (ISI), CALCUTTA was founded by Professor P. C. Mahalanobis in 1931. Right from its inception, it has played a leading role in establishing Statistics as a key discipline of practical and theoretical interest in India. The Institute has made many important contributions like the Mahalanobis Distance, Cramer-Rao inequality, Generalized inverses of matrices, Rao-Blackwell Theorem to its credit. It has also pioneered in computer research and training in India. In fact, the first Indian analog computer was fabricated here.

The institute is multidisciplinary in nature and offers graduate and postgraduate degrees in Mathematics, Statistics, Computer Science, Quality Control and Operations Research, Econometrics, Library Science. Research is conducted on a wider range of subjects including Physics, Anthropometry, Plant Chemistry, Linguistics and Sociology. The Institute has eight other campuses with about 300 scientists and about the same number of technical staff engaged in training, research and various kinds of project-related activities.

ISI, Calcutta supports, among others, extensive research in Pattern Recognition, Image Processing, Natural Language Processing and their applications. Over the past years, research groups at Computer Vision and Pattern Recognition Unit, Machine Intelligence Unit as well as Electronics and Communication Sciences Unit have made major contributions in these areas. Document image processing, speech synthesis and analysis, computational linguistics, approximate reasoning, data classification and clustering, data compression and visualization and development of tools using fuzzy sets, neural net and genetic algorithms are major subjects of interest.

The institute has witnessed pioneering development in Optical Character Recognition (OCR) in two major Indian Language scripts *viz* Bangla and Devnagari (Hindi). These OCRs work with 98% accuracy and are now ready for commercialization. Other scripts like Oriya and Telugu are being included in the OCR system while work on handwritten script has been initiated. Other document-based activities are recognition of mathematical expression, table interpretation and information extraction from printed as well as hypertext documents in Indian language.

In computational linguistics and Natural Language Processing (NLP), a big corpus of 3 million words each for several Indian languages has produced many interesting statistical results. A generalized Lexical Function Grammar and morphological processor as well as a spell-checker is developed for Bangla language. Other NLP studies involve



Onomatopoeia and reduplicated words, echo formation, Zipf law and Menzerath law as well as computational stylistics including readability indices.

This institution also pioneered in Indian language speech synthesis and analysis. The speech synthesis is based on phoneme, partname and diphone concatenation. Some interesting applications like talking dictionary, speech interface for keyboard entry by the blind are also developed. The synthesis related problems like grapheme to phoneme conversion, intonation and stress pattern analysis are also conducted.

In bio-medical image processing, the study of histopathological images acquired with a confocal laser scanning microscope is being conducted for the recognition and grading of prostate section images for early detection of cancer. Some interesting work on automatic detection and counting of 3-D Fluorescent In-Site Hybridization (FISH) signal has been completed. Other studies involve automatic registration of brain images obtained by different sensors and tissue classification of MRI images.

Shape detection and boundary estimation of point pattern, skeletonization, as well as spatial set estimation from a point set have been successfully addressed. Some computational geometric problems like determination of convex hull, minimum enclosing circle and Voronoi diagram are solved by neural net and genetic algorithm. Other studies involve clustering of points in space, determination of seed points and new definition of spatial neighborhood. New concepts related to fuzzy geometry of image space are also proposed. Effectiveness of fractal representation for performing certain image processing tasks, like compression, magnification, edge extraction etc., has been demonstrated both experimentally and theoretically.

Some variants of Neural Net and Genetic algorithms are proposed for solving real world problems. Theoretical issues like convergence, speed and accuracy have been addressed in the proposed models. The application of neuro-fuzzy computing in feature selection and extraction as well as in knowledge-based reasoning and case-based reasoning has been reported. Some important real life applications of neuro-fuzzy approaches include EEG and fingerprint classification. Fuzzy geometrical features are used for classifying distorted overlapping fingerprints directly from raw images. The design of a medical design support system for cancer management using a knowledge-based network in soft computing paradigm is under progress. This system is expected to exploit the desirable properties of neural

networks, knowledge encoding capabilities of rough set, the uncertainty handling capability of fuzzy sets and the robustness and parallelism of genetic algorithms.

A multi-dimensional pattern classification system using fuzzy relational calculus for rheumatological diseases is under development. Another study aims to emulate some natural phenomena in modeling efficient genetic algorithms. It also plans to develop new methods for improving the performance of genetic algorithms in handling more complex, multi-model and highly epistatic problems and detection of robust solutions.

The task of building a knowledge-based expert system for recognizing atmospheric patterns and making reliable predictions of atmospheric dynamics has been taken up. The development of methodologies for self-organizing fuzzy logic controllers with special emphasis on neuro-fuzzy techniques, genetic algorithms and stability analysis is also being considered. Moreover, a real time intelligent decision making system for achieving some goals of range safety is under development.

A multivalued recognition system, which minimizes uncertainty in decision making by providing output in four states, has been successfully implemented in identifying ill-defined man-made objects such as airports, seaports, roadmaps, beaches etc. from IRS image data. Dempster-Shafer theory of evidence has been used to integrate feature-wise rank information to design classifiers. An intelligent decision making system for obstacle avoidance by a mobile robot has been developed. The task of incorporating audio and visual capability is in progress.

For further information about ISI, readers are requested to visit the website <http://www.isical.ac.in>. Queries may be sent to cvpr@isical.ac.in.

KING-SUN FU PRIZE

THE KING-SUN FU PRIZE FOR THE YEAR 2000 WILL BE awarded to Professor Theodosios Pavlidis of the State University of New York in Stony Brook, NY, U.S.A. The Prize will be presented to Professor Pavlidis at the 15th ICPR in Barcelona, Spain.

Professor Pavlidis is a 1957 Diplomate of the National Technical University in Athens, Greece. He received M.S. and Ph.D. degrees from the University of California in Berkeley, CA in 1962 and 1964. From 1964 to 1980 he was on the faculty of Princeton University; from 1980 to 1986 he was a Member of the Technical Staff of Bell Laboratories; and since 1986 he has been on the faculty of SUNY at Stony Brook, as a Leading Professor from 1986 to 1995, and as a Distinguished Professor since 1995.

Professor Pavlidis pioneered a distinct strain of "structural" pattern recognition methodology, still influential after nearly 30 years, which emphasizes the judicious choice of data structure (often a special type of graph) to represent the problem instance, permitting the reduction of many naturally occurring problems to tractable graph- and string-matching optimization problems. These frequently cited methods have enabled mathematical approaches to image analysis that helped succeeding researchers put their work on rigorous foundations. For example, his innovations in image segmentation include the use of functional approximation, piecewise linear and piecewise-planar methods, the split-and-merge method, and line- and region-adjacency graph analysis.



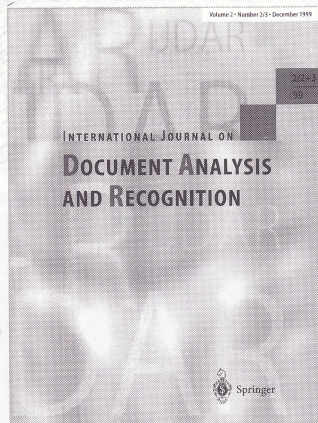
His numerous contributions to interactive and automatic picture editing techniques include scan conversion of conics, font-scaling techniques, and image beautification methods used widely within Bell Laboratories.

His seminal contributions to document processing include accurate vectorization of document images, architectures for "omnifont" optical character recognition systems, and the direct extraction of features from gray scale. His many contributions to OCR at AT&T, SUNY Stony Brook, and Symbol Technologies have provided that field with technical leadership in addressing the many limitations of commercial systems.

He has also contributed fundamentally to improvements in bar coding, including a robust 2-D bar coding method (PDF417) that can carry far more information than previously used methods and which opens bar coding to a much wider realm of possible applications. PDF417 is now used in driver's licenses and vehicle registration cards in many states (including New York) and has been adopted or considered for adoption in many countries (including China).

*Azriel Rosenfeld
Chairman K S Fu Prize Committee*

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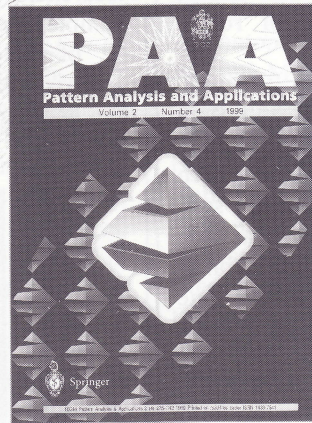


International Journal on Document Analysis and Recognition (IJ DAR)

Editors-in-Chief:

D.S. Doermann, College Park/MD;
S.-W. Lee, Seoul, Korea;
S.N. Srihari, Amherst/NY;
K. Tombre, Vandœuvre-lès-Nancy, France

2000. Vol. 3, 4 issues
 DM 268
 ISSN 1433-2833 Title No. 10032
 ISSN 1433-2825 (electronic edition)



Pattern Analysis and Applications (PAA)

Editor-in-Chief:

S. Singh, Plymouth, UK

2000. Vol. 3, 4 issues
 £ 204
 ISSN 1433-7541 Title No. 10044
 ISSN 1433-755X (electronic edition)

Machine Vision and Applications

An International Journal
 Official Journal of the
 International Association
 for Pattern Recognition (IAPR)

Editor-in-Chief:

M.M. Trivedi, San Diego/CA

2000. Vol. 13, 6 issues
 DM 598
 ISSN 0932-8092 Title No. 138
 ISSN 1432-1769 (electronic edition)



The Visual Computer

International Journal of
 Computer Graphics
 Official Journal of the
 International Computer Graphics
 Society, CGS

Editor-in-Chief:

N. Magnat-Thalmann, Geneva, Switzerland

2000. Vol. 16, 8 issues
 DM 1198
 ISSN 0178-2789 Title No. 371
 ISSN 1432-2789 (electronic edition)



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ICPR 2000 BARCELONA



3-8 SEPTEMBER 2000

By now most of you will know about ICPR2000, but just as a last reminder we are including some more of the preliminary program that we have prepared for all those that will visit Barcelona between the 3rd and the 7th of September. ICPR2000 has had a very high participation this year. We received 1457 papers, from which 968 have been selected. 1000 registrations have already been made during the early registration time.

The seven Plenary Speeches for which we have invited highly professional and specialised experts were listed in the Spring edition of the *Newsletter*. We also have 27 special Invited Papers for which we have invited 27 experts to write about the state of the art of a specific subject, giving a personal review and outlook on the topic in a provocative, entertaining and meaningful way. They are:

Yiannis Aloimonos *The Process of correspondence in Vision*; **Kalle Astrom** *Multiple view vision, the inverse of Computer Graphics - from Asteroids to Toy Story*; **Kostas Daniilidis** *Omnidirectional Vision: Theory and algorithms*; **Graham Finlayson** *Computational Colour Constancy*; **Gerard Medioni** *3D Structures for recognition*; **Hans-Hellmut Nagel** *Image sequence evaluation: 30 years and still going strong*; **Randal Nelson** *Learning 3D recognition models for general objects from unlabeled imagery*; **Harry Wuechler / Chengjun Liu** *Learning the Face Space - Representation and Recognition*; **Horst Bunke** *Structural pattern recognition*; **Robert Duin** *Classifiers in Almost Empty Spaces*; **Lee Giles** *Searching the web: Current limitations, new techniques and future directions*; **Theo Pavlidis** *A New Paper/Computer Interface: Two-dimensional Symbolologies*; **Jayashree Subrahmon** *Pen Computing: Challenges and Applications*; **Karl Tombre / Salvatore Tabbone** *Vectorization in graphics recognition: to thin or not to thin*; **Carme Torras** *Neuroadaptive Robotics*; **Hans Knutsson** *Automated generation of representations in vision*; **Murat Kunt** *Multimedia signal processing*; **Jean Serra** *On Ridges and Valleys*; **Josep Amat** *Gestural environment control by computer vision*; **Toni Susin / Isabel Navazo / Alvar Vinacua / Pere Brunet** *Dynamic Recognition and Reconstruction of the Human Heart*; **Alberto del Bimbo** *Content based retrieval of image database*; **Larry Davis / Vasanth Philomin / Ramani Duraswami** *Detecting and tracking humans in outdoor environments*; **Seiji Hata** *Practical visual inspection techniques*; **Yasuaki Nakano** *The Needs and Seeds in Character Recognition*; **Joan Serrat** *Survey on medical image registration techniques*; **Ching Suen** *Hand writing recognition - The Last Frontiers*

Half-day tutorials will be offered on the first day of the Conference (3rd of September). Tutorials are addressed to a wide spectrum of graduate students, young researchers, and any other person who wishes to expand their knowledge in any of the subjects offered:

Marrying Statistics and Neural Networks to Design Classification Algorithms (Prof. Sarunas Raudys); *User-oriented remote sensing image analysis* (Prof. Paul Smits); *Learning Techniques in Audivisual Information Processing* (Prof. Alex Pentland); *Large Vocabulary Continuous Speech Recognition* (Prof. Hermann Ney); *Tensorial Description of Multiple View Geometry* (Prof. Anders Heyden); *Image Search Engines: Techniques and Applications* (Profs. Theo Gevers and Arnold Smeulders); *Soft Computing Pattern Recognition* (Prof. Sankar K. Pal); *Probabilistic Graphical Models* (Prof. Chris Bishop); *Color Science with Engineering Applications* (Prof. B.A.Wandell); *BioMedical Image Analysis: Fundamental Concepts and Techniques* (Prof. Mostafa Analoui); *Geographic Information Systems (GIS)* (Prof. Hanan Samet).

There will also be a special poster session devoted to the results of some contests that have been promoted by the Conference: *Range Image Segmentation Contest* (Prof Xiaoyi Jiang); *Algorithm Performance Contest* (Prof Robert M. Haralick); *Graphic Recognition Contest* (Prof. Atul Chhabra); *Face Authentication Contest* (Prof Josef Kittler)

Please do not forget that if you wish to register to ICPR2000 you must visit our web-page:
<http://icpr2000.uab.es/inscripciones/entradaInscripcion.htm>.

We look forward to seeing you in September !!

FORTHCOMING SPONSORED CONFERENCES

5th International Colloquium on Grammatical Inference (ICGI-2000)

11-13 September 2000 - Lisbon, Portugal

This colloquium brings together researchers in the fields of grammar induction and learning. Topics include, but are not limited to:

- algorithms for induction of languages
- theoretical and experimental evaluations
- complexity results and other related subjects

with emphasis being given to contributions describing demonstrated or potential applications in pattern recognition, computational biology, information retrieval, systems modelling, text processing and intelligent agents.

This year, ICGI will be held jointly with the 2nd Learning Language In Logic (LLL) Workshop and the Fourth Computational Natural Language Learning (CoNLL) Workshop. It will also be co-located with SIARP, the V Ibero-American Symposium on Pattern Recognition.

Image & Vision Computing 2000 NZ Conference (IVCNZ'00)

27-29 November 2000 - Waikato, New Zealand

The conference provides a forum for a small but active group of people to share ideas on computed vision and vision processing. Abstracts are invited in the following areas:

- Texture recognition
- Object recognition and 3D scene analysis
- Camera calibration and image acquisition
- Segmentation
- Stereo matching and optical flow
- Image compression
- Application Issues
- Any other digital image computing areas

Submissions (1 page maximum) to:

Dr Michael Cree, Department of Physics and Electronic Engineering, University of Waikato, Hamilton, New Zealand

m.cree@waikato.ac.nz

<http://www2.phys.waikato.ac.nz/ivcnz00>

Abstract deadline: 21.08 00

Camera ready copy: 20.10.00

Robot Vision 2001 (RobVis'01)

16-18 February 2001 - Auckland, New Zealand

Novel and interesting results in Robot Vision have led to a broad range of applications of computer vision and this workshop will include topics including, but not restricted to:

- Active vision
- Calibration
- Learning vision & action
- Motion analysis

- Multi-camera systems
- Performance evaluation
- Robot vision architectures

Submissions:

4-6 pages (English) electronically in postscript or PDF to r.klette@auckland.ac.nz

<http://www.tcs.auckland.ac.nz/~robvis01>

Abstract deadline: 29.09.00

Camera Ready Copy: 10.11.00

International Conference on Advances in Pattern Recognition (ICAPR'2001)

11-14 March 2001 - Rio de Janeiro, Brazil

Tutorials will take place on the first day of the conference lasting approx 2 hours each and exhibits will include examples of hardware and software applications of pattern recognition technology.

Further details: espaa@essex.ac.uk

<http://www.utp.br/icapr2001>

Sixth International Conference on Pattern Recognition and Information Processing 15-17 May 2001, Minsk, Belarus

The conference will provide a forum for scientists and engineers to exchange up-to-date technical knowledge and experience and define ways of further development. The conference will focus on both theory and applications. Topics of the Conference include, but are not limited to:

- Pattern Recognition
- Image Analysis
- Signal Processing, Systems and Parallel Architectures for Signal and Image Processing
- Knowledge-Based Expert and Decision Support Systems
- Application of Pattern Recognition and Image Analysis
- 3D Image Processing and Modelling

Submission to:

PRIP'2001, Prof S Ablameyko, Institute of Engineering Cybernetics, National Academy of Sciences of Belarus, Surganova str 6, 220012, Minsk, Belarus.

prip@newman.bas-net.by

Detailed submission information:

<http://www.bas-net.by/iec/conferen.htm>

Full Paper deadline: 15.11.00

Acceptance notification: 15.02.01

The Secretariat apologises for incorrect data printed in the meetings chart for this meeting in the last newsletter.

CHECK INDIVIDUAL WEB SITES FOR UP-TO-DATE SUBMISSION DETAILS

4th International Workshop on Visual Form (IWVF4)

28-30 May 2001 - Capri, Italy

The conference will focus on two- and three-dimensional shape to give participants an updated picture of the state-of-the-art in the field.

Topics will include, but not be restricted to:

- All aspects of 2D and 3D Shape in Human and Machine Perception
- Pattern Recognition
- Computer Vision
- Areas such as shape perception, representation, decomposition, description, recognition, and related topics

For further information about the workshop and full details on paper submission procedures, registration, venue and accommodation visit our website:

<http://amalfi.dis.unina.it/iwvf4/>

Abstract deadline: 30.09.00
Camera ready copy: 15.02.01

To take place prior to IWVF4

3rd IAPR TC15 Workshop on Graph Based Representations in Pattern Recognition (GBR) 23-25 May 2001 - Ischia, Naples

For further details see:

<http://amalfi.dis.unina.it/gbr2001>

12th Scandinavian Conference on Image Analysis (SCIA'01) 11-14 June 2001 - Bergen, Norway

Topics will be include, but not be restricted to:

- Image analysis
- Computer vision
- Pattern recognition
- Neural Networks
- Statistical methods
- Industrial applications
- Multimedia
- Biomedical applications
- Remote sensing
- Future technologies

Further details:

lvar.Austvoll@tn.his.no

Full submission details:

<http://www/his.no/scia2001>

Full paper deadline: 06.11.00
Camera ready copy: 19.03.01

Third International Workshop on Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR'2001)

3-5 September, 2001 - Sophia-Antipolis, France

The aim of this workshop is to bring together people with research interests in this interdisciplinary topic. Although the subject is traditionally well represented in major conferences this workshop provides a forum where researchers can report recent work and engage in more informal discussion.

The scientific program of EMMCVPR-2001 will include the presentation of invited talks and contributed research papers. As with the previous editions (1997 and 1999), the proceedings will be published by Springer Verlag in the Lecture Notes on Computer Science (LNCS) series. The workshop is sponsored by the International Association for Pattern Recognition (IAPR), and will be hosted by the Sophia-Antipolis research unit of INRIA (the French National Institute for Research in Computer Science and Control), in France.

A list of topics includes (but is not restricted to):

- Markov random fields
- Probabilistic networks/graphical models
- Variational formulations
- Deformable models
- Graph matching
- Statistical pattern recognition
- Supervised learning
- Unsupervised learning
- VC-theory and support vector machines
- Information theoretic methods
- Model selection
- Computational neurobiology
- Visual perception and psychophysics
- Neural networks for classification and regression
- Markov-Chain Monte Carlo methods
- Relaxation labelling
- Variational and mean-field methods
- Self-organizing networks
- Evolutionary / genetic approaches, Applications

Full submission details: <http://red.lx.it.pt/~emmcvpr>

Paper deadline: 03.02.01
Camera ready copy: 31.05.01

11th International Conference on Image Analysis and Processing (ICIAP 2001) 26-28 September - Palermo Italy

ICIAP has been organised biennially since 1981 with the aim of providing an international forum for the presentation and discussion of advances in the field. Full details will appear in the next edition of the newsletter and advance information can be viewed on: <http://dijkstra.cere.pa.cnr.it/ICIAP>



IAPR CONFERENCES WORKSHOPS AND EVENTS

Check updated information on individual web sites or <http://www.iapr.org>

Year	Event	Location	Deadlines	Contact
2000				
30-31 July	SPIE's Vision Geometry XI	San Diego USA	<i>Deadlines Passed</i>	Fax: +49 40 42838 5117 latecki@math.uni.hamburg.de http://www.math.uni-hamburg.de/home/latecki/
1 Sept	1st Int. Workshop on Pattern Recognition in Remote Sensing	Andorra	<i>Deadlines Passed</i>	Fax: +44 1483 34139 m.petrov@ee.surrey.ac.uk http://www.ee.surrey.ac.uk/M.Petrov/workshop.html
3-8 Sept	15th International Conference on Pattern Recognition	Barcelona Spain	<i>Deadlines Passed</i>	Fax: +34 93 325 27 08 icpr2000@cvc.uab.es http://www.cvc.uab.es/ICPR2000
11-13 Sept	5th Int. Colloquium on Grammatical Inference	Lisbon Portugal	<i>Deadlines Passed</i>	Fax: +351 21 3145843 aml@inesc.pt http://algorithms.inesc.pt/icgi:2000
16-22 Oct	5 th Int Conference on Pattern Recognition & Image Analysis	Samara Russia	Abstract: 01/07/00 Final Manuscript: 01/09/00	Fax: +7 095 135 9033 igourevi@ccas.ru http://www.ipsi.smr.ru/roai
27-29 Nov	Image & Vision Computing 2000 New Zealand Conference	Hamilton New Zealand	Abstract: 21/08/00 Final Manuscript: 20/10/00	Fax: +64 7 838 4219 m.cree@waitato.ac.nz http://www2.phys.waikato.ac.nz/ivcnz00
28-30 Nov	Seventh Workshop on Machine Vision Applications	Tokyo Japan	Abstract: 31/05/00 Final Manuscript: 20/09/00	Fax: +81 3 3401 1433 ki@is.u-tokyo.ac.jp http://www.edi.go.jp/ed/gazo/mva2000/
13-15 Dec	9th Discrete Geometry for Computer Imagery	Uppsala Sweden	Abstract: 28/04/00 Final Manuscript: 01/09/00	Fax: +46 18 55 34 47 ingela@cb.uu.se http://www.cb.uu.se/~dgcj2000
2001				
16-18 Feb	Robot Vision 2001	Auckland New Zealand	Abstract: 29/09/00 Final Manuscript: 10/11/00	Fax: +64 9 373 7001 r.klette@auckland.ac.nz http://www.tcs.auckland.ac.nz/~robvis01
11-14 Mar	Int. Conference on Advances in Pattern Recognition	Rio de Janeiro Brazil	Abstract: 15/03/00 Final Manuscript: 15/10/00	Fax: +44 1392 264066 espa@essex.ac.uk http://www.utp.br/icapr2001
15-17 May	6th Int. Conference on PR and Information Processing	Minsk Belarus	Full Paper: 15/11/00	Fax: +375 17 231 8403 prp@newman.bas-net.minsk.by http://www.bas-net.by/iec/conferen.htm
28-30 May	4th Int. Workshop on Visual Form	Capri Italy	Abstract: 30/09/00 Final Manuscript: 15/02/01	Fax: +39 0815267 654 iwvf4@imagn.cib.na.cnr.it http://amalfi.dls.unina.it/iwvf4/
11-14 June	12th Scandinavian Conference on Image Analysis	Bergen Norway	Full Paper: 06/11/00 Final Manuscript: 19/03/01	Fax: +47 5183 1750 ivar.austvoll@tn.his.no http://www.his.no/scia2001/
3-5 Sept	Third Int. Workshop on Energy Minimization Methods in Computer Vision and PR	Sophia-Antipolis France	Paper: 03/02/01 Final Manuscript: 31/05/01	Fax: +33 492 38 76 43 Marie-Helene.Zeitoun@sophia.inria.fr http://red.ki.it/~emncvpr
26-28 Sept	1 st International Conference on Image Analysis & Processing	Palermo Italy	Abstract: 28/02/01 Final Manuscript: 31/05/01	Fax: +39 091 652 9124 http://dijkstra.cerepa.cnr.it/CIAP
ICIAAP2001				

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