



**Final Report on IAPR TC10**  
**(October 2016 - June 2018)**

**July 30<sup>th</sup>, 2018**

## Preliminary Note:

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## 1. TC Brief Background Information

### 1.1. Listing of TC Leadership Team

- Chair: **Bart Lamiroy** (<https://members.loria.fr/BLamiroy/>) - France
- Vice-Chair: **Alicia Fornés** (<http://www.cvc.uab.es/~afornes/>) - Spain
- Secretary: **Jean-Christophe Burie**  
(<http://l3i.univ-larochelle.fr/Burie-Jean-Christophe-MCF-HDR>) - France

List other appointments within the TC.

- Educational Officer: **Syed Saqib Bukhari**  
(<http://www.dfki.de/~bukhari/>) - Germany
- Communications Officer : **Motoi Iwata**  
([http://kyoindb.osakafu-u.ac.jp/html/100453\\_en.html](http://kyoindb.osakafu-u.ac.jp/html/100453_en.html)) - Japan
- Dataset Curator: **Santosh K.C.** (<http://kc-santosh.org/>) - USA

### 1.2. TC website URL

<http://iapr-tc10.univ-lr.fr/>

### 1.3. Number of members (people on mailing list)

320

### 1.4. Communication types used (e.g. newsletters) and frequency

- Monthly/Bi-monthly newsletters
- Website

### ***1.5. Listing of key event(s) usually organized by the TC***

TC-10 flagship events are the biannual organization of the joint TC-10, TC-11 IAPR International Conference on Document Analysis and Recognition and the associated signature TC-10 event GREC (IAPR International Workshop on Graphics Recognition).

In tight collaboration with TC-11, the TC-10 leadership team and broader community are also very much involved in the IAPR Document Analysis Systems workshop (DAS), and the International Conference on Frontiers in Handwriting Recognition (ICFHR).

## **2. Activities in the last two years (since ICPR 2016)**

***Provide a description of the activities carried out in the past 24 months period from July 2016 to June 2018. You can use the following structure:***

### ***2.1. Website updates***

Reference resources (datasets, evaluation tools)

Reproducible research and Bethlehem Steel Dataset: in collaboration with Lehigh University; we have been working on the curation and digitization of a very large dataset of engineering drawings. Currently 800 very large images have been made available, totaling more than 400GB of data (<http://dae.cse.lehigh.edu/DAE/?q=browse/dataitem/606796>).

### ***2.2. Activities***

#### **2.2.1. Conferences/Worskhops organized**

##### **ICDAR 2017**



Kyoto, Japan

November 10-15, 2017

First call for papers  
14th International Conference on  
Document Analysis and Recognition  
(ICDAR 2017)  
November 10-15, 2017  
Kyoto, Japan



The 14th IAPR International Conference on Document Analysis and Recognition

<http://u-pat.org/ICDAR2017/>)

ICDAR 2017 took place in Kyoto, Japan.

See extensive report on ICDAR 2017 in the January 2018 edition of the IAPR

Newsletter (<https://iapr.org/docs/newsletter-2018-01.pdf>)

## **GREC 2017**



### **Twelfth International Workshop on Graphics Recognition**

Alicia Fornés and Bart Lamiroy, GREC 2017 General Chairs.

The GREC workshop series is closely associated with ICDAR, and, as such, is organized every two years. It aims at providing a unique atmosphere, fostering a very high level of interaction, discussion and exchange of ideas (distinctly different from classical conference-like presentations) while providing high quality and good impact post-proceedings. It therefore forms an excellent opportunity for researchers and practitioners at all levels of experience to meet colleagues and to share new ideas and knowledge about graphics recognition methods. Graphics Recognition is a subfield of document image analysis that deals with graphical entities in written documents, engineering drawings, maps, architectural plans, musical scores, mathematical notation, tables, diagrams, comics, etc.

For the 2017 edition, the TC10 leadership team decided to make some changes to the long-standing GREC traditions and engage in some subtle make-over with respect to previous editions in order to increase participation and interactivity. GREC was therefore organized as an integrated ICDAR workshop at the same venue as the main conference, in Kyoto, Japan. It started one day before the regular ICDAR workshops. The program was, as usual, organized in a single-track 2-day workshop, but featured an invited speaker. Prof. I. Fujinaga, from McGill University. Besides his keynote talk providing an in depth review of the research on music score interpretation, the program comprised several sessions dedicated to specific topics related to graphics in document analysis and graphic recognition. Each session began with an introductory talk by the session chairs, describing the state-of-the-art, putting the presented talks in a more global perspective and stating the current open challenges of session topics. This introduction was then followed by a number of short talks presenting solutions to some of these questions or presenting results of the speaker's work. The sessions were concluded by a panel discussion. The workshop also featured a discussion group session on future evolutions of the Graphics Recognition domain.

For this edition, the program consisted of 27 scientific presentations and 1 contest/challenge announcement. It contained both classical and emerging topics of Graphics Recognition. Session topics included Interpretation of engineering drawings,

maps and charts, Symbol Recognition and Spotting, Optical Music Recognition, Performance Evaluation and Interpretation and Raster to Vector conversion, The attendance of the workshop reached over 100 highly interactive participants on the first day of the workshop. The second day, owing the start of other ICDAR workshops attendance reached 35.

Full access to the program and list of presented papers is available from the GREC 2017 website (<http://grec2017.loria.fr>). Long abstracts of the papers are published by IEEE in the ICDAR proceedings.

As in previous editions, after the GREC workshop, Springer will publish a selection of fully reviewed extended papers in 2018 as an LNCS volume.

The selected papers will be published as:

- Lecture Notes in Computer Science, volume 11009.
- Title: Graphics Recognition. Current Trends and Challenges. 12th International Workshop, GREC 2017, Kyoto, Japan, Revised Selected Papers.

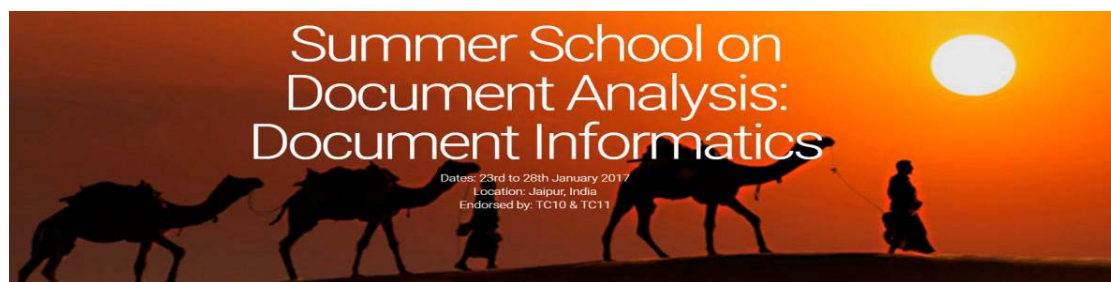
After the reviewing period, 10 papers have been accepted for publication. In addition to these selected papers, the volume will include several reports summarizing the discussion groups.

The volume edition is at its final stage. It will be published during the second half of 2018.

## 2.2.2. Educational activities (Schools, Tutorials, Short courses, Webinars,

Doctoral consortia)

### **Summer School on Document Analysis**



***Jaipur, India - January 23-28, 2017***

[\(http://cvit.iiit.ac.in/SSDA/\)](http://cvit.iiit.ac.in/SSDA/)

The Centre for Visual Information Technology (CVIT) at International Institute of Information Technology at Hyderabad, India, together with Alicia Fornés and Gernot Fink, TC10 and TC11 Educational officers have organized the first TC-10/TC-11

endorsed Summer (Winter) School on Document Analysis

The school has provided an in-depth and objective exposure to researchers of the emerging area of understanding large scale document collections and highlight open problems in this area. With deluge of documents (in a variety of forms – images, web-pages, etc.) on the web, individual and/or collaborative information foraging from document collections have become a challenging task. Researchers are developing tools not only to understand structure of the documents but also to facilitate comprehensive interpretation of the content, may be embedded in more than one document in the form of text, table and/or graphics. This summer school has addressed different aspects of this problem of discovering actionable insight in large document collections through tutorial level talks and research overview presentations.

The school focused on following core areas:

- Features, representation and indexing for large document collections
- Content representation and manipulation
- Information and document retrieval
- Machine learning and analytics for large document repositories



***La Rochelle, France - July 2-6, 2018***

[\(http://ssda.univ-lr.fr/\)](http://ssda.univ-lr.fr/)

The University of La Rochelle has held the second IAPR TC-10/TC-11 Summer School. This summer school offers new students in the field of DAR (Document Analysis and Recognition) an overview of all the traditional approaches to process and analyze documents on the one hand, and a necessary overview of new trends in the field (such as deep learning, human document interaction, forensics, ...).

To reach this objective, lecturers will present classical approaches from the field and specific dedicated classes related to new trends and their point of view of the future of DAR.

The school has addressed the following topics:

1. Content representation and manipulation
2. Document indexing/retrieval in large corpus of documents
3. Machine learning for document analysis and understanding
4. Review of OCR methods and handwriting recognition techniques
5. Historical documents and new challenges
6. Human document interactions
7. Text and graphics recognition in a complex environment

Different talks have been done by international researchers coming from France, Switzerland, Spain, Japan and United States. In addition of traditional oral talks, 3 practical sessions have been carried out in order to apply some techniques addressed during the talks. The interactive sessions (such as poster session and self-introduction session) have been a good environment for many exchanges between participants and senior researchers. Finally a visit of the L3i laboratory has also been organized with demonstrations of the research activities in the field of DAR. Two awards have been given. The poster award has been given to Florian Westphal (Blekinge Institute of Technology, Sweden) for his poster titled "Efficient Binarization using Heterogeneous Computing and Interactive Learning". The excellence award has been given to Tarin Clanuwat (Center for Open Data in the Humanities, Tokyo, Japan) for her outstanding participation.

This event gathered PhD students and junior researchers from 11 countries (France : 7 , Vietnam : 4 , Sweden : 2 , Finland : 2 , Germany : 2 , Indonesia :2 , Pakistan : 1 , Austria : 1 , Tunisia : 1 , Italy : 1 , Japan : 1). Thanks to the support of the IAPR, 2 travel grants and 4 fee waivers have been assigned to participants with low resources. Moreover 17 master students (16 from China and 1 from Brazil) attend to this summer school in order to discover the field of document analysis.

#### TC-10/TC-11 Doctoral Consortium

([http://u-pat.org/ICDAR2017/program\\_dc.php](http://u-pat.org/ICDAR2017/program_dc.php))

Traditionally held in conjunction with ICDAR. In it gathered 24 young and talented Ph.D. students. The event was a half-day and guided by two chairs: Véronique Eglin and Rafael Dueire Lins.

The Doctoral Consortium creates an opportunity for Ph.D. students to test their research ideas, present their current progress and plans, and to receive constructive criticism and insights related to their future work and career perspectives. For that, a mentor (a senior researcher who is active in the field) was assigned to each participant to provide individual feedback on the student's Ph.D. project. In addition, students also have the opportunity to present an overview of their research plan during a special poster session.

The ICDAR 2017 Doctoral Consortium has accepted 24 students, who have been mentored by 20 senior active researchers in the field of Document Image Analysis and Recognition.

During the DC, each research proposal is presented through a teaser/poster session, focusing on the outline of the objectives, the methodology, the expected results, the state of the art in their area, and the current stage of their research.

During the teaser (introductory) session, each student makes a brief presentation of his/her research to the public, inviting to attend the poster session in which the students and their mentors discuss project details.

### 2.2.5. Links with other organizations and TCs

Very strong collaboration with TC-11.

### 3. Future plans (timeline until ICPR 2020 and beyond):

The general plans of work with the new leadership board is to broaden the scope of participants to the Graphics Recognition community. The younger members of the leadership team have started reaching out to new, emerging and also more established communities (Music Recognition, Gesture Recognition, and specifically Comics and Manga analysis – cf. Manpu workshop series).

The main idea is to continue working in this direction, notably by spurring new initiatives around the new huge and extremely challenging dataset mentioned before through a series of contests and crowd-sourcing initiatives and connecting the community with activities and events related to do reproducible research (In line with previous and current activities like the workshop series on Reproducible Research in Pattern Recognition at [ICPR 2016](#) and [ICPR 2018](#) or similar events like the one held at [ICDAR 2017](#) ).

***Provide a description of the planned dissemination and other activities to be carried out in the next 24 months period from July 2018 to June 2020.***

***List the proposed leadership structure for the next term (2018-2020)***

#### 3.1. Dissemination plans



ICDAR 2019 - Sidney, Australia

**September 22-25, 2019**

The General Assembly present at ICDAR 2015 voted for the bid to host the 15th ICDAR in Brisbane Queensland. The first Call-for-papers has been released with all the dates and officers already assigned.

For practical reasons, the TC-10/TC-11 ICDAR advisory board has accepted the request of the ICDAR 2019 organizers to relocate to Sidney, Australia.



ICDAR 2021 – Switzerland

**7.-10. September 2021**

The General Assembly present at ICDAR 2017 voted for the bid to host the 16th ICDAR in Montreux Switzerland.

*3.3. Recommendation to ExCo for TC leadership team for 2018-2020 term*

*(TC Chairs cannot serve for more than two terms, unless the TC has been newly approved)*

1. **Leadership:** Proposed leadership responsibilities for 2018 – 2020 will be as follows:
  - **Chair:**
  - **Vice-Chair:**
  - **Secretary:**
  - **Advisors:**

**Due to a change of position of the current TC-10 chair and his utter lack of availability, the current leadership team is considering a rearrangement of the various responsibilities. A fully outlined proposal will be presented at ICPR 2018.**