



International Association for
Pattern Recognition

Technical Committee 10
Graphics Recognition

Activity report for the period: June 2010 – June 2011

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

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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, 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.
- Historical Graphic document analysis
- Systems for graphics recognition.
- Graphics-based information retrieval and browsing.
- Authoring, editing, storing and presentation systems for 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), J. Lladós (Spain), and Liu Wenyin (China). Continuing with the work of these 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 other related fields as well.

2. TC-10 STRUCTURE AND ORGANIZATION

2.1. Chairmanship

At ICPR'2010 in Istanbul, Turkey, the following chairmanship was defined for the next term (until ICPR'2012 in Tsukuba, Japan) and then approved later by the First VP of IAPR:

- TC10 chair: Pr. Jean-Marc Ogier, City University of **La Rochelle**, France.
- TC10 vice-chair: Dr. Rafael Lins, Federal University de **Pernambuco**, Brasil.

We had some discussions among some active and senior members on the reform of the leadership of TC10. As a result, we structured the leadership team around a group of persons the role of which is precisely defined. Our leadership team is composed as follows :

- TC10 Dataset curator: Dr. Bart Lamiroy, currently at **Lehigh University USA**.

The Data Curator function is a new part of the TC-10 executive committee and started operating in full in the beginning of 2011. The TC10 Committee is committed to offering resources to the research community that foster quality experimental research. Typical resources are datasets with annotations (ground-truth), source code, etc. These resources are fundamental for valid peer review and experimental validation through full reproduction of the experimental conditions reported in published works.

These services significantly overlap with actions conducted by closely related other technical committees. The TC-10 committee has therefore paired up with the TC-11 to work towards a common handling of the above mentioned resources.

Furthermore, the TC-10 has started evaluating, promoting and using a comprehensive platform hosted at Lehigh University (<http://dae.cse.lehigh.edu>) that allows storage of large amounts of data, associate multi levels of ground truth, and registration of software. This infrastructure has been experimentally used for the TC-10 sponsored contests at GREC.

Further information is also available at a dedicated area on the TC-10 website: <http://iapr-tc10.univ-lr.fr/index.php/datasets-and-software>.

Dr. Bart Lamiroy (actually in US)-- Dataset curator, responsible for managing the datasets on the website, including tracking down new datasets, investigating distribution issues, and providing additional annotation as needed.

- Information Officer and TC 10 Webmaster Dr. Jean-Christophe Burie, University of la Rochelle, FRANCE

Dr Burie is responsible for the content of the TC-10 website, including helping to investigate new functionality to support the research community (<http://www.iapr-tc10.org/>).

The aim of the TC10 website is to become the main communication tool of the graphic recognition community and to preserve strong interactions between TC members. To reach the goal set, the website has been recently restructured. It is now based on the Content Management System Joomla !.

Information content can be created and managed easily by the webmaster and the TC10 committee. One of the objectives of the TC10 team, through the website, is also to make available different resources (thesis, slides, notes, datasets...) to help new students and researchers in graphic recognition in order to encourage collective scientific progress.

All visitors can browse the information on this website but registered members can also submit and share information including news, activities, conferences, and resources.

Communication efforts will be done in the graphic recognition community to encourage researchers to publish and share contents. The mission of the website is to become the resource center for the whole graphic recognition community.

- Newsletter editor Dr. Jaehwa PArk, **Chung-Ang University, Seoul, Korea**,

Dr Jaehwa Park is Newsletter editor, responsible for working with the TC Chair to produce the monthly TC-10 newsletter, including soliciting information of interest to the community. This aspect is strongly correlated to Webmaster's one

2.2. Membership and Mailing list

Currently, we have about 300 members worldwide in the distribution list of TC10, who are monthly informed by email about graphics recognition activities and news. All the information which are sent to the member list are also available on the website

2.3. Website

The new website of IAPR TC10 has been officially launched and the domain name of www.iapr-tc10.org has been migrated to the server hosted at the University de La Rochelle and managed by Jean-Marc's team, under the responsibility of Jean-Christophe Burie, who plays the role of Webmaster. All people interested in TC10 information can visit and register at www.iapr-tc10.org. All visitors can browse the information on this website. Registered members can also submit information to the website. Such information, including news, activities, conferences, and resources, can be published after verified and categorized by the webmaster.

This website has been designed by trying to reconstitute the high level of interaction that exists between GREC member (especially at the moment of GREC workshop), by using a collaborative environment which permits TC 10 members to interact through all the possibilities of the website, which is based on Joomla! Technology.

Among the contents of the website, let's mention the possibility to upload some educational materials, or any kind of information which is interesting to be shared between TC 10 members. Let's also mention the presence of GREC 2009 Podcasts.

3. EVENTS

TC-10 collaborates and promotes the organization of two main events. First, The Graphics Recognition (GREC) Workshop series, every two years, is the main activity of the Graphics Recognition community. Second, The International Conference on Document Analysis and Recognition (ICDAR), is the main activity of the whole document analysis community, organized jointly by TC-10 and TC-11 every two years. Both events had been held in September 2009 successfully. TC-10 has focused its main activities of the 2010-2011 year in organizing and supervising the organization of these two events for the 2011 session.

3.1. 9th International Workshop on Graphics Recognition (GREC2011)

This is the main activity of TC10 and will be held at Chung-Ang University Korea, September 15-16, 2011, just before ICDAR2011.

Workshop chairs:

General Chair:

Young Bin Kwon
Chung-Ang University, Seoul, Korea
Kwon Young Bin <ybkwon@cau.ac.kr>

Program Chair:

Jean-Marc Ogier
Department of Computer Science, City University of La Rochelle
email: jean-marc.ogier@univ-lr.fr

Workshop home page:

grec2011.cau.ac.kr/

This is the main activity of TC10 and will be held at City University of la Rochelle, Korea , September 15-16, 2011, just before ICDAR2011 (Beijing, China). The number of extended abstracts accepted for presentation is 37 after having been lightly reviewed (by the organizers, and PC Chair). Following the tradition of previous workshops, selected and revised papers of GREC2011 will be published in a book of Springer LNCS series. At the moment of the writing of the present document GREC, we don't have the number of registrants to GREC 2011, in order to see if the new dynamic identified during GREC 2009 held in la Rochelle will be confirmed or not (the record of registrants had been beaten in 2009, with more than 70 registrants, including industrial companies).

3.2. International Graphics Recognition Contests

Contests are useful not only to evaluate the state-of-the-art on algorithms related to different problems of graphics recognition, but also to provide evaluation databases to the community. In GREC'2009, the three following contests will be held:

Arc Segmentation Contest

Arc segmentation is a classical process related to vectorization and line drawing interpretation. In GREC'2011 a new edition of such contest will be organized by

Contest chair: Abdullah Zawawi Talib
Mohd. Azam Osman
Hasan S.M. Al-Khaffaf
Universiti Sains Malaysia
E-mail: hasan@cs.usm.my

Contest home page: <http://www.cs.usm.my/arcseg2011/>

Symbol Recognition Contest

Following the experience of the previous four contests on Symbol Recognition at GREC'2003, GREC'2005, GREC'2007, and GREC'2009, a new edition of the contest will be held during GREC'2011, organized by:

Contest chairs:

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

Romain Raveaux
Laboratory L3i / SOOD Company
City University of La Rochelle / SOOD Company
La Rochelle, FRANCE
e-mail: romain.raveaux01@univ-lr.fr, romain.raveaux@sood.fr

Mathieu Delalandre
Laboratoire d'Informatique
Université de Tours, France
mathieu.delalandre@univ-tours.fr

Bart Lamiroy
LORIA / INPL - École des Mines de Nancy
Vandoeuvre-lès-Nancy, France
Bart.Lamiroy@loria.fr

Contest home page: <http://iapr-tc10.univ-lr.fr/index.php/symbol-contest-2011>

Musical Scores Analysis Contest

For the first time, considering a new challenge identified by GREC community, a new contest will be held during GREC'2011, on musical scores analysis. Indeed, in the last years, there has been a growing interest in the analysis of handwritten music scores. In this context, the focus of interest of this contest is two-fold: the recognition of handwritten music scores (Optical Music Recognition), and the identification (or verification) of the authorship of an anonymous music score. This contest is organized by:

Contest chairs:

Alicia Fornés
Computer Vision Center - Dept. Informàtica
Universitat Autònoma de Barcelona
Barcelona, Spain
e-mail: alicia@cvc.uab.es

Anjan Dutta
Computer Vision Center - Dept. Informàtica
Universitat Autònoma de Barcelona
Barcelona, Spain
e-mail: anjan.dutta@cvc.uab.es

Albert Gordo
Computer Vision Center - Dept. Informàtica
Universitat Autònoma de Barcelona
Barcelona, Spain
e-mail: albert.gordo@cvc.uab.es

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

Contest home page: <http://dag.cvc.uab.es/cvcmuscima/competition>

3.3. 11th International Conference on Document Analysis and Recognition (ICDAR2011)

ICDAR2011 will take place in Beijing (China), September 18 – September 21, 2011. There are 90 papers accepted for oral presentations and 188 for poster presentations for this session.

A point concerning ICDAR 2013 progress will be made during ICDAR 2011 conference.

Concerning to ICDAR'2015, proposals will be examined by the ICDAR Advisory Board. Valid bids will then be presented at the TC10/TC11 joint meeting held during ICDAR'2011, where a ballot will be conducted to determine the winning bid.

Conference chairs:

Honorary Chair

RuWei Dai (CASIA, China)

General Chairs

Xiaoqing Ding (Tsinghua Univ., China)

Hironichi Fujisawa (Hitachi Ltd., Japan)

Jiaying Hu (IBM, USA)

Program Chairs

Chew Lim Tan (NUS, Singapore)

Daniel Lopresti (Lehigh Univ., USA)

Thomas Breuel (Univ. Kaiserslauten, Germany)

ICDAR Advisory Board

Jean-Marc Ogier (Univ. La Rochelle, France)

Daniel Lopresti (Lehigh Univ., USA)

Simone Marinai (Univ. Florence, Italy)

Andreas Dengel (DFKI, Germany)

Apostolos Antonacopoulos (Univ. Salford, UK)

Conference home page: <http://www.ICDAR2011.org>

The following workshops have been scheduled as satellite workshops of the ICDAR 2011

[Nineth IAPR International Workshop on Graphics Recognition \(GREC 2011\)](#)

Chung-Ang University, Seoul, Korea

15-16 September, 2011

[International Workshop on Historical Document Imaging and Processing \(HIP\)](#)

Chairs: William A. Barrett, Michael S. Brown

Beijing Friendship Hotel, 16-17 September 2011

[International Workshop on Multilingual OCR \(MOCR\)](#)

Chairs: Santanu Chaudhury, Venu Govindaraju, Daniel Lopresti, Prem Natarajan

Beijing Friendship Hotel, 17 September 2011

[Fifth Workshop on Analytics for Noisy Unstructured Text Data \(AND 2011\)](#)

Chairs: Lipika Dey, Daniel Lopresti, Christoph Ringlstetter, Shourya Roy

Beijing Friendship Hotel, 17 September 2011

[First International Workshop on Automated Forensic Handwriting Analysis \(AFHA 2011\)](#)

Chairs: Marcus Liwicki, Michael Blumenstein, Elisa van den Heuvel, Bryan Found

Beijing Friendship Hotel, 17-18 September 2011

[Fourth International Workshop on Camera-Based Document Analysis and Recognition \(CBDAR 2011\)](#)

Chairs: Masakazu Iwamura, Faisal Shafait
Beijing Friendship Hotel, 22 September 2011

ICDAR'2011 will be held in Beijing, China. Concerning to ICDAR'2015, proposals will be examined by the ICDAR Advisory Board. Valid bids will then be presented at the TC10/TC11 joint meeting held during ICDAR'2009, where a ballot will be conducted to determine the winning bid.

4. OTHER ACTIVITIES

4.1. ICDAR Steering Committee (Advisory Board)

The TC10 chair is a member of the ICDAR steering committee (Advisory Board). 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 current edition of the ICDAR steering committee are:

Jean-Marc Ogier (Chair, TC10)
Daniel Lopresti (Chair, TC11)
Simone Marinai (Chair, IAPR C&M Committee)
Andreas Dengel (Past ICDAR Organizer)
Apostolos Antonacopoulos (Past ICDAR Organizer)

The committee received two proposal for ICDAR2015 from Prof. Adel Alimi (ENIS, Tunisia), and from Prof Simone Marinai (Firenze, Italia) which are going to be analyzed by the ICDAR steering committee.

4.2. IAPR/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, two awards categories are presented, namely, the Young Investigator Award (no more than 40 years old in the calendar year when ICDAR is held) and the Outstanding Achievements Award. Each award consists of a token gift and a suitably inscribed certificate. The organization of the ICDAR Award Program was done by IAPR TC-10 and TC-11. A call for nominations was distributed among ICDAR, TC10 and TC11 mailing lists and also the ICDAR and IAPR web pages. The final decision will be made this year by the Awards Committee that consists of the following people:

Chair of the committee : Jean-Marc Ogier (TC10 Chair)
David Doermann (ICDAR EIC)
Horst Bunke (Previous winner of Outstanding Achievements Award)
Hiromichi Fujisawa (winner of Outstanding Achievements Award in 2005)
Koichi Kise (TC11 representative)
Josep Lladós (previous ICDAR chair/ winner of Young Investigator Award in 2007)
Dan Lopresti (TC11 Chair)
Liu Wenyin (previous TC10 Chair)
Umapada Pal
Katrin Franke (previous winner of Young Investigator Award in 2009)

This year, the committee had received two nominations for the Outstanding Achievements Award and three nominations for the Young Investigator Award. At the moment of the writing of this report, the decisions concerning the ICDA 2011 awards have not been taken yet.

4.3. ICDAR Doctoral Consortium

For the first time, a doctoral consortium will be organized this year just before ICDAR 2011.

For current Ph.D. students, this Doctoral Consortium should prove to be a very valuable experience. It will provide an opportunity for Phd students to talk about their dissertation research and receive guidance from senior researchers working in the field. It will also give them the chance to interact with fellow graduate students from other institutions to learn about the work they are doing. Finally, they should make contacts that could prove to be helpful when they will start their job search.

For advisors of Ph.D. students, the Doctoral Consortium provides an excellent opportunity for their students to publicize the work students are doing with them. It could also lead to new collaborations for you and their students.

The Doctoral Consortium is scheduled for the afternoon of September 18, which is the day before ICDAR starts. There is no cost to participate, but interested students must submit an application via the ICDAR website. All details concerning the Doctoral Consortium can be found on the homepage:

<http://www.icdar2011.org/EN/column/column39.shtml>

Participation will be limited to no more than 25 students -- those who are interested are advised to submit their applications online.

The doctoral consortium committee is composed of the following members.

ICDAR 2011 Doctoral Consortium Organizing Committee

- TC-11 Chair: Prof. Daniel P. Lopresti (Lehigh University, USA)
- TC-10 Chair: Prof. Jean-Marc Ogier (Université de La Rochelle, France)
- Prof. Jean-Christophe Burie (Université de La Rochelle, France)
- Prof. Masakazu Iwamura (Osaka Prefecture University, Japan)
- Prof. Gernot A. Fink (TU Dortmund University, Germany)
- Dr. Dimosthenis Karatzas (Universitat Autònoma de Barcelona, Spain)
- Prof. Koichi Kise (Osaka Prefecture University, Japan)
- Prof. Bart Lamiroy (Nancy Université, France)
- Prof. Rafael Lins (Universidade Federal de Pernambuco, Brazil)
- Prof. Josep Lladós (Universitat Autònoma de Barcelona, Spain)

5. 2011-2012 WORKPLAN

5.1. Conference, workshop

The main objectives for the next year are still the classical activities: GREC workshop, ICDAR conference, ICDAR Awards.

- Especially, GREC'2011 will be organized by Prof. Young-Bin Kwon from Chung-Ang University, Seoul, Korea, Sept 15-16, 2011, just before ICDAR2011.
- In correlation with GREC workshop, and related to the different contests which will be organized, Ground-truth database construction will start, as well as the preparation of DAE plat-form, the aim of which is to serve as a recurrent performance evaluation environment. All these points are coordinated by Bart Lamiroy.
- ICDAR'2011 will be held in September 18-21, 2011 in Beijing, chaired by Chenglin Liu and Prof. Xiaoqing Ding, as well as all the satellite workshops.

Important dates:

Manuscript due: March 1, 2011

Acceptance notification: June 1, 2011

Camera-ready manuscript due: July 1, 2011

Advance registration due: July 1, 2011

Workshop proposals due: November 20, 2010

Tutorial proposals due: January 20, 2011

Competition proposals due: January 20, 2011

5.2. Doctoral consortium

TC10 is one of the major actor of the doctoral consortium, in partnership with TC 11, with which many links are currently being created (see part 4.3)

5.3. LNCS post-GREC2011 volume

Traditionally, after the GREC workshop, a selection of best papers is published in a volume of Lecture Notes in Computer Science (Springer). The book corresponding to GREC'2011 should be published in May, 2012.

5.4. Website evolution

Even if this point has considerably changed thanks to Joomla! Platform, we will improve the TC10 website, add more contents and promote the forum/QA section as a dynamic way to exchange ideas among TC-10 community.

The idea is globally to emphasize the number of contents which can be useful for young Phd students. We introduced some Podcasts of GREC 2009 sessions which have a very high level of consultation. All these information can be found on TC 10 website.

5.5. TC10- TC11 connections

Considering the points that could be intelligently shared between these two communities (both TC 10 and 11), the leading teams are working together in order to give a high visibility to their respective activities, and try to pool all the points that contribute to the progress of the whole document analysis community (datasets and performance evaluation, for instance)