



International Association for
Pattern Recognition

Technical Committee 10
Graphics Recognition

Activity report for the period: September 2002 – May 2003

<http://www.iapr-tc10.org/>

Josep Lladós
TC-10 Chair

Computer Vision Center
Edifici O, Universitat Autònoma de Barcelona
E-08193 Bellaterra (Barcelona)
Spain
Tel: +34 93 581 24 03
Fax: +34 93 581 16 70
E-mail: josep@cvc.uab.es
www: <http://www.cvc.uab.es>

TABLE OF CONTENTS

1.	TC-10 Aims and Scope	4
2.	TC-10 Structure and Organization	4
2.1.	Chairmanship	4
2.2.	Membership.....	4
2.3.	Web site	4
2.4.	Mailing list.....	5
3.	TC10 start-up budget	5
4.	Events	5
4.1.	7th International Conference on Document Analysis and Recognition	6
4.2.	5 th International Workshop on Graphics Recognition	6
4.3.	International Graphics Recognition Contest.....	7
5.	Other Activities	8
5.1.	ICDAR Awards	8
5.2.	ICDAR 2007	9
6.	2004 Workplan.....	9

1. TC-10 AIMS AND SCOPE

Graphics recognition is a particular topic in the field of computer vision, and more specifically in the domain of document analysis, devoted to the analysis of any kind of graphical information. Along with optical character recognition (OCR) and document layout analysis, graphics recognition forms the broader area of document image analysis and recognition. Examples of graphic documents are maps, plans, tables, diagrams and drawings, graphical symbols in PDAs, pen-based user interfaces, etc. The relevance of research in graphics recognition comes from both scientific contribution and application development.

From the scientific point of view, graphics recognition has significantly contributed to research in computer vision and pattern recognition methods. Many different tasks are involved in the analysis of graphical information, covering all steps of image analysis systems: from low-level techniques, such as binarization, noise removal or vectorization, to pattern recognition methods for symbol recognition and knowledge-based systems for semantic interpretation.

From the application point of view, graphics recognition can be applied to a wide range of problems: raster-to-vector conversion of the huge amount of existing plans and maps, 3D-reconstruction, semantic drawing interpretation, information retrieval and navigation in large sets of graphic documents or development of more friendly user interfaces through input of graphic information with pen-based systems.

IAPR's Technical Committee 10 on Graphics Recognition promotes interaction among researchers working in document image analysis in general, and *graphics recognition* in particular. Topics of primary interest to members of this Technical Committee are:

- raster-to-vector techniques.
- recognition of graphical primitives.
- Recognition of graphic symbols in charts, diagrams, and drawings.
- Interpretation of engineering drawings, maps, charts, tables, diagrams, and other graphical documents.
- 3-D models from multiple 2-D views (line drawing).
- performance evaluation in graphics recognition.
- Systems for graphics recognition.
- Graphics-based information retrieval and browsing.
- Graphics multimedia and web-based documents.
- Graphics-based user interfaces.

The former TC10 chairs were: R. Kasturi (USA), K. Tombre (France), A. Chhabra (USA), Y.B. Kwon (Korea). Continuing with the work of such chairs, in the current chairmanship the goal is to continue in the direction of promoting activities and the exchange of new ideas and knowledge among active researchers in the field of graphics recognition and also other related fields.

2. TC-10 STRUCTURE AND ORGANIZATION

2.1. Chairmanship

TC10 chair: Dr. Josep Lladós, Computer Vision Center, Universitat Autònoma de Barcelona, Spain.

TC10 vice-chair : Dr. Dorothea Blostein, Kingston University, Canada.

2.2. Membership

Currently, TC-10 has 260 members worldwide. To become a member of TC-10, people is asked to fill out the enrolment form at the TC-10 web site. TC-10 members are periodically informed through the members mailing list about graphics recognition activities and news.

2.3. Web site

A new domain has been reserved <http://www.iapr-tc10.org/>

The TC10 web site is hosted at the Computer Vision Center, the institution of the TC10 chairman. Now, the new web site for TC10 is being configured. Meanwhile, a link to the former web site hosted by Prof. Young-Bin Kwon is set up. The address of the former web site in Korea is <http://www.iapr-tc10.or.kr/>

The contents of the TC-10 web site are:

- Information on activities of TC-10
- Information on GREC workshops and contests
- LNCS Publications
- Pointers to related conferences
- Archives of TC-10 News
- List of commercial products
- BBS for information announcement

2.4. Mailing list

An electronic mailing with news of interest to the research community is sent out periodically to TC10 members. Copies of past issues are available on-line under the link *TC10 News* in the web site. The TC-10 News includes information about upcoming conferences and workshops and other news of interest to members.

3. TC10 START-UP BUDGET

Recently, the IAPR announced that initial expenses (up to \$3000) to start the TC activities could be requested from IAPR. After the start-up phase it is expected that the TC can cover the running expenses from the flow back of its own activities. Recently, the treasurer of the IAPR approved the start-up budget of 2000€ for the TC10. This budget aims to cover the following expenses:

- New TC10 web server and web domain. The former TC10 chair (Prof. Young-Bin Kwon from Korea) maintained the TC10 web server at his University. Now the new web site is hosted at the Computer Vision Center. In addition, a new domain has been reserved (<http://www.iapr-tc10.org>) and, for the moment, paid by the CVC. Some improvements will be made on the web design. The cost of that will be 1500 euros aprox. An extra amount of 500 euros can be given by host institution.
- ICDAR awards. This is a particular requirement. The policy to buy trophies and certificates for the ICDAR awards (International Conference on Document Analysis and Recognition) was that a part of the budget of previous ICDAR edition was used to finance the awards of next edition. In the last edition, there were some financial problems and there was no budget for this. In the future, the aim is to change the "business model" but for this edition, Lambert Schomaker (TC11 chair) and Josep Lladós (TC10 chair) agreed to set aside \$500 (aprox) from each TC administration fees. This is a particular case for the next ICDAR, in next editions the needed money for the awards will set aside if the meeting breaks even.

In order TC10 to have flow back of its own activities, in the budget of GREC2003 a fee for TC10 has been considered whenever it breaks even.

4. EVENTS

TC-10 collaborates and promotes the organization of two main events. First, The Graphics Recognition Workshop series, every two years, is the main activity of the Graphics Recognition community. Second, The International Conference on Document Analysis and Recognition (ICDAR), the main activity of the whole document analysis community.

4.1. 7th International Conference on Document Analysis and Recognition



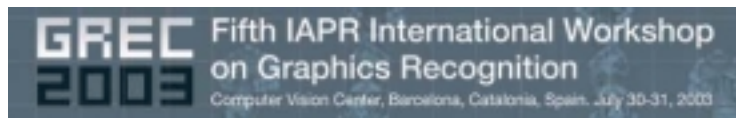
Conference chairs: Andy Downton
 University of Essex, UK
 e-mail: acd@essex.ac.uk

 Mike Fairhurst
 University of Kent, UK
 e-mail: M.C.Fairhurst@ukc.ac.uk

Conference home page: <http://www.essex.ac.uk/ese/icdar2003/>

It will be held in Edinburgh (Scotland), 3-6 August 2003. There were 288 paper submissions and a reject rate of 21% was achieved.

4.2. 5th International Workshop on Graphics Recognition



Workshop chairs: Josep Lladós
 Computer Vision Center, Universitat Autònoma de Barcelona, Spain
 e-mail: josep@cvc.uab.es

 Young-Bin Kwon
 Department of Computer Engineering
 Chung-Ang University, South Korea
 e-mail: ybkwon@visionnet.cse.cau.ac.kr

Workshop home page: <http://www.cvc.uab.es/Grec2003/>

The main activity of TC10, will be held in the Computer Vision Center, Barcelona (Spain), July 30-31, 2003. The number of extended abstracts submitted to the workshop was 48. These were lightly reviewed (by the organizers), 5 abstracts were rejected because there were on a topic that is not appropriate for GREC. Now, the programme is being configured. The papers will be grouped in 8 sessions, each with an overview talk followed by 5 or 6 short paper presentations. The preliminary programme is shown below.

	July 29 (Tuesday)	July 30 (Wednesday)	July 31 (Thursday)
8:00 - 9:00		Registration Opening remarks	Session 5: Technical documents, maps and diagrams
9:00 - 10:00		Session 1: Vectorization	
10:00 - 11:00		Coffee break	Coffee break
11:00 - 12:00		Session 2: Symbol recognition	Session 6: On-line processing and User Interfaces
12:00 - 13:00			
13:00 - 14:00		Lunch	Lunch
14:00 - 15:00	Contests: ▪ arc detection ▪ symbol recognition	Session 3: Perceptual organization, Indexing, Document Mining	Session 7: Performance evaluation / contests
15:00 - 16:00			
16:00 - 17:00	Coffee break	Coffee break	Coffee break
17:00 - 18:00	Contests: ▪ arc detection ▪ symbol recognition	Session 4: Systems and architectures	Session 8: Demonstrations and industrial projects
18:00 - 19:00			
19:00 - 20:00	Welcome cocktail	Social event and banquet	
20:00 - 21:00			Closing remarks

4.3. International Graphics Recognition Contest

As at the past workshops, a graphics recognition contest will be held at GREC'2003. Two contests are being organized:

Arc Segmentation Contest

Arc segmentation is a classical process related to vectorization and line drawing interpretation. In the past GREC'2001, held in Kingston (Canada), an Arc Segmentation Workshop was organized. Now, in GREC'2003 a new edition of such contest will be done with the aim of evaluating the progress of the methods presented by the participants in 2001 and also to encourage the scientific community to contribute with new methods. Two participants are foreseen to participate in the contest.

Contest chair: Liu Wenyin
 Dept. of Computer Science
 City University of Hong Kong,
 Hong Kong
 e-mail: csliuwy@cityu.edu.hk

Contest home page: <http://www.cs.cityu.edu.hk/~liuwy/ArcContest/ArcSegContest.htm>

Symbol Recognition Contest

Symbol recognition is one of the central problems of Graphics Recognition. A lot of symbol recognition methods can be found in the literature. However, they are generally very ad-hoc and domain dependent methods. It is necessary to define sound performance evaluation methods to compare them. GREC'2003 will be a good framework to start a work on symbol recognition evaluation. Four participants are foreseen to participate in the contest.

Contest chairs:
Ernest Valveny
Computer Vision Center - Dept. Informàtica
Universitat Autònoma de Barcelona
Barcelona, Spain
e-mail: ernest@cvc.uab.es

Philippe Dosch
LORIA
Nancy, France
e-mail: Philippe.Dosch@loria.fr

Contest home page: <http://www.cvc.uab.es/Grec2003/SymRecContest/>

5. OTHER ACTIVITIES

The TC10 chair is a member of the ICDAR steering committee. Such committee was installed in 2001 in order to (a) keep track of the organisational process of current and forthcoming ICDAR conferences, and (b) to maintain the organisational and 'cultural' coherence in this conference series. The members of the ICDAR steering committee are: Andreas Dengel (former ICDAR organizer), Josep Lladós (TC10 chair), and Lambert Schomaker (TC-11 chair). Now, the ICDAR steering committee is concerned on the following activities:

5.1. ICDAR Awards

An ICDAR Award Program has been established to recognize individuals who have made outstanding contributions to the field of Document Analysis and Recognition in one or more of the following areas:

- Research
- Training of students
- Research/Industry interaction
- Service to the profession

Every two years, up to 3 awards will be given, one of these being specifically dedicated to a young investigator (less than 40 years old at the time the award is made). Each award will consist of a token gift and a suitably inscribed certificate.

A call for nominations has been distributed among ICDAR, TC10 and TC11 mailing lists and also the ICDAR and IAPR web page. The foreseen agenda is:

- Deadline to receive proposals: June 27.
- Received proposals will be sent to the committee by June 30.
- Discussion by e-mail during the weeks July 1-11.
- Final decision: July 14.

The Awards Committee consists of the following people:

Andy Downton	ICDAR03 general chair
Josep Lladós	TC10 chair
Lambert Schomaker	TC11 chair
David Doermann	IJDAR chief editor
Atul Chhabra	TC10 representative
Venu Govindaraju	TC11 representative

5.2. ICDAR 2007

the next ICDAR, as described before, will be organized in Edinburgh, 2003 (Europe). The 8th ICDAR will be organized in 2005, Seoul (Asia). This means that the 9th ICDAR in 2007 will be hosted by an institution in the USA, according to the ICDAR rotation schedule. The ICDAR steering committee aims to be proactive in looking for the organizers of ICDAR07, so a call for candidates has been distributed among ICDAR participants. A ballot procedure usually takes place to select among multiple candidates during the TC10-TC11 joint meeting in Edinburgh next summer.

6. 2004 WORKPLAN

In the first year of the current biannual chairmanship, the main activities of TC10 have been related to the organization of GREC2003 and ICDAR2003. These conferences represent a state-of-the-art snapshot of our domain that, from the TC10, we would disseminate in the second year.

- Therefore, a main purpose for 2004 workplan is disseminating the results of our research either in the scientific and industrial communities:
- Post-workshop LNCS volume. Traditionally, after the GREC workshop, a selection of best papers is published in a volume of Lecture Notes in Computer Science.
- Special issue in a journal. From the TC we will promote the edition of a special issue on graphics recognition in an international journal covering the state of the art and the relevant advances in the field.
- Collect datasets and performance evaluation algorithms, mainly from the contests held during GREC2003, and create a special section in the TC10 web site in order the scientific community to evaluate the results of their research. It is important to continue with the definition and development of standard databases and benchmarking protocols in different graphics recognition domains in order to compare approaches from different researchers.