



International Association for Pattern Recognition, Inc  
An affiliate member of the International Federation for Information Processing

# NEWSLETTER

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**Editor**

Dr. Adrian F. Clark  
Dept. Electronic Systems Engineering  
University of Essex  
Wivenhoe Park  
Colchester CO4 3SQ  
United Kingdom  
Telephone: (+44) 206 872432 (direct)  
Facsimile: (+44) 206 872900  
Email: alien@essex.ac.uk

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**From the Editor's Desk**

**O**NE PIECE OF NEWS that will interest members is that the IAPR has a new member society, namely Korea. The Korean society has about 450 members and is centred in Daejeon. A short article from Korea will appear in a forthcoming *Newsletter*.

I am keen for the list of forthcoming conferences and workshops that appears at the end of each issue to be as up to date and complete as possible. If you are involved in the organisation of any meeting or special issue that may be of interest to other IAPR members, please let the editor have a copy of any publicity material at the earliest possible opportunity.

*The Editor*

**Copy Deadlines**

Last dates for editorial copy:

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Articles for inclusion in the *Newsletter* are always welcomed, and may be on any subject likely to be of interest to the IAPR community. They should be submitted, preferably electronically, directly to the editor at the above address.

## The Portuguese Association for Pattern Recognition

**T**HE APRP (Associação Portuguesa de Reconhecimento de Padrões) was recently invited to write a small article about itself. We happily obliged, though naturally after a discussion among some members in order to decide who was going to do the job! (For those interested, the decision was that the board should do it.)

In 1988, a group of researchers at the University of Porto suddenly realised that their work had something in common, and that their number already justified the creation of a Society. So they founded the APRP. Researchers in other universities and research centres quickly joined the organisation, and the number of members is currently 55. Naturally, the APRP is an IAPR member society.

We are trying to develop the Society and attract more members. In order to do this, we have what may be called a geographically-distributed governing board (no two board members are from the same organisation). This certainly gives us some logistic problems when we want to hold a formal conference, but the system works, since we may expect a more active promotion of the meeting in those places where a board member pursues his or her work. Also, we strongly encourage our students to enroll by inviting them to our annual conference (no fee) and offering reduced membership rates.

We also organise (or, more precisely, ask local members to organise) an annual conference of the Society of one or two days duration. This has always been a successful event, with 60–70 participants and 20–30 papers and posters. There are always invited speakers, specialists in our field (from our Society or other IAPR member societies) or in some other field that the Society feels interesting enough to hear about. For those reading this note who have attended one of these conferences, please accept our thanks.

We organise and publish the Proceedings of our annual conference — the print run is around 120. This is a strong incentive for those attending and presenting work. To date, three sets of Proceedings have been published.

The fourth Conference of our Society, RedPad 92, is scheduled for 12–13<sup>th</sup> March 1992, and will take place at the University of Coimbra. In order to encourage foreign participants, we are recommending prospective authors to present their papers in English. The Conference Programme may be obtained from any of the addresses below.

We have also introduced an APRP Award, to be given to the best work presented at the Conference. This is again an incentive that, we hope, will contribute to the further development of the Society.

As for the future, we want to continue what we have done so far with success. It is also our intention to develop closer

relations with other Pattern Recognition Societies in other countries.

To get in touch with the APRP, please contact one of the following:

### Dr. Aurélio Campilho

Centro de Engenharia Electrotécnica da Universidade do Porto  
Faculdade de Engenharia – DEEC  
Rua dos Bragas  
4099 Porto Codex  
Portugal

Tel: +351–2–317105/107/412

Fax: +351–2–319280

### Dr. Luis Vieira de Sá

FCT  
Dept. Electric and Electronic Engineering  
Universidade de Coimbra  
3000 Coimbra  
Portugal

Tel: +351–39–20023

Fax: +351–39–35672

### Dr. C. E. Queiros

FCT  
Dept. Computer Science  
2825 Monte da Caparica  
Portugal

Tel: +351–1–2953320

Fax: +351–1–2955641

*Prof. Aurélio Campilho  
Universidade do Porto  
Porto, Portugal*

## Israel/Italy Binational Symposium on Computer Vision

**T**HE ISRAEL/ITALY SYMPOSIUM on Computer Vision, organised by the Institute for Applied Mathematics of the National Research Council of Italy, was held in Capri, Italy, at L'Isola Congress Centre, on 31<sup>st</sup> May 1991, right after the International Workshop on Visual Form (IWVF). This binational event was part of a scientific exchange programme between the National Council of Research and Development of Israel (NCRD) and the National Research Council of Italy (CNR), which supported the participation of the Israeli delegates at the meeting.

The aims of the symposium were to provide an international forum for the presentation and the discussion of recent developments in the fields of computer vision, pattern recognition, and image analysis in the two countries, and to

promote scientific cooperation between Italian and Israeli researchers in these areas.

The programme of the meeting included two general presentations of the research activities in computer vision and pattern recognition carried on in Israel and Italy, given by the Presidents of the Israeli and Italian Chapters of IAPR, Hezy Yeshurun and Vito Di Gesù, and ten technical presentations. The papers presented at the meeting covered a wide range of topics, including architectures for vision, pictorial languages, multi-resolution image representation, shape description, character recognition, motion analysis, model-based recognition, *etc.*. The restricted number of participants and the interest and the variety of topics covered favoured a close interaction and exchange of ideas, which hopefully would lead to the establishment of joint research projects and to the organisation of other Israel/Italy binational events.

A proceedings volume collecting all the technical contributions presented at the symposium will be published.

*Leila De Floriani*  
*University of Genoa*  
*Italy*

## The British Machine Vision Conference 1991

THE BRITISH MACHINE VISION CONFERENCE was held at Glasgow University from 24<sup>th</sup>-26<sup>th</sup> September 1991. This was the second such conference held under the auspices of the British Machine Vision Association (BMVA). It is becoming clear that the emphasis of the conference is moving away from that of the Alvey Vision Conferences of previous years and it was particularly noticeable that there were no contributions solely from industrial research laboratories. Presumably the recession and traditional British short-termism are affecting industry in this field and it cannot be too long before the results are felt in the universities.

The standard of the meeting was once again very high with around 160 delegates attending the conference to hear almost forty papers being presented over the course of the three day conference. In addition, over twenty poster papers were on display, along with an exhibition of books and journals, and both hardware and software for the capture, display and processing of images.

The conference opened on Tuesday morning with an invited paper entitled *Image Motion Analysis Made Simple and Fast, One Component at a Time* by Peter Burt of the David Sarnoff Research Center. Prof. Burt presented an overview of his work on motion analysis and pointed out deficiencies in previous approaches where the visual motion results from the combination of several motions in the scene and where

it includes discontinuities and transparency. He introduced a multi-resolution method of identifying successive components of the overall visual motion and illustrated its application to locating moving objects in a scene viewed from an independently moving platform and to separating the relative motion between a framed picture and the reflection of the person viewing it in the glass of the frame.

It is interesting to note the number of papers presented at the conference that were concerned with the analysis of visual motion in one form or another. Not only were they evident in sessions on motion and tracking, but also in papers on feature extraction, for example. Notable in this respect were Hillary Tunley's paper concerning the dynamic detection of edges which may not even be visible in static images, and a paper presented by Rupert Curwen on the application of Lagrangian dynamics to snakes, thus enabling them to be used in tracking image contours. Perhaps this increased interest in motion is an indication that the technology associated with both research into and development of techniques for motion analysis has risen in performance and fallen in cost to the level where it is quite feasible to consider commercial applications embodying such processes. As one of the later speakers indicated, when we are carrying out research we must bear in mind the distinctions between 'genuine' constraints of complexity inherent in the problem under attack and those constraints which are imposed by the technology of the day.

The remainder of the day was occupied with sessions on feature extraction, on shape and on geometry and theory. Particularly worthy of mention here was a paper by Charlie Rothwell *et al* on the use of projective invariants for matching in model-based vision. Rothwell has built on the work on invariants carried out at Oxford over the past couple of years to develop a system capable of sub-linear time indexing into a model library. Further work is in progress to investigate how the system scales with an increasing number of models, but the preliminary results shown at the conference, with a library of twenty-one models, offer much promise.

On Wednesday morning, the conference resumed with another invited paper, this time given by Demetri Terzopoulos of the University of Toronto, entitled *Visual Modeling*. The talk was accompanied by a very entertaining video which illustrated the dramatic effects of introducing simple physics such as dynamics, thermodynamics, and mechanics to modelling objects for computer graphics. The author's main theme was that computer graphics and machine vision have much to offer each other when considered as two sides of a whole. He pointed out that computer graphics can be considered the direct problem of image synthesis, given a physical model of the scene to be imaged, and that machine vision is the inverse problem of image analysis where the aim is to develop a representation of the structural elements of the scene given the captured image.

Further sessions on Wednesday were concerned with segmentation, feature extraction, motion and tracking, shape and finally applications and hardware.

At the conference banquet on Wednesday evening, a presentation was made to Prof. Mike Duff on the occasion of his retirement from the BMVA Committee. As was mentioned in the May edition of the *Newsletter*, Prof. Duff pioneered research in the field of pattern recognition over thirty years ago and for much of the last three decades he has also been actively involved in the founding and running of various associations of the community of researchers in pattern recognition and later in machine vision.

The final sessions of the conference, held on Thursday morning, included further papers on shape and on motion and tracking and also a session on medical image understanding.

Perhaps the two main themes of the meeting were those of motion analysis, as mentioned above, and active vision in one form or another. Indeed, in his introduction to the proceedings, Peter Mowforth indicates the need to "foveate your representations" and points out the benefits which accrue from considering such an approach from the outset rather than splicing a multi-scale analysis in to the system at a later stage.

Both the BMVA committee and the local organisation at the Turing Institute are to be congratulated on an enjoyable and interesting conference that provided much food for thought. For those who were unable to attend the conference, the proceedings are available from Springer-Verlag.

*Simon Protheroe  
King's College London  
UK*

## **Nordic Workshop on Industrial Machine Vision**

*Kuusamo, Finland  
30-31 March 1992*

The Nordic workshop on image analysis is a biennial meeting in Scandinavia, arranged by a different Nordic country each time. Each workshop concentrates on a different topic so that specialists in the same area have a chance to devote a few days for detailed discussions about their favourite research topics. This is the second meeting in the series and the topic is industrial machine vision, a major application area of image analysis. The workshop offers an important forum to researchers and engineers from industry and research institutes for the presentation of progress, results, and experiences arising from work related to machine vision in Scandinavia.

The Workshop is to be held at Ruka in Kuusamo, a popular skiing resort in the mountains of Northern Finland. Direct air connections exist between Helsinki and Kuusamo. The programme of the meeting includes a few hours around midday for personal use.

The Workshop programme will include keynote presentations by leading experts, and will cover two days of contributed papers. To reflect the intended theme of the Workshop, the main subject areas of the meeting will be:

- visual inspection
- vision-based measurement
- robot vision
- algorithms and methods
- real-time implementations
- applications

Enquiries should be addressed to:

### **Prof. Matti Pietikäinen**

Department of Electrical Engineering  
University of Oulu  
SF-90570 Oulu  
Finland

Tel: (+358) 81 352765

Fax: (+358) 81 561278

Email: [mkp@stek.soulu.fi](mailto:mkp@stek.soulu.fi)

The Nordic Workshop on Industrial Machine Vision is organised by the Pattern Recognition Society of Finland, by the University of Oulu, and by VTT, the Technical Research Centre of Finland.

## **European International Space Year Conference: Space in the Service of the Changing Earth**

*Munich, Germany*

*30 March-4 April 1992*

Following an initiative of scientists and space agencies, it has been agreed that 1992—the 500<sup>th</sup> anniversary of the discovery of America and the 35<sup>th</sup> anniversary of the International Geophysical Year—should be celebrated as the *International Space Year* and marked by enhanced international cooperation on making broad use of space technologies for the benefit of mankind. The International Space Year is intended to stimulate significant contributions to world-wide

scientific research and application activities under the theme *Mission to Planet Earth*. This Conference and its five parallel symposia form one contribution to this theme.

The overall theme of the Conference is *Space in the Service of the Changing Earth* and its main aims are:

- to demonstrate the practical use of space-based information for environmental monitoring and protection, resource management, transportation, and other purposes;
- to enhance international cooperation in space research and application for the benefit of mankind;
- to stimulate interaction between different disciplines of space utilisation;
- to present European contributions to global change research using space technologies;
- to promote education and training in space applications.

The Symposia that comprise the Conference are:

- Environment Observation and Climate Modelling through International Space Projects
- Fifth European Aerospace Conference on Space-Based Systems for Navigation and Mobile Communication
- Image Processing, Geographic Information Systems, and Space-Assisted Mapping
- Space Sciences, with emphasis on High-Energy Astrophysics
- COSY 8: Utilisation of Earth-Orbiting Laboratories

For further information, contact:

**Prof. Hartmut Grassi**

c/o MPI Meteorologie  
Bundestraße 55  
D-2000 Hamburg 13  
Germany

Tel: (+49) 40 41173 0  
Fax: (+49) 40 41173 350

The Conference is organised by the Commission of the European Communities, by the European Space Agency, and by the German Space Agency. It will be accompanied by a dedicated related exhibition.

## Second Symposium on Digital Imaging in Dental Radiology

Amsterdam, The Netherlands

26-27 June 1992

In continuation of the great success of the First Symposium on Digital Imaging in Dental Radiology, which was held in 1990, a second meeting will be organised in 1992. The Second Symposium will feature several speakers well known in digital radiology and image processing related to dental applications. In addition, there will be a limited number of free presentations.

Digital radiology in dentistry is no longer restricted to the laboratory. Several hardware and software applications are now available for use on a routine basis. Hence, the need for standardisation has increased. The user must be able to capture and manipulate images by using a simple command interface. Exchange of images and data between applications must be possible without file conversion and other complicated procedures.

The scope of this symposium is to give an overview of the current situation in dental digital radiography with regard to standardisation and image transfer, and to identify further improvements. The following topics will be included in the programme:

- standardisation of hardware and software
- digital communication and image transfer
- connections between image interpretation and knowledge bases
- the electronic radiology office

For further details, please contact:

**Paul F. van der Stelt, DDS PhD**

Academic Centre for Dentistry Amsterdam  
Louwesweg 1  
1066 EA Amsterdam  
The Netherlands

Tel: (+31) 20 5188 262  
Fax: (+31) 20 5188 480  
Email: radmail@sara.nl

or

**Stanley M. Dunn, PhD**

Tel: (+1) 201 932 4462  
Fax: (+1) 201 932 3753  
Email: smd@occlusal.rutgers.edu

This Symposium is sponsored by the IEEE.

## Third International Conference on Visual Search

Nottingham, UK

24–27 August 1992

The term 'visual search' has been used to cover a range of activities, from human cognitive phenomena to applied problems, for man and machine, in industrial, medical, and military environments. Since the opportunities for academic discussion of visual search are generally restricted to a narrow range of disciplines, workers in a particular area can be unaware of recent developments in related fields.

This is the third in a series of international conferences devoted exclusively to all aspects of visual search processing. The meeting will encompass both human and machine vision approaches. The Conference is organised by the Applied Vision Association in conjunction with the Ergonomics Society and the British Machine Vision Association and Society for Pattern Recognition and will take place at the University of Nottingham, UK.

Conference sessions will include (but not be limited to) the following:

- attention and segmentation
- eye movements
- computer vision
- search modelling
- applied aspects of search

To submit an abstract (250 words maximum, indicating whether oral or poster presentation is preferred), and/or to receive further information, please write to the Conference Secretariat at:

### TICVS

Academic Radiology  
University Hospital  
Queens Medical Centre  
Clifton Boulevard  
Nottingham  
NG7 2UH  
United Kingdom  
Tel: (+44) 602 709442  
Fax: (+44) 602 709140

The deadline for the receipt of abstracts is 7<sup>th</sup> February 1992, and that for the submission of full manuscripts is 3<sup>rd</sup> July 1992.

## IAPR International Workshop on Structural and Syntactic Pattern Recognition

Bern, Switzerland

26–28 August 1992

Traditionally, structural and syntactic pattern recognition refers to concepts from formal language theory and their generalisation to fit various needs of pattern recognition. In this workshop, the discipline of structural and syntactic pattern recognition will be understood in a broad sense and will include any type of matching, search, optimisation, inference, reasoning, *etc.* procedure that is mainly based on a symbolic or mixed symbolic–numerical representation of the patterns under study. Topics of interest include, but are not limited to, the following:

- symbolic data structures for pattern recognition
- matching of symbolic structures
- new concepts in syntactic parsing
- inference and reasoning for pattern recognition
- learning of structural models and grammatical inference
- hybrid methods
- parallel algorithms
- traditional and new applications in speech understanding and 1-D signal analysis, 2-D and 3-D computer vision, image sequence analysis, document image understanding, and other fields

Please submit three copies of your paper (maximum length 15 pages, including figures, tables, references, *etc.*) to

### Dr. H. Bunke

Institut für Informatik und angewandte Mathematik  
University of Bern  
Länggassstraße 51  
CH-3012 Bern  
SWITZERLAND  
Tel: (+41) 31 654451 or 658681  
Fax: (+41) 31 653965  
Email: bunke@iam.unibe.ch

Those papers that are accepted will be included in the proceedings, to be published after the workshop.

**Deadlines**

1 April 1992	deadline for submissions
15 June 1992	notification of acceptance
15 July 1992	deadline for advance registration
26 August 1992	revised versions of papers

If you wish to attend the workshop without presenting a paper, please inform the organiser before 15<sup>th</sup> June 1992: you will then receive the material necessary for registration.

## Workshop on Contextual Methods in Pattern Recognition

*The Hague, The Netherlands*  
29 August 1992

Context is very important in many one-dimensional and multi-dimensional pattern recognition tasks. Presently, it is an area of substantial research activity.

The IAPR Technical Committee 1 on Statistical Pattern Recognition is organising a one-day Workshop on contextual methods in pattern recognition for August 29<sup>th</sup> 1992 in The Hague. The meeting will take place right in advance of the 11<sup>th</sup> IAPR International Conference on Pattern Recognition. The Workshop will commence with an invited talk, followed by about 15 contributed papers of 20 minutes each. The Workshop will end with a panel discussion on the rôle of contextual models in pattern recognition.

Original contributions for presentation at this Workshop are being solicited. Please submit an extended abstract in English that should not exceed two pages written in 12-point type and with normal margins. The review and selection of the submitted abstracts will be done by the Program Committee. The abstracts will be published in the Workshop Proceedings. Six copies of previously unpublished, extended abstracts should reach the Program Chair by February 15<sup>th</sup> 1992. Authors will be notified of the acceptance of the abstracts for oral presentation by April 15<sup>th</sup> 1992. Accepted abstracts that cannot be presented due to shortage of time will be printed in the Proceedings.

The Workshop registration fee is \$US 60, and will include a single copy of the proceedings and beverage during breaks. Registration with payment in US dollars — cheque or charge-card number (Visa, MasterCard, American Express, Euro-card) — is due no later than May 15<sup>th</sup> 1992 to the Workshop chair.

For further information, please contact the TC1 Chairman:

**Torfinn Taxt**

Aarstadveien 19  
University of Bergen  
5000 Bergen  
Norway

Tel: (+47) 5 296528

Fax: (+47) 5 296528

Email: [Torfinn.Taxt@cc.uib.no](mailto:Torfinn.Taxt@cc.uib.no)

## Second International Conference on Parallel Image Analysis

*Ube, Japan*  
21–23 December 1992

**Conference Topics** Data structures, Parallel algorithms and architectures, Neural networks, Computational vision, Syntactic generation and recognition, Multidimensional models.

**Submission** Nine copies of the manuscript of the full paper (not extended abstracts) should be submitted to:

**Prof. Katsushi Inoue**

Dept. Computer Science and Systems Engineering  
Yamaguchi University  
Ube 755  
Japan

Tel: (+81) 238 22 5181 x445

Fax: (+81) 238 22 8009

Email: [morita@emtsun.yz.yamagata-u.ac.jp](mailto:morita@emtsun.yz.yamagata-u.ac.jp)

Papers are restricted to twenty double-sided pages, including figures. Papers must be received by 1<sup>st</sup> March 1992. Camera-ready copy is due by 21<sup>st</sup> September 1992. It is intended that the conference will result in a special issue on "Parallel Image Analysis" in some journal.

The conference is sponsored by the Yamaguchi Industrial Technology development Organisation, Faculty of Engineering, Yamaguchi University, and co-sponsored by the Institute of Electronics, Information and Communication Engineers' Technical Groups on Computation, Pattern Recognition and Understanding.

## Forthcoming Conferences, Workshops and Events

Please notify the editor of any additions to this list.

DATE	EVENT	LOCATION	CONTACT ADDRESS [SPONSOR]
9-14 Feb 1992	Image Processing — Implementations and Systems	San Jose, California, USA	SPIE, P O Box 10, Bellingham, WA 98227-0010, USA [SPIE/IS&T]
30-31 Mar 1992	Nordic Workshop on Industrial Machine Vision	Kuusamo, Finland	Prof. Matti Pietikäinen, Department of Electrical Engineering, University of Oulu, SF-90570 Oulu, Finland [Pattern Recognition Society of Finland]
30 Mar-4 Apr 1992	European International Space Year Conference: Space in the Service of the Changing Earth	Munich, Germany	Prof. Hartmut Grassi, c/o MPI Meteorologie, Bundesstraße 55, D-2000 Hamburg 13, Germany [CEC, ESA, DARA, EURISY]
7-9 Apr 1992	4 <sup>th</sup> International Conference on Image Processing and its Applications	Maastricht, The Netherlands	IPA Secretariat, Conference Services, Institution of Electrical Engineers, Savoy Place, London WC2R 0BL, U. K. [IEE]
18-23 May 1992	Second European Conference on Computer Vision	Ligure, Italy	Piera Ponta, ECCV'92 Secretariat, Consorzio Genova Recherche, Via dell Accicio 139, 16145 Genova, Italy
26-27 Jun 1992	Second Symposium on Digital Imaging in Dental Radiology	Amsterdam, The Netherlands	Paul F. van der Stelt DDS PhD, Academic Centre for Dentistry Amsterdam, Louwesweg 1, 1066 EA Amsterdam, The Netherlands
7-10 Jul 1992	1992 IEEE Conference on Intelligent Robots and Systems	Raleigh, North Carolina, USA	Avi Kak, School of Electrical Engineering, Purdue University, West Lafayette, IN 47907, USA (kak@ecn.purdue.edu)
3-7 Aug 1992	10 <sup>th</sup> European Conference on Artificial Intelligence	Vienna, Austria	Bernd Neumann, FB Informatik, University of Hamburg
24-27 Aug 1992	Third International Conference on Visual Search	Nottingham, UK	TICVS, Academic Radiology, University Hospital, Queens Medical Centre, Clifton Boulevard, Nottingham, NG7 2UH, UK [AVA]
29 Aug 1992	Workshop on Contextual Methods in Pattern Recognition	The Hague, The Netherlands	Torfinn Taxt, Aarstadveien 19, University of Bergen, 5000 Bergen, Norway [IAPR]
30 Aug-3 Sep 1992	11 <sup>th</sup> International Conference on Pattern Recognition	The Hague, The Netherlands	11 <sup>th</sup> ICPR Secretariat, Delft University of Technology, P. O. Box 5031, 2600 GA Delft, The Netherlands (icpr@et.tudelft.nl) [IAPR]
7-9 Sep 1992	IAPR TC7 Workshop on Multi-Source Data Integration in Remote Sensing	Wagenigen, The Netherlands	Anke Hoeneveld, WAU, Dept. of Surveying and Remote Sensing, P. O. Box 339, NL-6700 AH Wagenigen, The Netherlands [IAPR]
15-18 Sep 1992	Second International Conference on Automation, Robotics, and Computer Vision	Singapore	ICARCV'92 Secretariat, Associated Conventions and Exhibitions Pte Ltd, Singapore (emital@ntivax.bitnet)
7-9 Dec 1992	IAPR Workshop on Machine Vision Applications	Tokyo, Japan	Prof. Mikio Takagi, Institute of Industrial Science, University of Tokyo, 7-22-1 Roppongi, Minato-ku, Tokyo 106, Japan
21-23 Dec 1992	Second International Conference on Parallel Image Analysis	Ube, Japan	Prof. Katsushi Inoue, Dept. Computer Science and Systems Engineering, Yamaguchi University, Ube 755, Japan
28-29 Dec 1992	9 <sup>th</sup> Israeli Conference on AI and Computer Vision	Tel-Aviv, Israel	Shimon Edelman, 9 <sup>th</sup> IAICV, Dept. of Computer Science, The Weizmann Institute of Science, 76100 Rehovot, ISRAEL