

Newsletter 12

Hello everybody,

I was recently asked by J. Kittler to send in a report about IAPR TC10's activities. Here is a copy of this report, for the benefit of all members of the TC10 mailing list

Report of activities for IAPR TC-10.

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:

- recognition of graphical shapes
- segmentation of graphics from text
- conversion of line drawings and maps
- interpretation of engineering drawings of various kinds
- recognition of printed music, fingerprint, etc.

IAPR TC-10 has participated and participates in the organization or sponsorship of the following scientific events:

- The 2nd IAPR Conference on Document Analysis and Recognition, co-sponsored by TC-10, TC-11 and IGS, was held in Tsukuba Science City, Japan, on October 20-22, 1993. ICDAR'93 was definitely a success, with around 400 attendees and an excellent organisation by our Japanese hosts. Many things were discussed in Tsukuba: scientific matters, organizational matters and friendly matters (conferences are also a good place to get acquainted with the real people behind the names in the bibliography lists!), so the outcome of ICDAR'93 was deemed very positive at all of these levels. We also had a TC10 meeting during ICDAR'93 to discuss the planned workshop on graphics recognition (see below for announcement, and annex 1 for minutes of meeting).

- The next ICDAR will be held in Montreal (Canada), on August 14-16, 1995. General chair is prof. C. Y. Suen (Canada), with co-chairs R. Plamondon (Canada) and S. Srihari (U.S.A.), and program co-chairs R. Kasturi (U.S.A.), G. Lorette (France) and K. Yamamoto (Japan). ICDAR'95 is sponsored by IAPR TC-10 and TC-11, by the International Graphonomics Society and by the Canadian Image Processing and Pattern Recognition Society. Paper Submission Due: December 1, 1994.

- Just after the next ICPR in Jerusalem, more precisely on October 18-20, 1994, a workshop on Document Analysis Systems (DAS'94) will be held in Kaiserslautern (Germany). Sponsors are IAPR TC-2, TC-10 and TC-11, and Daimler Benz. Workshops chairs: Andreas Dengel (Germany) and Larry Spitz (USA). Paper Submission Due: April 1, 1994.

- Once again, IAPR TC-10 is one of the sponsors of the IAPR Workshop on Machine Vision Applications held every two years in Japan. The 4th workshop in this series, MVA'94, will be held on December 13-15, 1994 in Kawasaki, Japan. It is sponsored by IAPR TC-6, TC-8 and TC-10. Its main topic is machine vision and its applications, which includes machine vision algorithms, special purpose architectures, industrial applications and document, map and line drawing processing. Workshop Co-chairs: Mikio Takagi and Akira Maeda. Paper Submission Due: June 15, 1994.

- In addition to these scientific events which TC-10 co-sponsors, we have decided to organize our own workshop in connection with the next ICDAR in 1995. This IAPR Workshop on Graphics Recognition, sponsored by IAPR and organized by TC-10, will be held on August 10-11, 1995 at the Pennsylvania State University (USA), the week before ICDAR'95 in Montreal. Workshop co-chairs: Rangachar Kasturi (USA) and Karl Tombre (France). Abstract submission due: December 31, 1994. See annex 2 for full call for papers.

In addition to these scientific events, we have set up an electronic mailing list for TC-10 related activities, where information is regularly communicated about TC-10's specific activities, other IAPR events of interest to our graphics recognition community (SSPR'94, ICPR'94, IWVF'94) and various other relevant announcements (other scientific events in image processing, document analysis and pattern recognition which may be of interest to TC-10 members, information about available databases and information servers on the Internet, etc.). There are currently 135 recipients of this mailing list, which has sent out 11 "TC10 news" compilations of information since it was started in February 1993.

Address of TC-10's chairman:

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Annex 1: minutes of TC10 meeting, October 21st, Tsukuba.

Present: L. Cordella, D. Dori, O. Hori, R. Kasturi, J. Kreich,
G. Monagan, B. Pasternak, K. Tombre, K. Tomiyama,
K. Yamamoto

Karl Tombre presents a draft of the call for papers for the TC10 workshop. This workshop is planned to be held just before ICDAR'95. R. Kasturi is willing to host the workshop at Penn State University.

Remarks were made by several people that this workshop must not drain away good papers from the main ICDAR conference. A discussion follows on the best way to organize the workshop. A consensus is reached not to call for plain papers but rather to define a number of panels on specific topics. For each of these topics, there could be 1 or 2 main paper presentations giving the state of the art and stating the open questions for the topic, followed by a number of shorter presentations where each participant is invited to contribute by proposing solutions to some of the questions or presenting results of his/her work. Each session would be concluded by a panel discussion. Therefore, the topics should first be defined (and every proposal is welcome); a call for contribution by short abstracts of remarks would then follow. We plan also time for working groups to discuss in detail specific problems.

Each session should last at least 2 hours. All in all, it is decided that a 2-days workshop is enough and the dates of August 10-11 are considered to be good. The workshop should be limited to about 75 persons.

The program committee will modify the call-for-papers draft to reflect this consensus; then the call for papers will be sent out. Discussions are being held with IAPR authorities for the workshop to be an official IAPR event.

Annex 2: Call for papers for workshop on Graphics Recognition organized by TC-10

IAPR Workshop on Graphics Recognition
(sponsored by the International Association for Pattern Recognition)

The Pennsylvania State University
University Park, Pennsylvania, 16802 USA

August 10-11, 1995

You are invited to participate in a single-track 2-day workshop on methods and systems for graphics recognition organized by IAPR TC-10 (Technical Committee on Graphics Recognition). The workshop will comprise several sessions dedicated to specific topics. For each session, there will be 1 or 2 main paper presentations giving the state of the art and stating the open questions for the session's topic, followed by a number of short presentations where each participant is invited to contribute by proposing solutions to some of the questions or presenting results of his/her work. Each session will be concluded by a panel discussion. There will also be time for working groups where participants can discuss in detail specific problems.

The workshop will be held just before the 3rd International Conference on Document Analysis and Recognition (Montreal, Canada, August 1995). Attendance will be limited to 75 persons. All participants are expected to contribute actively to the workshop, either by presenting a full state-of-the-art paper, or by an abstract of remarks on a specific topic. You are invited to submit to the program committee an abstract (maximum 2 pages) of your proposed contribution to the workshop. Please indicate also if you would be willing to present a state-of-the-art paper on this topic, if invited to do so by the program committee.

Pre-proceedings of all contributed papers will be available at the workshop for the participants. After the workshop, the program committee plans to publish as a book revised versions of selected key papers, possibly including reports from the panel discussion groups.

Relevant topics include but are not limited to:

- raster-to-vector techniques
- recognition of graphical primitives
- recognition of graphic symbols in charts and diagrams
- interpretation of engineering drawings, logic diagrams, maps, charts, etc.
- analysis of line drawings, tables, forms etc.
- 3-D models from multiple 2-D views
- description of complete systems for interpretation of graphics in scanned documents

Workshop Organization

Chairs:

Rangachar Kasturi
Department of Computer Science and Engineering
Penn State University
University Park, PA 16802, USA
Email: kasturi@cse.psu.edu, Phone: +1 (814) 863-4254, Fax: +1 (814) 865-3176

Karl Tombre
INRIA Lorraine & CRIN/CNRS
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Program Committee:

Sergey Ablameyko Institute of Engineering Cybernetics, Minsk, Belarus
Atul Chhabra NYNEX Science & Technology, USA
Vincenzo Consorti IBM SEMEA, Italy
Luigi Cordella Naples University, Italy
Dov Dori Technion Haifa, Israel
Osamu Hori Toshiba R&D Center, Japan
Stephen Joseph Sheffield University, UK
Gerd Maderlechner Siemens AG, Germany
Babu Mehtre ISS, National University, Singapore
Lawrence O'Gorman AT&T Bell Labs, USA
Theo Pavlidis SUNY at Stony Brook, USA
Ken Tomiyama Aoyama Gakuin University, Japan

Abstracts (max. 2 pages, 3 copies): December 31, 1994
Acceptance notification: March 15, 1995
Camera Ready Manuscripts: May 15, 1995

Please send your abstract to one of the co-chairs. Contact either one of the co-chairs for further information.

In addition, I recently received the final program of the SDAIR symposium to be held next month in Las Vegas... Here it is:

Third Annual Symposium on Document Analysis and Information Retrieval
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April 11 - 13, 1994

Alexis Park Hotel
Las Vegas, Nevada

Sponsored by:

The Information Science Research Institute and
The Howard R. Hughes College of Engineering
University of Nevada, Las Vegas

(Registration forms and a copy of this advanced program in PostScript are available for anonymous ftp in /pub/symposium at <ftp.isri.unlv.edu>)

CONFERENCE SCHEDULE
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Sunday, April 10, 1994

7:00pm - 10:00pm Alexis Park Reception

Monday, April 11, 1994

7:00am - 8:20am Alexis Park
Registration

8:20am - 8:30am Alexis Park
Welcome

Theo Pavlidis, Chairman
Leading Professor
Department of Computer Science
State University of New York at Stony Brook

Robert C. Maxson, President
University of Nevada, Las Vegas

William R. Wells, Dean
Howard R. Hughes College of Engineering
University of Nevada, Las Vegas

8:30am - 9:15am Alexis Park
Invited Speaker

Recognition Error and Reject Trade-off
C. K. Chow, IBM Research Center (Emeritus)

9:15am - 9:30am Alexis Park
Refreshment Break

9:30am - 10:30am Alexis Park
Session 1 Chair: Jonathan Hull

Adaptive Logic Networks for Machine-Printed
Character Recognition
Robert C. Vogt, John J. LoPorto, John M. Trenkle,
William Cavnar, Environmental Research Institute of
Michigan

A Comparison of Two Learning Algorithms for Text Categorization
David D. Lewis, AT&T Bell Laboratories;
Marc Ringuette, Carnegie Mellon University

Learning the Optimal Parameters in a Ranked Retrieval System
Using Multi-Query Relevance Feedback
Brian T. Bartell, Garrison W. Cottrell, Richard K. Belew,
University of California at San Diego

Pattern Classification Based on Adaptive Self-Organized Neural
Network
Yuan-Yan Tang, Ching Y. Suen, Tao Li, Concordia
University; L. Y. Fang, Bell-Northern Research

10:30am - 10:45am Alexis Park
Poster Break

10:45am - 11:30am Alexis Park
Session 2 Chair: Robert Korfhage

An Evaluation of Information Retrieval Accuracy With Simulated
OCR Output
W. B. Croft and S. Harding, University ofMassachusetts-
Amherst; K. Taghva and J. Borsack, University of Nevada,
Las Vegas

Validation of Simulated OCR Data Sets
George Nagy, Rensselaer Polytechnic Institute

Validation of Page Defect Models for Optical Character Recognition
Yanhong Li, Daniel Lopresti, Andrew Tomkins,
Matsushita Information Technology Laboratory

11:30am - 11:45am Alexis Park
Poster Break

11:45am - 12:55pm
Lunch (no host)

12:55pm - 1:00pm Alexis Park
Announcements

1:00pm - 1:45pm Alexis Park
Invited Speaker

Text Retrieval Using the Vector Processing Model
Gerard Salton, Cornell University

1:45pm - 2:00pm Alexis Park
Break

2:00pm - 3:00pm Alexis Park
Session 3

Keyword Selection From Word Recognition Results Using
Definitional Overlap
Paul Filipski, Jonathan Hull, State University of New
York at Buffalo

N-Gram-Based Text Categorization
William B. Cavnar, John M. Trenkle, Environmental
Research Institute of Michigan

Lexicon-Based Word Recognition Without Word Segmentation
Gregory K. Myers and Chien-Huei Chen, SRI International

An Automatic Indexing of Compound Words Based on Mutual
Information for Korean Text Retrieval
Pan Koo Kim, Yoo Kun Cho, Seoul National University

3:00pm - 3:15pm Alexis Park
Poster Break

3:15pm - 4:00pm Alexis Park
Session 4 Chair: David Lewis

The Role of Visualization in Document Analysis
Robert R. Korfhage, University of Pittsburgh;
Kai A. Olsen, Molde College, Norway

About the Logical Partitioning of Document Images
Andreas Dengel, German Research Center for Artificial
Intelligence

A Context-Based Approach to Text Recognition
T. G. Rose, L. J. Evett, Amanda Caryn Jobbins,
Nottingham Trent University, Nottingham, England

4:00pm - 4:15pm Alexis Park
Poster Break

5:45pm - 11:00pm
Buses to Lake Mead Lake Mead
Dinner/Dance Cruise on the Desert Princess

Tuesday, April 12, 1994

7:30am - 8:20am Alexis Park
Registration

8:20am - 8:30am Alexis Park
Welcome

Theo Pavlidis, Chairman
Leading Professor
Department of Computer Science
State University of New York at Stony Brook

8:30am - 9:45am Alexis Park
Invited Speaker

Computational Geometry for Document Analysis
Godfried Toussaint, McGill University, Montreal, Canada

9:45am - 10:00am Alexis Park
Refreshment Break

10:00am - 11:00am Alexis Park
Session 5 Chair: Henry Baird

Script and Language Determination From Document Images
A. Lawrence Spitz, Fuji Xerox Palo Alto Laboratory

Binarization and Multi-Thresholding of Document Images Using
Connectivity
Lawrence O'Gorman, AT& T Bell Laboratories

Direct Extraction of Topographic Features From Gray Scale
Character Images
Seong-Whan Lee and Young Joon Kim, Chungbuk National
University, Korea

An Alternative to Vectorization: Decomposition of Graphics
Into Primitives
J. E. den Hartog, T. K. ten Kate, G. van Antwerpen,
TNO Institute of Applied Physics; J. J. Gerbrands,
Delft University of Technology; The Netherlands

11:00am - 11:15am Alexis Park
Poster Break

11:15am - 12:00pm Alexis Park
Session 6 Chair: Larry Spitz

Asymptotic Accuracy of Two-Class Discrimination
Tin Kam Ho and Henry S. Baird, AT&T Bell Laboratories

Use of Constraints As A Second Stage Character Classification
Technique
George Sazaklis and Theo Pavlidis, State University of
New York at Stony Brook

Performance Evaluation of Two OCR Systems
Su Chen, Suresh Subramaniam, Robert M. Haralick,
University of Washington; Ihsin T. Phillips,
Seattle University

12:00pm - 1:10pm
Lunch (no host)

1:10pm - 1:15pm Alexis Park
Announcements

1:15pm - 2:00pm Alexis Park
Invited Speaker

The Text REtrieval Conference
Donna Harman, National Institute of Standards and
Technology

2:00pm - 2:15pm Alexis Park
Break

2:15pm - 3:15pm Alexis Park

Session 7 Chair: Robert Korfhage

An Approach to Interactive Retrieval in Face Image Databases
Based on Semantic Attributes
Venkat N. Gudivada, Ohio University; Vijay V. Raghavan,
Guna S. Seetharaman, University of Southwestern Louisiana

Marking of Document Images With Codewords to Deter Illicit
Dissemination
J. T. Brassil, S. Low, N. F. Maxemchuk, L. O'Gorman,
AT&T Bell Laboratories

Modelling and Exploiting Traceability Between Software
Development Documents
Jean-Pierre Queille, Anne Richermo, Jean-Francois
Voidrot, Matra Marconi Space; Florence Sedes,
University of Paul Sabatier

Development of a Full-Text Information Retrieval System
Keizo Oyama, Akira Miyazawa, Atsuhiko Takasu,
National Center for Science Information Systems
(NACSIS); Kouji Shibano, Tokyo International University

3:15pm - 3:30pm Alexis Park
Poster Break

3:30pm - 4:30pm Alexis Park
Session 8 Poster Papers

Low Level Structural Recognition of Documents
Abdel Belaid, Y. Chenevoy, CRIN-CNRS/INRIA
Lorraine, France

Document Characterization, Authentication and Retrieval Based
on Medium-Embedded Random Patterns
D. Brzakovic and N. Vujovic, Lehigh University

Information Retrieval for a Document Writing Assistance System
Marie-Louise Corral and Amaury Simon, Matra Marconi
Space (MMS) - Aramihs; Christine Julien, Institut de
Recherche en Informatique de Toulouse (IRIT); France

Issues in Automatic OCR Classification
Jeffrey Esakov, Daniel P. Lopresti, Jonathan S. Sandberg,
Jiangying Zhou, Matsushita Information Technology
Laboratory - Panasonic Technologies, Inc.

Correlated Run Length Algorithm (CURL) for Detecting Form
Structure Within Digitized Documents
Michael D. Garris, National Institute of Standards and
Technology

Experiments in Automatic Word Class and Word Sense
Identification for Information Retrieval
Susan Gauch, University of Kansas; Robert P. Futrelle,
Northeastern University

Estimating Errors in Document Databases
Jaekyu Ha, Su Chen, Robert M. Haralick, University of
Washington; Ihsin T. Phillips, Seattle University

Retrieval of Line Drawings
Oliver Lorenz and Gladys Monagan, Swiss Federal
Institute of Technology (ETH)

A Paper Form Processing System With an Error Correcting
Function for Reading Handwritten Kanji Strings
Katsumi Marukawa, Kazuki Nakashima, Masashi Koga,
Yoshihiro Shima, Hiromichi Fujisawa, Central Research
Laboratory, Hitachi, Ltd.

5:30pm - 10:00pm Thomas Beam Engineering Bldg., UNLV
Happy Hour
Dinner
Tour of Facilities

Wednesday, April 13, 1994
8:20am - 8:30am Alexis Park
ISRI Welcome

Thomas A. Nartker, Director
Information Science Research Institute
Howard R. Hughes College of Engineering
University of Nevada, Las Vegas

8:30am - 9:45am Alexis Park
The 1994 ISRI Technology Assessment Reports
ISRI Staff

9:45am - 10:00am Alexis Park
Refreshment Break

10:00am - 12:00am Alexis Park

Invited Speakers

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C. K. Chow is a Research Staff Member Emeritus of IBM. He joined IBM in 1964 at the Thomas J. Watson Research Center where he did research and had various managerial, staff and international assignments. Prior to that he worked at the Burroughs Research Center. He received his Ph.D. degree from Cornell University and served as an assistant professor at Penn State, a visiting professor at MIT, an adjunct professor at Columbia and UC Santa Barbara. His professional experience included membership on the IEEE Computer Society Governing Board, conference chairmanship and associate editorship of several journals. He is a life fellow of the Institute of Electrical and Electronic Engineers.

Gerard Salton is a Professor of Computer Science at Cornell University. He received a Ph.D. degree in Applied Mathematics from Harvard University in 1958 and remained on the Applied Mathematics faculty at Harvard until 1965 when he moved to Cornell. Dr. Salton has been a visiting professor at the University of Grenoble (France), at the Swiss Federal Institute of Technology (ETH) in Zurich and (EPF) in Lausanne and at the University of Konstanz (Germany). Dr. Salton has worked in the area of natural language text processing, including, in particular, automatic text analysis and information retrieval. From 1965-68, he was editor-in-chief of ACM Communications; from 1969-70, editor-in-chief of the ACM Journal. Between 1972 and 1978, he served on the ACM Council as Northeast Regional Representative. Currently, Dr. Salton is an editor of Information Systems and of the ACM Transactions on Database Systems. He was a Guggenheim Fellow in 1963 and has received the first ACM-SIGIR Award for contributions to information retrieval in 1983, as well as a Humboldt Foundation Senior Scientist Award in 1988 and the ASIS Award of Merit in 1989. He has published a large number of articles and several books on information retrieval and related areas. The most recent text is "Automatic Text Processing" (Addison-Wesley, 1989).

Godfried T. Toussaint received his B.Sc. degree from the University of Tulsa, Tulsa, Oklahoma and his M.A.Sc. and Ph.D. degrees from the University of British Columbia, Vancouver, B.C., Canada, in 1968, 1970 and 1972, respectively, all in Electrical Engineering. Since 1972 he has been with the School of Computer Science at McGill University teaching and doing research in the areas of information theory, pattern recognition, and computational geometry. Dr. Toussaint is past council-member of the North American Branch of the Classification Society and past Associate Editor of the IEEE Transactions on Information Theory and of the IEEE Transactions on Pattern Analysis and Machine Intelligence. Presently, he is Associate Editor of the Plenum Press Series on Advanced Applications in Pattern Recognition, Associate Editor of Pattern Recognition, Associate Editor of Computational Geometry: Theory and Applications, Associate Editor of the International Journal of Computational Geometry and Applications and Associate Editor of the Visual Computer. He is also on the Editorial Boards of the Journals Discrete and Computational Geometry and Forma as well as on the Advisory Board of the IEEE Transactions on Pattern Analysis and Machine Intelligence. He is a member of several learned societies including the IEEE, The Pattern Recognition Society and the New York Academy of Sciences. He recently edited two books published by North Holland, Computational Geometry in 1985 and Computational Morphology in 1988 as well as three special issues on computational geometry, one of The Visual Computer (May, 1988), one of the Proceedings of the IEEE (September, 1992), and one of Pattern Recognition Letters (September, 1993). In 1978, he was the recipient of the Pattern Recognition Society's Best Paper of the Year Award and in 1985 he was awarded a Killam Fellowship by the Canada Council to carry out a two-year research project on movable separability of sets.

Donna Harman has been involved in research in new retrieval techniques for many years. She works at the National Institute of Standards and Technology (NIST) and has built a large-scale prototype of an advanced retrieval system for testing in several government agencies. Currently, she is involved in running the Text Retrieval Conferences (TREC), including developing a new test collection involving over a million documents, with appropriate topics and relevance judgements. She received an M.E.E. degree in electrical engineering from Cornell University, and worked with Professor Gerard Salton on the SMART project. Before coming to NIST, she was a researcher at the National Library of Medicine in the areas of expert systems in medicine and informational retrieval systems.

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Well, that was all for this issue. I hope you are all busy writing your contributions to DAS'94 (don't forget the April 1st deadline!) and hence that we will have lots of good submissions and an exciting workshop in Kaiserslautern.

I also remind all of you that if you have some info which might be of interest to this mailing list, please feel free to send it to me by E-mail.

Many greetings to all of you,

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