INTERNATIONAL ASSOCIATION FOR PATTERN RECOGNITION

IAPR Newsletter

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Special Issue:

ICPR2004

*This issue of the IAPR Newsletter covers many events at the International Conference on Pattern Recognition, the premier conference of the IAPR, which was held in August in Cambridge, UK.*

*Among the most popular of these events were the 6 invited talks, highlighted in this issue.*

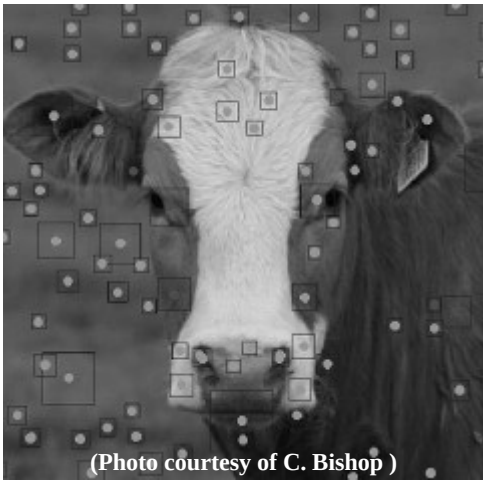
**www.iapr.org**

# ICPR2004 Invited Talks

## Generative vs. Discriminative Methods in Computer Vision

**Christopher Bishop (Microsoft Research, UK)** explored the use of generative and discriminative methods in machine learning through the pattern recognition application of object recognition. The generative approach is 2-step, classical Bayesian. A functional form of the prior probabilities is assumed and parameters of this model are estimated from the training data. Then, Bayes rule is used to determine a classifier from this model. The discriminative approach skips the modeling stage of the priors, instead directly estimating the posterior probability for class labels from the training data. In mathematical terms, the generative approach is: 1) estimate the class probability $p(c)$ and joint probability $p(x,c)$ functions from the training data, and 2) calculate the conditional probabilities $p(c|x)$ using Bayes rule; whereas the discriminative approach is just to estimate $p(c|x)$ from the data.

Bishop illustrated the two approaches by an application of recognizing a cow, sheep, or background in an image. A patch-based feature detection approach was used where multiple, small regions of interest were found in an image. For each patch, its class was not known, only the class of image (cow or sheep) in which the patch was located was known. For the standard generative approach, the patches are first clustered by their features, and then the classifier is built from Bayes rule applied to prior probabilities. For the discriminative approach, the classifier model is learned directly through knowledge of image type over many training images.



(Photo courtesy of C. Bishop )

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The experiments showed that the approaches gave similar results, but the combination of the two produced better results than either did individually. Bishop concluded by pointing out that defining how best to combine these approaches is an open research area. For more on this work, see *http://research.microsoft.com/~cmbishop*.

## Computers that Recognize and Respond to Human Emotion

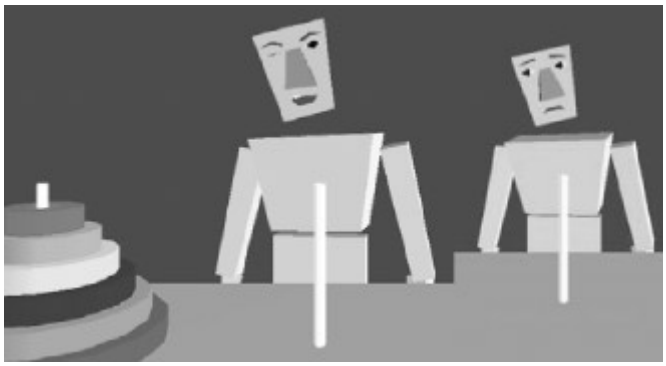
**Rosalind Picard's** Affective Computer Research Group at **MIT** is studying many aspects of human emotion as pertaining to human-machine interaction. These include recognizing, handling, and utilizing emotions. Picard quoted Jerome Kagan, a professor of psychology at Harvard, that "Emotion is like the weather." Weather has varying nuances plus some extremes, just as does emotion. However, unlike emotion, there is an established link between well-understood measurements and weather labels such as hurricanes, droughts, blizzards, etc. Although many facial and body measurements can be related to emotion, the link between the human physiological measurements and emotion label is not yet well understood. An objective of Picard's work is to better understand how these body features and their combinations relate to emotions.

Picard and her colleagues have designed a number of experiments to recognize emotion from measured features. One involves a chair whose seat is fitted with an array of sensors to measure the movement of children engaged in a task, and thereby detect their level of interest or boredom. As Picard pointed out, the image with its two lobes looks like it is measuring brain activity, but instead it is activity at the opposite end. Results showed that the frequency of movement, or fidgeting, corresponds to the children's level of interest.

Besides chair sensors, Picard described a number of other sensor devices. Emotional features can be measured from afar from face, voice, posture, and gesture. Closer sensors can measure skin conductivity, pupil dilation, respiration, ECG, and blood pressure. Picard cited an example of the infrared sensors used at airports to detect people with fevers during the SARS crisis of 2003. While they were not measuring emotion, it is clear that this remote measurement of body temperature might be used in the future to measure a feature related to emotion. It is also conceivable that in the future we would wear emotion detectors to relay our frame of mind to our car, to machinery we are operating, or to fellow humans.

Picard showed the results of experiments indicating that the ability of an automobile to read its driver's emotions and respond empathetically can reduce the incidence of accidents. One can understand that a voice-response system that reacts to a stressed driver with a chirpy, happy voice might alternatively add to the stress level and impair driving ability.

Picard admitted that many of the issues she and her group are studying are still largely unsolved. She ended with the challenge to engineer a computer than can infer when you are bored or interested, pleased or displeased, stressed or calm, and respond appropriately based on learning your preferences. More on this work can be found at, *http://affect.media.mit.edu*.



(Figure from, W. Burleson, R. W. Picard, K. Perlin and J. Lippincott (2004) **"A Platform for Affective Agent Research,"** AAMAS, New York, NY, July 2004)

*(Continued on page 4)*

# From the ExCo

We hope that you enjoyed the last ICPR in Cambridge. The conference was a great success and offered the IAPR community an excellent opportunity to meet and exchange ideas on topics related to pattern recognition. Congratulations to the ICPR2004 Organizing Committee for their outstanding job in preparing the conference. Cambridge is a city full of history and all attendees will remember ICPR2004 as a scientific and a cultural experience. We now wish good luck to the ICPR2006 Organizing Committee. ICPR2006 will take place in Hong Kong in September 2006. Tampa has been selected as the venue for ICPR2008. In the coming months, the ExCo will work on various initiatives to enhance IAPR's involvement with the organization of conferences. With respect to the ICPR, IAPR's major event, an ICPR task force will be created under the responsibility of the Conferences and Meetings Committee to enhance interactions between the IAPR and conference organizers and to initiate mechanisms to learn from experience. Through the IAPR Forum, ICPR participants are invited to give their feedback on past ICPRs (2004 and previous conferences as well) and to let us know what they liked and what could be improved.

This is the first "From the ExCo" column written by the new Executive Committee. The newly appointed ExCo started immediately to work on a number of issues. As usual, an urgent task in the months after ICPR is to set up the standing committees and to appoint new chairpersons to TCs with outgoing chairs for this new term. Again, the ExCo will encourage Technical Committees to appoint vice chairs, the idea being to favor continuity from one term to the other, to enhance diversity in geographical distribution, and to involve young scientists in the life of the committees.

**The New ExCo**
*(left to right)* Rangachar Kasturi (Past President), Maria Petrou (Treasurer), Sergey Ablameyko (2nd Vice President) and Karl Tombre (1st Vice President) welcome Walter Kropatch (President). Not shown: Denis Laurendeau (Secretary).

According to IAPR's Constitution and Bylaws, the Nominating Committee and the KS Fu Prize Committee need a vote by the Governing Board. The ballot will be initiated soon and we will report on its result in the next newsletter. For all committees, please refer to the association's web page, *www.iapr.org*, for the latest update of the IAPR directory, with the names and contact information of all the standing committee members. With respect to the IAPR web page, the ExCo will work on offering professional services to the IAPR community at large.

The Governing Board (GB) meeting in Cambridge voted a few amendments to the IAPR's Constitution, Bylaws and Statutes. These will be incorporated very soon into the text which can be found on the association's web site.

Also at the GB meeting in Cambridge, a new Technical Committee (TC 20 "Pattern Recognition for Bioinformatics") was created. This committee will contribute to the promotion of pattern recognition in this exciting field. TC4 has been cancelled while the name of TC9, formerly "Biomedical applications", has been changed to "Biomedical image analysis".

The IAPR financial situation is good and will allow us to continue the policy of help for travel to the ICPR through stipends. Again this year for the ICPR in Cambridge, researchers, most of them young scientists, benefited from this support.

Finally, we extend our warmest thanks to Gabriella Sanniti di Baja for her work as member of the ExCo for many years. Although Gabriella is no longer an ExCo member, she will still participate very actively in many IAPR activities. Her contribution to the association is invaluable and we hope that it will continue for a long time ahead.

# Congratulations New IAPR Fellows!

Eighteen new IAPR Fellows were announced by Horst Bunke, Chairman of the Fellow Committee, at ICPR2004. IAPR Fellowship acknowledges distinguished contributions of IAPR members to the field of pattern recognition and to IAPR activities. According to the IAPR Constitution and Bylaws, the number of fellows elected biannually must not exceed 0.25% of the total IAPR membership.

The complete list of IAPR Fellows and nomination guidelines and instructions can be found at *www.iapr.org/fiapr.html*.

**BOYER, Kim L. —** For contributions to Computer Vision and for service to IAPR

**DENGEL, Andreas —** For contributions to Document Understanding and for service to IAPR

**FAIRHURST, Michael C. —** For contributions to Pattern Recognition

**GOVINDARAJU, Venu —** For contributions to Advances in Handwriting Recognition

**GUREVICH, Igor B. —** For contributions to Mathematical Theory of Image Analysis and Recognition and for service to IAPR

**HAINDL, Michal —** For contributions to the Theory and Practice of Model-based Pattern Recognition and for service to IAPR

**HLAVAC, Vaclav —** For contributions to Pattern Analysis and Image Processing

**HO, Tin Kam —** For contributions to Multiple Classifier Systems, Statistical Pattern Recognition, Document Image Analysis and Recognition and for service to IAPR

**IP, Horace, H.S. —** For contributions to Theory and Applications of Deformable Model for Image Segmentation and Pattern Recognition and for service to IAPR

**OHTA, Yuichi —** For contributions to Computer Vision and Vision-based Approach to Image Media and for service to IAPR

**ROLI, Fabio —** For contributions to Pattern Recognition and its Applications and Multiple Classifier Systems

**SAKO, Horoshi —** For contributions to the Development and Application of Machine Vision Technology for Factory and Office Automation

**SPITZ, A. Lawrence —** For contributions to Document Recognition and for service to IAPR

**TANG, Yuan Y. —** For contributions to Wavelet Analysis, Pattern Recognition and Document Analysis

**TAYLOR, Christopher J. —** For contributions to the Theory and Practice of Computer Vision and Medical Image Analysis and for service to IAPR

**VENKATESH, Svetha —** For contributions to the Formulation and Extraction of Semantics in Multimedia Data

**VENTO, Mario —** For contributions to Graph Based Learning and Matching Techniques and for service to IAPR

**VILLANUEVA, Juan Jose —** For contributions to Research and the Transfer of Innovation and Technology in Computer Vision

## Invited Talks

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### From Massively Parallel Image Processors to Fault Tolerant Nanocomputers

**Pieter Jonker (Delft University of Technology)** first traced the history of computer architecture from the single microprocessor machine (ca. 1970's) to the SIMD (Single Instruction, Multiple Data-stream) machines (ca. late 1980's), to linear SIMD arrays (ca. early 1990's), to recent integrated and special purpose multi-media and graphics processors. Jonker showed a plot of publications by year, showing for instance a peak in the late 1980's due to work on SIMDs, but a lull in activity in the late 1990s until the recent highest peak in 2002.

In the future, Jonker says that computer architectures will progress to nano-technology. However there are many challenges to reaching this goal such as quality control while integrating a trillion devices on a 1x1 cm substrate. Manufacturing defects will be inevitable, quantum effects will become prevalent at this scale, and transient errors will be caused by cosmic radiation, electromagnetic interference (EMI), and thermal fluctuations. To handle these errors, computers will be required to perform dynamic, custom reconfiguration. This will entail the combination of redundant elements with the computer's ability to dynamically detect erroneously functioning elements and switch to correctly

functioning elements.

Jonker said that the fields of image processing, pattern recognition, and artificial intelligence will make particular use of this future nanocomputer technology, because each of these fields naturally entails many small tasks implemented simultaneously. Upon questioning, Jonker deftly avoided being pinned down as to when these nanocomputers would be available to researchers in these fields – or when they would be running his pet application, robo-soccer. He said that to reach fruition in the nanocomputer quest many technological hurdles still have to be crossed from the device design level to the architecture level itself.

More on this work can be found at, *http://www.ph.tn.tudelft.nl/~pieter/*.

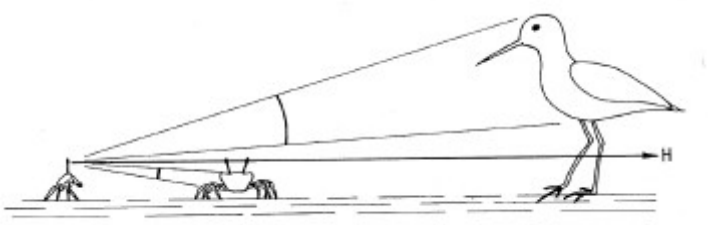
## Pattern Perception in Animals Remote from Man

The question **Michael Land (University of Sussex)** sought to answer in his talk was the following. Since humans have $10^{10}$ to $10^{11}$ neurons, and the mid-level animals (insects, crustaceans, etc.) have five orders of magnitude fewer neurons ($10^5$ to $10^6$), in which ways do the lesser animals "cut corners" to accomplish their life-sustaining tasks?

Land began his explication by describing eye fixations and saccades. The eyes of animals, including humans, are never still. Instead, vision consists of many "snapshots" characterized by a quick saccade, or visual shift, followed by a longer, but still brief, fixation in which the visual scene is captured and processed. This fixation-saccade sequence is necessary because retinal receptors are slow, requiring a short period of static gaze to eliminate blur; and the visual cortex processes mainly a very small foveal area of focus on the retina, so the eye must move to obtain broader spatial context.

Land's explanation of saccadic vision was background to explaining the motions that animals make in scanning their environment for the purpose of identifying food, predators, home, and mates. For instance, the praying mantis has eyes with fixed gaze, so its saccadic motion is easy to follow by head motion. While surveying its environment for prey, it literally dances with its body following its gaze.

He described the visual activity of the fiddler crab as an example of a simplified, or application specific, visual system. These crabs recognize fellow crabs by a waving motion of the claws. The waves are different in timing and motion between sub-species such that crabs can recognize their own. They also have a simplified system of recognizing danger. If they see a motion that is below their visual horizon, it is safe; but




**(Diagram courtesy of M. Land)**

if it is above this horizon, then it is deemed a potential predator and they flee.

Land concluded by saying that much of the activity of animal vision is dictated by the need to produce stationary images. Lesser animals accomplish their tasks by gathering information with their visual systems, sometimes in a specific way (like the preying mantis) or via a specific code (like the fiddler crab) and processing it with simple rules. Further information can be found at, *http://www.lifesci.sussex.ac.uk/research/land*.

## The Great Buddha Project: Representing Cultural Heritage in Digital Form for Virtual Reality (VR)

**Katsushi Ikeuchi (University of Tokyo)** presented this talk. The technical objective of this work was to design methods to accelerate the development of VR of real objects and real sites. In this project, the reality entails several Buddha statues and their enclosing

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temples in Asian countries. This application led to broader goals that included making cultural heritage sites available for all to experience and obtaining

(Model of Nara Great Buddha, from Ikeuchi's ICPR talk.)

insight into cultural evolution – in this case the evolution of Buddha statues – through the centuries and across different countries.

Of the many challenges in this project, the issue of sheer size predominated. The Bayon temple in Cambodia, for instance, is an intricately carved pyramidal structure that is 115 x 130 meters in ground area and rises 45 meters high. The temple could not just be imaged from ground level due to occlusions, so Ikeuchi's group built a balloon carrier to float the sensors above and around the temple walls and capture details from different perspectives. This moving balloon presented its own challenges that were met with new techniques for motion compensation, image alignment, and merging. For geometric modeling, range images were created using a laser range sensor. For color modeling, a polarizing camera was used to separate surface and body reflection and to obtain true body color.

Using these techniques, Ikeuchi and his group have modeled some of the major Buddhas in the world. An example of how this extends beyond modeling is work on the Nara Great Buddha in Japan. This was originally built in the 8th century, but the current Buddha dates to the 17th century. The group modeled the 17th century Buddha using the techniques described. Then, with the help of historical and literary records, the model was modified to create one dating back to the original. Now visitors can virtually tour a site that has not physically existed for centuries.

More on this work can be found at, *http://www.cvl.iis.u-tokyo.ac.jp*.

## Visual Pattern Recognition in the Years Ahead

**George Nagy (Rensselaer Polytechnic Institute)** began by distinguishing between symbolic patterns (numbers and letters) and natural patterns (flowers and fish). His general message for approaching pattern recognition problems is 3-fold: 1) standardize the features (using, for instance, a principal component analysis), 2) use constrained classification methods for symbolic patterns, and 3) consider using interactive recognition for natural patterns.

Nagy illustrated the third point of his message by describing the CAVIAR (Camera Assisted Visual Interactive Recognition) system. Instead of seeking to perform pattern recognition by machine alone, this system exploits the perceptual ability of humans (still better than machines for most tasks) to aid in classification. The computer's ability to memorize and repeat (better than most humans) complements the human's ability, and the combination of these two performs the recognition and classification tasks more effectively than human or machine alone. Results of this system were illustrated with flower classification where a human would aid the system in

identification of new flowers to the system, but the computer would remember the flowers, once

(Figure from, J. Zou, G. Nagy, "Evaluation of model-based interactive flower recognition," ICPR, Cambridge, England, Aug. 2004)

taught, and quickly classify subsequent samples of the same classes.

As far as progress in the field of pattern recognition is concerned, Nagy listed a number of applications that he felt were fairly mature and had reasonably effective results. These included: bar codes, fingerprints, and symbolic patterns. He announced that he was moving face recognition into this category on the basis of the talks he saw at this ICPR. On the side of still-challenging applications, he included industrial parts, targets, many natural shapes, such as birds and flowers, and degraded images of all of the above. When asked during questioning how soon he felt these challenging areas would be solved, he said – jokingly – “I’m absolutely confident that everything will be solved in the next 5 to 10 years!” But then he added, “After all, it’s only taken us 30-40 years to get to this point.”

More information on Nagy’s work can be found at, *http://www.rpi.edu/~nagyg/*.

*Larry O’Gorman*

# ICPR2004 Tutorials

The eight ICPR2004 Tutorials were held in the historic surroundings of St John's College Cambridge. Several delegates joked that the rooms themselves were a little Cambridge history challenge: the Palmerston Room (obscure English politician); the Castlereagh (another obscure English politician); the Boys Smith Room (former Master of St John's college) and the Dirac Room (that one's easy).

Into these we packed eight tutorials:

1. Chris Bishop talked about "Modern techniques for pattern recognition";
2. Anil K Jain covered "Biometrics" ;
3. Wen-Yi Zhao and Ming-Hsuan Yang talked about "Advances in face processing: detection and recognition";
4. Hanan Samet covered "Similarity searching: indexing, nearest neighbour finding, dimensionality reduction,and embedding methods for applications in multimedia databases";
5. Pierre Soille covered "Morphological image analysis and pattern recognition";
6. Gösta Granlund and Michael Felsberg talked on "Cognitive vision systems: representation and organization";
7. Theo Gevers and Arnold Smeulders covered "Content-based image retrieval"
8. Tin Kam Ho lectured on "Principles of stochastic discrimination and ensemble learning".

The tutorials were extremely well received and attendance was typically 20 delegates with the exception of Professor Bishop's tutorial, which had around sixty attendees. Special mention must be made of Pierre Soille who provided a free copy of his book *Morphological Image Analysis* to pre-registered delegates.

*Richard Harvey, U. of East Anglia, UK*

# Congratulations

## Pattern Recognition Society Award

At the ICPR2004 banquet, the Pattern Recognition Society announced their Pattern Recognition Award for the best paper published in the journal, *Pattern Recognition*, for 2003 (volume 36). This award is a result of judging by Associate Editors of the journal based on the originality of the contribution and on the presentation and exposition of the manuscript. The winners are awarded a cash prize and a bronze medal. This year, there was one winning paper and three honorable mentions. The winning paper was,

**Daniel Cremers, Timo Kohlberger, Christoph Schnörr, "Shape statistics in kernel space for variational image segmentation,"** no. 9, Sept. 2003, pp. 1929-1944.

Blaire Mossman Managing Editor of *Pattern Recognition* awards the Pattern Recotnition Society Award to Timo Kohlberger, co-author of the winning paper.

The three honorable mentions were:

- **K.-H. Lin, K.-M. Lam, W.-C. Siu, "Spatially eigen-weighted Hausdorff distances for human face recognition,"** no. 8, Aug. 2003, pp. 1827-1834.
- **M. W. Lee, S. Ranganath, "Pose invariant face recognition using a 3D deformable model,"** no.8, Aug. 2003, pp. 1835-1846.
- **R. Jenssen, T. Eltoft, "Independent component analysis for texture segmentation,"** no. 10, Oct. 2003, pp. 2301-2316.

## IAPR's Best Industry-Related Paper Award (BIRPA)

Atul Chhabra, chair of the Industrial Liaison Committee (ILC), presented the IAPR Best Industry Paper Award this year to the paper **"Super-Resolving Compressed Video with Large Artifacts" by Wen Yi Zhao** of Sarnoff Corporation, Princeton, NJ, USA.

This work proposes methods to super-resolve compressed video sequences that may consist of frames with missing blocks of pixels and compression artifacts. The methods utilize dynamic masking and flow-based image repairing.

The ILC acts to improve IAPR's interface with the industry and facilitates the involvement of industry in the IAPR. One of the mechanisms used for encouraging industry participation is the Best Industry-Related Paper Award. The ILC members review nominations and rate them using the following criteria.: potential for viable commercial impact, originality/novelty, technical correctness/experimental evidence, quality of presentation.

*Atul K Chhabra, Verizon Communications*

## Piero Zamperoni Best Student Paper Award

The Zamperoni Best Student Paper Award at ICPR was presented to the paper, "Simple Calibration using an Isoceles Trapezoid" by Xiaochun Cao and Hassan Foroosh of the School of Computer Science, University of Central Florida.

The purpose of this award is to acknowledge and encourage excellence in pattern recognition research by students, and to help assure the future of the field. The award also honours the memory of Dr. Piero Zamperoni, an outstanding educator in pattern recognition.

# Award Winners

## King-Sun Fu Prize to J.K. Aggarwal

R. Kasturi presents the prestigious King-Sun Fu Prize to J. K. (Jake) Aggarwal at this year's ICPR with the citation:

*" For pioneering contributions towards establishing the fundamentals of structure and motion from image sequences and their applications to robot vision and human motion."*

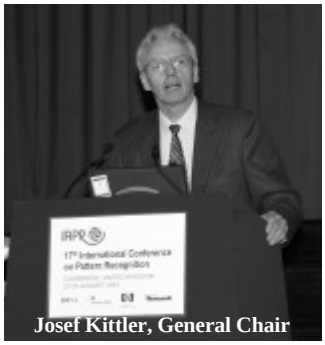
The King-Sun Fu Prize is awarded in honor of the memory of Professor King-Sun Fu. Professor Fu was instrumental in the founding of IAPR, served as its first president, and is widely recognized for his extensive contributions to the field of pattern recognition. This biennial prize is given in the recognition of an outstanding technical contribution to the field of pattern recognition.

Professor Aggarwal has had a productive and distinguished career and has made seminal contributions in digital signal processing, image processing, pattern recognition, and computer vision. He has served on the faculty of the University of Texas at Austin Department of Electrical and Computer Engineering since1964 and is currently the Cullen Professor and Director of the Computer and Vision Research Center. His current research focuses on computer vision techniques for the automatic recognition of human actions and interactions in video sequences and on the use of perceptual grouping for the automatic recognition and retrieval of images from databases. He has published 7 books, 39 book chapters, and over 175 journal papers, as well as many proceedings papers. He has received numerous awards, including the 1992 American Society of Engineering Education Senior Research Award and the 1996 IEEE Computer Society Technical Achievement Award. He has also graduated 39 doctoral and 55 masters students and, in that process, has received numerous Meritorious Faculty Awards and the Hocott Distinguished Centennial Engineering Research Award and was named Outstanding Graduate Teacher in 1992.

Professor Aggarwal is a Fellow of IEEE and of the IAPR. He has served as Chairman of the IEEE Computer Society Technical Committee on Pattern Analysis and Machine Intelligence (1987-1989) and President of the International Association for Pattern Recognition (1992-94).

Professor Aggarwal and his wife, Shanti, reside in Austin, Texas. They have two daughters, Raj Polley and Mala Ireland. His outside interests include bicycling, sailing and bridge.

## Many Thanks to the ICPR2004 Organizing Committee!


Josef Kittler, General Chair

**Josef Kittler**, University of Surrey, UK, General Chair
**Maria Petrou**, University of Surrey, UK, Program Chair
**Rachel Gartshore**, University of Surrey, UK, Conference Manager
**Mark Nixon**, University of Southampton, UK, Publications Chair
**Majid Mirmehdi**, University of Bristol, UK, Publicity, Sponsorship and Exhibition Chair
**Richard Harvey**, University of East Anglia, UK, Tutorials Chair
**Andrew Fitzgibbon**, University of Oxford, UK, Satellite Workshops Chair
**Adrian Clark**, University of Essex, UK, Demonstrations Chair
...and to all of the Track Chairs and Reviewers

## What are CAPTCHAs?

You might have come across these image icons recently if you have signed up for a free email service. Yahoo has been using them since 2002. You might have seen them on a colleague's web page, where his or her email is shown not as computer text but as a slightly distorted image of text. These are CAPTCHAs, or "Completely Automatic Public Turing tests to tell Computers and Humans Apart." They are tests to discriminate between humans and machines. In these two examples, the CAPTCHAs are placed to prevent machines from obtaining the means to propagate spam. They capitalize on the gap in recognition abilities between humans and machines. Humans can still do many tasks, including recognition of text, better than machines. The trick in designing a textual CAPTCHA is to distort the text just enough that machines cannot recognize it, but humans can.

The more general term for this field is HIPs, Human Interactive Proofs. These are not just images, but can be visual, auditory, inferential etc. The first workshop exploring this new technology was held in January, 2002. Since then the use and application of HIPs has grown rapidly. In May, 2005, the 2nd International Workshop on Human Interactive Proofs will be held at Lehigh University in Pennsylvania. For more information on this technology and on the conference, see the web site that is displayed in this article as a CAPTCHA.


## Area Review Papers in the Multimedia Systems Track of ICPR2004

For the Multimedia Systems track at ICPR2004, there were 33 oral papers and 71 poster papers. The areas covered included: biometrics, face processing, 3D object reconstruction, image/ video/music retrieval, and multimodal human-computer interaction.

By far the most exciting part of the Track 4 sessions were the area review papers., which set the tone for the whole session. A high point was the presentation by Fernando Pereira on “Multimedia Standards: What is the Future?” which was at 8:30 am the day after the wonderful and long banquet. No one could forget Fernando's dynamic performance which kept everyone wide awake.

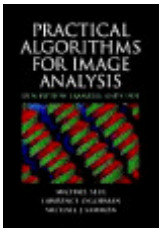
The other four area review papers: Anil Jain on “Biometrics: A Grand Challenge”, which reviews the various modalities including face recognition, fingerprints, iris scan etc. Joern Ostermann on “Talking Faces - Technologies and Applications”, which reviews the work he did at AT&T Research Lab with the Visual TTS (Text to Speech) system. Their system generates perhaps the most realistic synthetic talking faces in the world. John Smith on “Lexicon Design for Multimedia Understanding”. John is involved in a project which aims at the construction of a large video ontology. Steve Chu on “Automatic Recognition of Audio-Visual Speech: Recent Progress and Challenges”, which presents in particular the on-going research at the IBM TJ Watson Research Center. IBM TJ Watson is one of the few research groups in the world who are working with large vocabularies.

We sincerely recommend to future ICPR organizers that each Oral Session should be led by an Area Review Paper.

*Tom Huang, Alberto Del Bimbo, Ruud Bolle*

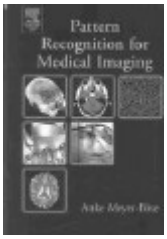
## *BooksBooksBooks* – Books at ICPR2004

What books were your colleagues buying at ICPR2004? Here are the top sellers, plus some books of interest, but not yet published, as supplied by the attending publishers.



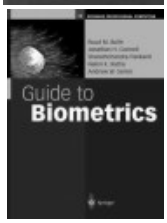

**Cambridge University Press:**

- Cristianini, Shawe-Taylor, ***An Introduction to Support Vector Machines and Other Kernel-based Learning Methods***, 2000.
- Hartley, Zisserman, Μυλτιπλε ςιεω Γεομετρψ ιν Χομπυτερ ςισιον , 2004.
- Seul, O'Gorman, Sammon, ***Practical Algorithms for Image Analysis,*** 2000.
- Shawe-Taylor, Cristianini, ***Kernel Methods for Pattern Analysis,*** 2004.




**Elsevier:**

- Davies, ***Machine Vision***, 2004.
- Meyer-Base***, Pattern Recognition in Medical Imaging,*** 2003.
- Theodoridis, Koutroumbas, ***Pattern Recognition***, (2nd ed.), 2003.




**Springer-Verlag:**

- Bhanu, Pavlidis, Χομπυτερ ςισιον Βεψονδ τηε ςισιβλε Σπεχτρυμ , 2004.
- Bolle, Connell, Pankanti, Ratha, Senior, ***Guide to Biometrics***, 2003.

**If you have suggested articles for The Newsletter, please contact the editor.**

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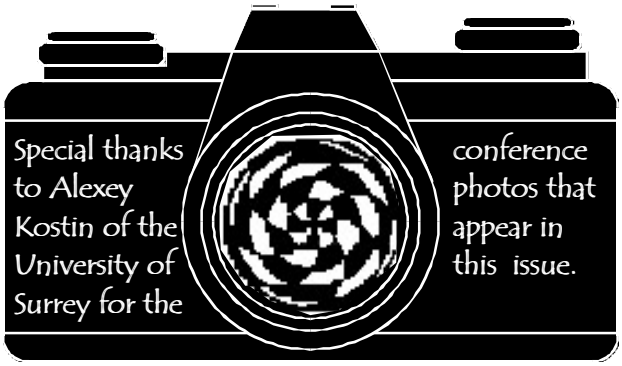


### Of Interest to IAPR Members
### New Electronic Journal

*ELCVIA, Electronic Letters on Computer Vision and Image Analysis*, is an electronic journal. Articles are published as PDF files, and they can be complemented with multimedia support such as slides, presentations, videos etc.

*ELCVIA* publishes surveys, regular and special issues in selected topics, and their editorial board members and reviewers are selected experts in their subjects. It offers a fast way of publication. The first revision process of the submitted articles is intended to be covered in one month, and the article publication date is the date of acceptance. More information in *http://elcvia.cvc.uab.es.*

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# For the most current information on IAPR-sponsored conferences and workshops visit *www.iapr.org/iapr-conf.html*

(Information in this table is current as of 24 September 2004.)

| Conference or Workshop | Date and Location | Deadline |
|---|---|---|
| **2004** | | |
| **PRIA-7-2004** *7th International Conference on Pattern Recognition and Image Analysis: New Information Technologies* | 18-23 October 2004<br>St. Petersburg, Russia | ____ |
| **IWFHR 04** *9th International Workshop on Frontiers in Handwriting Recognition* | 26-29 October 2004<br>Tokyo, Japan | ____ |
| **CIARP'2004** *9th Iberoamerican Congress on Pattern Recognition* | 26-29 October 2004<br>Tonanzintla, Puebla, Mexico | ____ |
| **IWCIA04** *10th International Workshop on Combinatorial Image Analysis* | 1-3 December 2004<br>Auckland, New Zealand | ____ |
| **ICVGIP'04** *The 4th Indian Conference on Computer Vision, Graphics and Image Processing* | 16-18 December 2004<br>Kolkata, India | ____ |
| **2005** | | |
| **GbR 2005** *Workshop on Graph-based Representation in Pattern Recognition* | 11-13 April 2005<br>Poitiers, France | ____ |
| **DGCI** *12th International Conference on Discrete Geometry for Computer Imagery* | 13-15 April 2005<br>Poitiers, France | ____ |
| **MVA 2005** *2005 IAPR Conference on Machine Vision Applications* | 16-18 May 2005<br>Tsukuba Science City, Japan | 8 November 2004 |
| **PRIP'05** *8th International Conference on Pattern Recognition and Information Processing* | 18-20 May 2005<br>Minsk, Belarus | 15 January 2005 |
| **HIP2005** *2nd International Workshop on Human Interactive Proofs* | 18-20 May 2005<br>Bethlehem, PA, USA | 15 January 2005 |
| **CORES'05** *IV International Conference on Computer Recognition Systems* | 22-25 May 2005<br>Rydzyna-Castle, Poland | 2 January 2005 |
| **IbPRIA 2005** *2nd Iberian Conference on Pattern Recognition and Image Analysis* | 7-9 June 2005<br>Estoril, Portugal | 12 November 2004 |
| **MCS 2005** *6th International Workshop on Multiple Classifier Systems* | 13-15 June 2005<br>Monterey Bay, Seaside CA, USA | 21 January 2005 |
| **SCIA 2005** *14th Scandinavian Conference on Image Analysis* | 19-22 June 2005<br>Joensuu, Finland | 28 February 2005 |
| **MLDM2005** *International Conference on Machine Learning and Data Mining in Pattern Recognition* | 9-11 July 2005<br>Leipzig, Germany | 10 January 2005 |
| **AVBPA 2005** *5th Conference on Audio- and Video-Based Biometric Person Authentication* | 20-22 July 2005<br>Tarrytown, NY, USA | 1 December 2004 |
| **ICIAP 2005** *13th International Conference on Image Analysis and Processing* | 6-8 September 2005<br>Cagliari, Italy | 15 February 2005 |
| **PReMI'05** *1st International Conference on Pattern Recognition and Machine Intelligence* | 18-22 December 2005<br>Kolkata, India | 15 February 2005 |