

# Newsletter 25

Contents:  
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- Announcement: "Document Image Analysis" book published by IEEE Computer Society Press
- Announcement: Job opening in algorithm and software development in document image analysis
- Conference schedule: SDAIR'95
- CVL technical report archive
- CFP: ICSC'95
- Final announcement: statistical shape analysis
- First announcement: ECCV'96
- CFP: workshop on vision for robots

Dear IAPR TC10 friends. This TC10 news is just for sending out a number of various announcements I have received or collected since the last mailout. The next TC10 news should give you some fresh information on the coming Graphics Recognition workshop, and maybe also on ICDAR. Also, if some of you missed the previous information posted about the dashed-line contest, feel free to ask me for a copy of this information.

The book by L. O'Gorman and R. Kasturi about document image analysis is now available. Here is the information about it. I would like to recommend it; I ordered it and I liked it very much, it is a nice work.

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>From: [log@allegra.att.com](mailto:log@allegra.att.com) (Larry O'Gorman)

"Document Image Analysis," by Lawrence O'Gorman of Bell Labs, Murray Hill, and Rangachar Kasturi of Pennsylvania State University is a new book covering methods and applications in the document image analysis field. The book includes tutorial material describing problem areas and appropriate methods. This is supplemented by the inclusion of important papers in the field that detail the subjects. Some described methodologies are: image binarization, noise reduction, line and curve fitting, shape recognition, skew estimation, page layout analysis, handwritten character recognition, and machine-printed character recognition. Some applications are: postal address recognition, map recognition, electronic library analysis, tax form reading, and music recognition.

The book is published by the IEEE Computer Society Press, 1994, \$44.00, (\$33.00 IEEE member price), IEEE catalog number EH0410-1, ISBN 0-8186-6547-5.

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I also received this announcement about a job opening in document image analysis from NYNEX.

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>From: [atul@nynexst.com](mailto:atul@nynexst.com) (Atul Chhabra)

## Job Announcement

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We need to fill a position in algorithm and software development in document image analysis. Specifically, the job involves working with a small team to develop and code algorithms for line drawing interpretation. The position needs to be filled as soon as possible.

### Prerequisites:

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- o MS in CS, EE, or related field
- o Pertinent experience in document image analysis
- o Excellent C and Unix skills
- o Excellent communication skills

### Preferred:

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- o PhD in CS, EE, or related field
- o Experience in line drawing interpretation, specially interpretation of utility company drawings
- o Experience in hand-printed or machine-printed character recognition
- o Experience working in a team of software developers using source code control
- o Experience with SunOS and Solaris
- o Knowledge of X/Motif

NYNEX is the Regional Bell Operating Company or RBOC (the local phone company) for most of New York and New England. NYNEX Science & Technology is the R&D division of NYNEX.

Applicants should send their resumes by mail, fax, or e-mail to the address below.

--Atul

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Atul K. Chhabra Phone: (914) 644-2786  
Member of Technical Staff Fax: (914) 644-2404  
NYNEX Science & Technology Internet: [atul@nynexst.com](mailto:atul@nynexst.com)  
500 Westchester Avenue  
White Plains, NY 10604

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The SDAIR'95 symposium had been announced in this mailing list. The conference program has now been decided upon and here it comes:

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>From: [beleg@unlv.edu](mailto:beleg@unlv.edu) (Andrew D Bagdanov)

Fourth Annual Symposium  
on Document Analysis  
and Information Retrieval

April 24 - 26, 1995

Desert Inn Hotel  
Las Vegas, Nevada

Sponsored by the

Information Science Research Institute  
and  
The Howard R. Hughes College of Engineering

University of Nevada, Las Vegas

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#### CONFERENCE SCHEDULE

Sunday, April 23, 1995

7:00pm - 10:00pm Desert Inn  
Reception and Registration

Monday, April 24, 1995

7:00am - 8:20am Desert Inn  
Registration

8:20am - 8:30am Desert Inn  
Welcome

Donna Harman, Chairperson  
National Institute of Standards and Technology

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

Thomas A. Nartker, Director  
Information Science Research Institute  
University of Nevada, Las Vegas

8:30am - 9:15am Desert Inn  
Invited Speaker

Spoken Document Retrieval - A Multimedia Tool  
Karen Sparck Jones  
University of Cambridge, United Kingdom

9:15am - 10:30am Desert Inn  
Session 1

Automatic Extraction of Information From Printed Documents  
Gregory K. Myers, Prasanna G. Mulgaonkar;  
SRI International

Dynamic Hypertext Links for Highly Degraded Data in TELLTALE  
Claudia Pearce; U. S. Department of Defense

Space and Time Improvements for Indexing in Information Retrieval  
Willie Rogers, Gerald Candela, Donna Harman;  
National Institute of Standards and Technology

10:30am - 11:00am Desert Inn  
Refreshment Break

11:00am - 12:40pm Desert Inn  
Session 2

Textual Database Lexicon Used as a Filter to Resolve Semantic Ambiguity Application on Multilingual Information Retrieval  
Khaled Radwan, Christian Fluhr; Institut National des Science et Techniques Nucleaires, France

Domain Terminology Patterns in Different Disciplines: Evidence From Abstracts  
Stephanie W. Haas; University of North Carolina at Chapel Hill

Corpus-Specific Stemming Using Word Form Co-Occurrence  
W. Bruce Croft, Jinxi Xu; University of Massachusetts, Amherst

Information Retrieval Based on Word Senses  
Hinrich Schutze, Jan O. Pedersen;  
Xerox Palo Alto Research Center

12:40pm - 1:45pm  
Lunch Desert Inn

1:45pm - 2:30pm Desert Inn  
Invited Speaker

Character Segmentation in Document OCR: Progress and Hope  
Dr. Richard G. Casey  
IBM Almaden Research Center (Retired)

2:30pm - 3:45pm Desert Inn  
Session 3

Improving OCR Performance With Word Image Equivalence  
Tao Hong, \*Jonathan J. Hull; State University of New York at Buffalo, \*RICOH California Research Center

A Word-Level Deciphering Algorithm for Degraded Document Recognition  
Chi Fang, \*Jonathan J. Hull; State University of New York at Buffalo, \*RICOH California Research Center

The Recognition of Noisy Polyfont Printed Text Using Combined HMMs  
Andrew J. Elms, J. Illingworth; University of Surrey, United Kingdom

3:45pm - 4:30pm Desert Inn  
Poster Session

Combining Statistics and Heuristics For Language Identification  
Erhan Gokcay, Didem Gokcay; University of Florida

Functional Decomposition of Business Letters  
Mark Lipshutz, Suzanne Liebowitz Taylor; Unisys Corporation

Generating Synthetic Data for Text Analysis Systems  
David Doermann, Shee Yao; University of Maryland

Key-Relation Technology for Text Retrieval  
Tadanobu Miyauchi, Mamiko Oka, Yoshihiro Ueda; Fuji Xerox

Lexical Assistance at the Information-Retrieval User Interface  
Roy Byrd, Yael Ravin, John Prager;  
IBM T. J. Watson Research Center

Query and Retrieval in Multimedia Databases: A New Perspective  
Augusto Celentano; Politecnico di Bari

Representing Dimensioning Annotation in Engineering Drawings Using Flat Matrix Grammar  
Dov Dori; Israel Institute of Technology

Retrieving Captioned Pictures Using Statistical Correlations and a Theory of Caption-Picture Co-Reference  
Neil C. Rowe; U.S. Naval Postgraduate School

Using Natural Language Processing for Identifying and Interpreting Tables in Plain Text  
Shona Douglas, Matthew Hurst, David Quinn;  
University of Edinburgh, United Kingdom

4:30pm - 5:45pm Desert Inn  
Session 4

Validation and Estimation of Document Degradation Models  
Tapas Kanungo, \*Henry S. Baird, Robert M. Haralick;  
University of Washington, \*AT&T Bell Laboratories

Perfect Document Layout Ground Truth Generation Using DVI Files and Simultaneous Word Segmentation from Document Images  
Su Chen, Robert M. Haralick, \*Hsin T. Phillips;  
University of Washington, \*Seattle University

Efficiently Identifying the Faces of a Wireframe Reconstructed From  
Three-View Engineering Drawings  
Mu Hsing Kuo, R. E. Marston;  
University of Nottingham, United Kingdom

6:00pm - 10:00pm  
Happy Hour Great Hall  
Dinner Thomas Beam  
Tour of Facilities Engineering Bldg.  
UNLV

Tuesday, April 25, 1995

7:30am - 8:20am Desert Inn  
Registration

8:20am - 8:30am Desert Inn  
Welcome

Donna Harman, Chairperson  
National Institute of Standards and Technology

8:30am - 9:15am Desert Inn  
Invited Speaker

New Directions in Clustering  
Dr. Abraham Bookstein  
University of Chicago

9:15am - 10:30am Desert Inn  
Session 5

Recognition of Tables Using Table Grammars  
E. Green, M. Krishnamoorthy; Rensselaer Polytechnic Institute

Schema-Independent Retrieval from Heterogeneous Structured Text  
Charles L. A. Clarke, Gordon V. Cormack, Forbes J. Burkowski;  
University of Waterloo, Canada

A Retrieval System for Graphical Documents  
Oliver Lorenz, Gladys Monagan; Swiss Federal Institute of  
Technology, Switzerland

10:30am - 11:00am Desert Inn  
Refreshment Break

11:00am - 12:40pm Desert Inn  
Session 6

Text Categorization of Low Quality Images  
David J. Ittner, David D. Lewis, David D. Ahn;  
AT&T Bell Laboratories

A Neural Network Approach to Topic Spotting  
\*Erik Wiener, \*Jan Pedersen, \*\*Andreas S. Weigend;  
\*Xerox Palo Alto Research Center, \*\*University of  
Colorado at Boulder

Text Categorization of Scanned Documents Applying a Rule-Based Approach  
Claudia Wenzel, Rainer Hoch;  
German Research Center for Artificial Intelligence (DFKI)

Text to Information: Sampling Uncertainty in an Example From  
Physician/Patient Encounters  
Timothy R. Thomas, Charlotte Kruger, Clint Scovel,  
Joseph Shumate; Los Alamos National Laboratory

12:40pm - 1:45pm  
Lunch Desert Inn

1:45pm - 2:30pm Desert Inn  
Invited Speaker

Full-Text Search and Document Recognition of Japanese Text  
Dr. Hiromichi Fujisawa  
Central Research Lab, Hitachi, Ltd.

2:30pm - 3:45pm Desert Inn  
Session 7

Structuring a Large Lexicon for Word Recognition  
Chien Huei-Chen; SRI International

Document Reconstruction: A Thousand Words From One Picture  
Jeffrey C. Reynar, \*A. Lawrence Spitz, \*Penelope Sibun;

University of Pennsylvania, \*Fuji Xerox Palo Alto Laboratory

Neural Network Classifiers for Optical Chinese Character Recognition  
Richard Romero, Robert Berger, Robert Thibadeau,  
David Touretzky; Carnegie Mellon University

3:45pm - 4:00pm Desert Inn  
Refreshment Break

4:00pm - 4:50pm Desert Inn  
Session 8

An Adaptive Metaclassifier for Word Recognition Based on Multiple  
Independent Classifiers  
Thorsten Jaeger, Frank Hones, Andreas Dengel;  
German Research Center for Artificial Intelligence (DFKI)

Evaluation of OCR Accuracy Using Synthetic Data  
Tin Kam Ho, Henry S. Baird; AT&T Bell Laboratories

Wednesday, April 26, 1995

8:20am - 8:30am Desert Inn  
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 Desert Inn  
The Fourth Annual Test of OCR Accuracy  
ISRI Staff

9:45am - 10:00am Desert Inn  
Refreshment Break

10:00am - 12:00pm Desert Inn  
ISRI Research Reviews  
ISRI Staff

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#### Invited Speakers

Karen Sparck Jones is Reader in Computers and Information at the Computer Laboratory, University of Cambridge. She has worked in automatic information and language processing since the late fifties, directing a range of research projects, and is the author of numerous publications in these areas. Her research in the last decade has been in document indexing and retrieval, database query, user and agent modelling, summarizing, and, language system building and evaluation. She has also been professionally involved in Cambridge, national and international activities and programmes, especially in the language processing area. She is currently President of the Association for Computational Linguistics, is a Fellow of the American Association for Artificial Intelligence, and has received two awards for her information retrieval research.

Richard G. Casey received the Doctor of Engineering Science degree from Columbia University in 1965. His dissertation was in the area of character recognition. From 1963 to 1970, he worked for the IBM Research Division at Yorktown Heights. At Yorktown Heights, he worked with many of the pioneers in pattern recognition and contributed to many of IBM's early recognition products. He was transferred to the Almaden Research Center in San Jose in 1970 where he helped organize IBM's document recognition research. He has received three "Outstanding Contribution" awards for research in OCR and forms extraction which has led directly to several IBM products. He was an Invited Speaker at ICDAR'91 in St. Malo, France. Since 1992, he has served on the Advisory Board at ISRI and was program chairman for SDAIR'93. He retired from IBM in 1994 and has spent the last six months at Ecole Nationale Supérieure des Telecommunications in Paris, working on a new book in document analysis.

Abraham Bookstein is a Professor of Information Science in the Psychology Department of the University of Chicago. His education includes degrees in Physics from the City College of New York, University of California (Berkeley) and Yeshiva University (New York). His research, appearing in over 100 publications, has involved the application of mathematical models to problems in Information Control, including statistical properties of information generation and use, research methods, automated information retrieval, and, most recently, data compression and coding. He has been the recipient of numerous grants, including NSF awards and a Fulbright Fellowship. He was the recipient of the American Society for Information Science Research Award.

Hirofuchi Fujisawa received his B.E., M.E., and Ph.D. degrees in Electrical Engineering from Waseda University in 1969, 1971, and 1975, respectively. He joined Central Research Laboratory, Hitachi, Ltd. in 1974. From 1980 to 1981, he was a visiting scientist at the Computer Science Department of Carnegie Mellon University. He has been doing research and development work on character recognition, document understanding, knowledge-based document retrieval, and full-text search of Japanese documents. From 1992 to 1993, he was a Chief Engineer of the Software Development Center. Currently, he is a Chief Researcher at the Central Research Laboratory. He has also been a lecturer for the Centre for Informatics at Waseda University since 1985. He is a member of IEEE, AAAI, ACM, Information Processing Society of Japan, and Institute for Electronics, Information and Communication Engineers, Japan.

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Fourth Annual Symposium on  
Document Analysis and Information Retrieval  
INFORMATION SCIENCE RESEARCH INSTITUTE  
University of Nevada, Las Vegas  
April 24-26, 1995

Conference Registration Form

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Telephone Number: ( \_\_\_\_\_ ) \_\_\_\_\_

E-mail Address: \_\_\_\_\_

Registration Fees Pre-Reg Regular Amount  
before 3/11/94 after 3/11/94

Conference Registration \$400.00 \$450.00 \$ \_\_\_\_\_  
Includes dinner Monday, 4/24/95;  
lunch Monday, 4/24/95  
and lunch Tuesday, 4/25/95)

Dinner (Monday Dinner for Spouse/Companion) \$ 10.00 \$ \_\_\_\_\_

Conference Proceedings (Extra Proceedings) \$ 50.00 \$ \_\_\_\_\_  
(One Proceedings is included as part of the  
registration fee)

CD-ROM \$100.00 \$ \_\_\_\_\_  
(Conference Proceedings and Annual Report)

Make checks/money orders payable to: UNLV Board of Regents

Mail completed conference registration form and check/money order to:  
Symposium Manager  
Information Science Research Institute Telephone (702)895-4571  
University of Nevada, Las Vegas Fax (702)895-1183  
4505 Maryland Parkway Email [sdair@isri.unlv.edu](mailto:sdair@isri.unlv.edu)  
Box 454021  
Las Vegas, NV 89154-4021 All checks/money orders must be in  
U.S. Dollars and drawn on a U.S. Bank

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HOTEL REGISTRATION FORM  
Rooms Reserved Under the Name: SDAIR '95

Reservations received after March 23, 1995 will be accepted on a space  
available basis only.

Please reserve accommodations for:

NAME: \_\_\_\_\_

HOME ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

HOME PHONE: \_\_\_\_\_

COMPANY NAME: \_\_\_\_\_

COMPANY ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

BUSINESS PHONE: \_\_\_\_\_

SINGLE OCCUPANCY - \$105.00 (+8% tax) DOUBLE OCCUPANCY - \$105.00 (+8% tax)

WILL ARRIVE: \_\_\_\_\_, 1995 TIME: \_\_\_\_\_

WILL DEPART: \_\_\_\_\_, 1995 TIME: \_\_\_\_\_

Reservations must be received by March 23, 1995 - one night's deposit is required to guarantee reservation. The following credit cards are accepted:

Enclosed is my one night's deposit payable by:

Check (Circle One) Credit Card

Mastercard \_\_\_\_\_ JCB \_\_\_\_\_ Visa \_\_\_\_\_ American Express \_\_\_\_\_

Carte Blanche \_\_\_\_\_ Discover \_\_\_\_\_ Diners Club \_\_\_\_\_

CREDIT CARD NUMBER: \_\_\_\_\_

EXPIRATION DATE: \_\_\_\_\_

PLEASE PRINT NAME AS IT APPEARS ON CARD: \_\_\_\_\_

Room Reservations: (800)634-6906 Fax: (702)733-4676

Or mail your reservation to: Sheraton Desert Inn  
3145 Las Vegas Blvd. South  
Las Vegas, NV 89109

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I also received a mail from the computer vision lab at the university of Maryland announcing the availability of some technical reports. I include this here as one of these reports (the first in the list) at least is directly related to TC10's activities.

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>From: Sandy German <[sandy@cfar.umd.edu](mailto:sandy@cfar.umd.edu)>

First of all, let me apologize for the email message everyone received the other day which said merely "subscribe". It was an error. I was trying to verify the method of subscribing to this mailing list and left out a crucial part of the email address -- instead of sending mail to "[cvl-abstract-dist-request@cfar.umd.edu](mailto:cvl-abstract-dist-request@cfar.umd.edu)", I left out the word "request", so my request to subscribe was distributed to the recipients of the mailing list by mistake.

Sandy German

Effective early in 1994, our technical reports became available in compressed postscript format via anonymous ftp. The postscript files have been placed in subdirectories according to their publication dates (not the dates when actually printed, but the dates when the report number was assigned). Currently these subdirectories are called CVL-Reports-1993, CVL-Reports-1994, and CVL-Reports-1995.

Below are the directions for anonymous ftp access to our archive:

1. "ftp ftp.cfar.umd.edu"
2. login "anonymous"
3. password "your login" (e.g., [sandy@cfar.umd.edu](mailto:sandy@cfar.umd.edu))
4. "cd CfAR/TRs" (please match upper and lower case as indicated)

As mentioned above, you may need to move into one of the subdirectories CVL-Reports-1994 or CVL-Reports-1995.

The contents of these directories are:

- a. "directory\_contents" (an ascii file containing abstracts and other descriptive information---keywords, postscript file name, total number of pages when output in hardcopy, etc.---about each report available in the directory)
- b. "INDEX" (an ascii file containing the name of the postscript file and the title of the paper contained in that file)
- c. postscript files (some of these files can be quite large---even when compressed---as they include figures and/or images)

Note: occasionally the title page of a report must be formatted

separately from the body of the report. When this happens the title page will be posted as a separate postscript file with "tpg" as part of the file name.

Advice: set "bin" (Apparently it is advisable to use binary transfer when downloading compressed files---which all of these files are)

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These files can also be accessed via the World Wide Web at:

<http://www.cfar.umd.edu/ftp/TRs>

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Most recent reports placed in the CVL report archive.

file name(s): CfAR/TRs/CVL-Reports-1994/TR3386-Samet.ps.Z

report numbers: CAR-TR-747 CS-TR-3386

title: MAGELLAN: Map Acquisition of GEographic Labels by Legend ANalysis

author(s): Hanan Samet and Aya Soffer

date: December 1994

pages: 18

support: IRI-9017393 and NGT-30130

agency: NSF and NASA

keywords: Map recognition, Document analysis, Object recognition, Geographic Information Systems

abstract:

A system named MAGELLAN (Map Acquisition of GEographic Labels by Legend ANalysis) is described that utilizes the symbolic knowledge found in the legend of the map to drive geographic symbol (or label) recognition. MAGELLAN's output serves as input to a geographic information system (GIS). MAGELLAN first scans the geographic symbol layer(s) of the map. The legend of the map is located and segmented. The geographic symbols (i.e., labels) are identified, and their semantic meaning is attached to them. An initial training set library is constructed based on this information. The training set library is subsequently used to classify geographic symbols in input maps using statistical pattern recognition. User interaction is required at first to assist in constructing the training set library to account for variability in the symbols. The library is built dynamically by entering only instances that add information to it. The library is stored in an appropriate spatial data structure, and a highly efficient nearest neighbor finding algorithm is used to search it. MAGELLAN then proceeds to identify the geographic symbols in the input maps automatically. MAGELLAN can be fine-tuned by the user to suit specific needs. An experimental study was conducted on a large set of data and recognition rates of over 93% were achieved.

file name(s): CfAR/TRs/CVL-Reports-1994/TR3387-Lin.ps.Z

title: Global Activity Detection: Contextual Recognition of Regular Object Configurations

author(s): C.L. Lin, P. Burlina, and R. Chellappa

date: December 1994

pages: 41

support: DACA76-92-C-0024

sponsor: ARPA/CETEC (RADIUS)

keywords: Representation, detection and recognition of object configurations, exploitation of remotely sensed imagery, model-based change detection and monitoring, global operators, Quick-Look exploitation

abstract:

Detecting change and monitoring trends and activities of mobile objects are critical applications in model-supported exploitation of aerial and satellite imagery. Recent efforts have shown the advantages brought about by the use of site models to solve change detection (CD) problems. Most model-supported approaches to CD use local object detectors and infer changes by direct comparisons with previously acquired images. We present instead an approach relying on the use of global operators.

More specifically, our approach is based on a systematic analysis of the description and detection of { $\setminus$ em regular object configurations}. The proposed global operators rely on the spectral analysis of regular and repeated edge structures and on enforcing frequency domain constraints derived from known geometrical models of monitored objects. A method for learning acceptance/critical regions is presented. This approach is applied to aerial image exploitation and the detection of vehicle formations such as convoys, platoons, and the global monitoring of regions of interest such as parking areas, roads and open areas. Results of extensive testing of these modules on real images are reported.

file name(s): CfAR/TRs/CVL-Reports-1994/TR3389-Weiss.ps.Z

title: Physics-like Invariants for Vision

author(s): Isaac Weiss

date: December 1994

pages: 20

support: F49620-92-J-0332 and DACA76-92-C-0009

agency: AFOSR and ARPA/CETEC

keywords: invariants, physics-based vision, shape from shading, symmetries

abstract:

Unlike geometric invariants, the invariants described here concern the physical processes that form images, involving shading, IR, radar, sonar, etc. The image formed by such a process depends on many variables in addition to the geometry, such as the characteristics of the lighting or



other incident radiation, the imaging system, etc. Most of these variables are not known in advance, so the recovery of shape is difficult. The problem could be greatly simplified if we could find invariants of the situation, namely quantities that stay unchanged as some of the unknown variables change. In this paper we apply known methods of mathematical physics to finding invariants of physical imaging processes. These methods take advantage of various symmetries, which can be part of a model-based approach to recognition. As an example we use the shape from shading problem, but the methods have a much wider applicability.

file name(s): CfAR/TRs/CVL-Reports-1994/TR3390-Etemad.ps.Z

title: Separability Based Multiscale Basis Selection and Feature Extraction for Signal and Image Classification

author(s): Kamran Etemad and Rama Chellappa

date: December 1994

pages: 26

support: MDA 9049-3C-7217

agency: ARPA

keywords: Separability, Basis Selection, Wavelet Packets, Dimensionality Reduction, Segmentation, Textures, Document Images, Radar Signatures

abstract:

Algorithms for multiscale basis selection and feature extraction for general pattern classification problems are suggested. The basis selection algorithm is based on class separability measures rather than energy or entropy. At each level the "overall" and "accumulated" class separabilities obtained from the tree for a parent node and its children are computed and compared. The decomposition of the node (or subband) is performed if it provides larger combined separability. The suggested feature extraction algorithm focuses on dimensionality reduction of a multiscale feature space subject to maximum preservation of information useful for classification. At each level of decomposition, an optimal linear transform that preserves class separabilities and results in a reduced dimensional feature space is obtained. Classification and feature extraction is then performed at each scale and resulting "soft decisions" are integrated across scales. The suggested algorithms have been tested for classification and segmentation of 1D radar signals and 2D texture and document images. The same idea can be used for other tree structured local bases, e.g. local trigonometric basis functions, and even for non-orthogonal, redundant and composite basis dictionaries.

file name(s): CfAR/TRs/Tech\_Rept\_Abstracts\_1201-1299.ps.Z

title: Technical Reports of the Computer Vision Laboratory Nos. 1201-1299

author(s):

date: February 1995

pages: 40

support:

keywords: bibliography

abstract:

This document gives the authors, titles, report numbers, contract or grant numbers, dates, and abstracts of all technical reports produced by the Computer Vision Laboratory, Center for Automation Research, University of Maryland, College Park, MD 20742-3275, during the period October 1992 -- February 1995.

The document itself will be counted as No. 1300 in the series.

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Here is another CFP for a conference where document image analysis in general and map & drawing analysis in particular are mentioned as appropriate topics:

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ICSC '95 - Third International Computer Science Conference:  
Image Analysis Applications and Computer Graphics  
Hong Kong, December 11-13, 1995

#### CALL FOR PAPERS

ICSC '95 is the Third International Conference on Computer Science to be held in Hong Kong. Its purpose is to provide a forum for scientific interchange among computer scientists and engineers from all over the world, especially from the Asia-Pacific region. This conference will focus on a broad spectrum of research topics related to image analysis applications and computer graphics. Topics of interest include, but are not limited to, the following:

#### IMAGE ANALYSIS APPLICATIONS COMPUTER GRAPHICS

Invited Speaker: Invited Speaker:  
Thomas Huang (University of Illinois) John Lasseter (PIXAR)

Industrial Visual Inspection Natural Phenomenon Modeling  
Vision for Robotic Applications Shading & Rendering Algorithms  
3D or Color Imaging in Inspection Image Synthesis & Realism  
Document Image Processing Computer Animation  
Printed Character Recognition Graphics for CAD/CAM  
Cursive Script Recognition Graphics in Education  
Map & Drawing Analysis Graphics & the Arts  
Biomedical Image Analysis Graphics in Simulation  
Image Analysis for Multimedia Scientific Visualization  
Remote Sensing Image Analysis Virtual Reality  
Software & Novel Systems Graphics in Multimedia

SUBMISSION OF PAPERS:

Authors are requested to submit manuscripts (in English) of no more than 5000 words describing original results of their research work. Papers should be double-spaced and printed with high-quality printers using type size of 11-point or larger. Each copy of the paper should have a cover page containing the title of the paper, names and addresses of the authors, and an abstract of no more than 200 words. Unless specified otherwise, correspondence will be directed to the first author listed. Four hard copies of each paper should be sent with a cover letter to:

Professor Roland T. Chin  
Department of Computer Science  
Hong Kong University of Science and Technology  
Clear Water Bay, Hong Kong  
E-mail: [icsc@cs.ust.hk](mailto:icsc@cs.ust.hk)  
Fax: +852 2358-1477

#### TUTORIALS:

Tutorial sessions will be held during the conference. Proposals for tutorials on the state of the art of image analysis and computer graphics should be sent to the Program Chair.

#### IMPORTANT DATES:

Paper/Tutorial Submission Deadline: April 17, 1995  
Notification of Acceptance: July 17, 1995  
Camera-Ready Copy Due: September 15, 1995

General Chair: Horace Ip (City University of Hong Kong)

Program Chair: Roland Chin (University of Wisconsin & Hong Kong University of Science and Technology)

International Program Committee:

Graphics Program Co-Chair: Avi Naiman (Hong Kong University of Science and Technology)

John Amanatides (York University)  
Tony Derose (University of Washington)  
Eugene Fiume (University of Toronto)  
Alain Fournier (University of British Columbia)  
Martin Gobel (FHG-IGD)  
Pat Hanrahan (Princeton University)  
Tosiyasu Kunii (University of Aizu)  
Eihachiro Nakamae (Hiroshima Prefectural University)  
Qunsheng Peng (Zhejiang University)  
Demetri Terzopoulos (University of Toronto)  
Keith Waters (Digital Equip. Corp.)  
Geoff Wyvill (University of Otago)  
Michael Zyda (Naval Postgraduate School)

Image Analysis Program Co-Chair: T.C. Pong (University of Minnesota & Hong Kong University of Science and Technology)

Jake Aggarwal (University of Texas)  
Narendra Ahuja (University of Illinois)  
Terry Caelli (Curtin University of Technology)  
Francis Chin (University of Hong Kong)  
Charles Dyer (University of Wisconsin)  
Robert Haralick (University of Washington)  
Thomas Huang (University of Illinois)  
Anil Jain (Michigan State University)  
Josef Kittler (University of Surrey)  
Song De Ma (Inst. of Automation, Beijing)  
Linda Shapiro (University of Washington)  
Yoshiaki Shirai (Osaka University)  
Ching Y. Suen (Concordia University)  
Demetri Terzopoulos (University of Toronto)  
Saburo Tsuji (Osaka University)  
Andrew Wong (University of Waterloo)  
Guang-You Xu (Tsinghua University)

Organising Committee:

L.W. Chan (Chinese University of Hong Kong)  
Ronald Chung (Chinese University of Hong Kong)  
John C.M. Lee (Hong Kong University of Science and Technology)  
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Karl Leung (Hong Kong Polytechnic University)  
Andrew Luk (City University of Hong Kong)  
Joseph Ng (Baptist University)  
H.F. Ting (University of Hong Kong)  
Tong Lee (Chinese University of Hong Kong)  
H.T. Tsui (Chinese University of Hong Kong)

Organised and Sponsored by IEEE (HK) Computer Chapter.  
In cooperation with IEEE (USA) Computer Chapter, ACM (HK), Hong Kong Computer Society, Hong Kong Institute of Engineers, Hong Kong Society for Multimedia and Image Computing, and International Association for Pattern Recognition.

The proceedings will be published in the Springer-Verlag Lecture Notes in Computer Science series in time for distribution at the conference.

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Finally, I include some announcements which may be of less interest to our community, but as they may be related in one way or the other to the activities of some of us at least, I thought it may be useful to give the information.

First, an announcement about a conference on statistical shape analysis.

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>From: [ian.d@amsta.leeds.ac.uk](mailto:ian.d@amsta.leeds.ac.uk) (Ian Dryden)

FINAL ANNOUNCEMENT FINAL ANNOUNCEMENT

CURRENT ISSUES IN STATISTICAL SHAPE ANALYSIS

International Conference run by Statistics Department,  
University of Leeds, UK,  
(incorporating 15th Leeds Statistics Research Workshop and CoMIR)

April 5-7, 1995

Statistical shape analysis considers the study of geometrical objects where translation, rotation and possibly scale information can typically be ignored. The subject has received a great deal of recent attention, following the pioneering work of D.G. Kendall and F.L. Bookstein in the late 1970s/early 1980s. Although the methodology is being widely applied there are many key issues that need to be resolved. The conference aims to bring together workers in the field, to discuss both theoretical and practical issues.

PROVISIONAL PROGRAMME

WEDNESDAY 5 APRIL

10.30 am REGISTRATION AND COFFEE

11.35 am David Kendall Shapes and Shape-spaces:  
Cambridge, UK What do they look like?

1.30 pm John Gower Distance, Geometry and Shape  
Open, UK

2.15 pm Colin Goodall Procrustes Methods in the Statistical  
Penn State, USA Analysis of Shape Revisited

3.30 pm Huiling Le The Mean Shape and the  
Nottingham, UK Shape of the Means

4.00 pm Ian Dryden Investigating Regularity in Spatial  
Leeds, UK Point Patterns using Shape Analysis

4.30 pm Subhash Lele Euclidean Distance Matrix Analysis  
John Hopkins, USA of Landmark Coordinate Data:  
a Statistical Review

THURSDAY, 6 APRIL

9.00 am Kanti Mardia Shape Advances and Future  
Leeds, UK Perspectives

9.30 am Burzin Bhavnagri Construction of a Markov Process  
Adekaide, Australia to Model a Process Arising in Vision

10.00 am Ilya Molchanov Abstract Landmarks and their Applications  
Amsterdam, NL

11.00 am Chris Small Shape Metrics and Frobenius Norms  
Waterloo, Canada

11.30 am POSTER FORUM

Five-minute talks by poster presenters with discussion

2.00 pm Peter Green Reversible Jump MCMC Computation  
Bristol, UK and High Level Image Analysis

2.45 pm John Marchant A Compartmented Snake for  
AFRC, UK Model-based Boundary Location

3.45 pm Tim Cootes Active Shape Models: Recent Advances  
Manchester, UK

4.15 pm Jens Anderson 2-D Shape Recognition by  
Copenhagen, Denmark Sequential Test Procedures

4.45 pm Adam Baumberg Spatio-temporal Shape Model  
Leeds, UK

5.15 pm Mads Nielsen Bayesian Inference in  
Copenhagen, Denmark Computer Vision: Binocular  
Stereo from Axioms to Algorithm

FRIDAY 7 APRIL

9.30 am Fred Bookstein The Morphometric Synthesis  
Michigan, USA

11.00 am F.James Rohlf Multivariate Analyses of Shape  
New York, USA

11.30 am Paul Sampson Eigenshape Analysis of Left  
Washington, USA Ventricular Shape from 2-D Contrast  
Ventriculograms and from 3-D

Trans-esophageal Echocardiography

12.00 noon Bill Green A Simple Construction of  
Michigan, USA Triangle Shape Space

2.00 pm John Kent Topics in Inference for  
Leeds, UK Shape Analysis

2.45 pm OPEN DISCUSSION PANEL - Fred Bookstein, Wilfrid Kendall,  
John Kent

TIMETABLE: Wednesday 10.30 a.m.(registration) - Friday 4.00 p.m.

REGISTRATION FEE : 110 pounds sterling (students 90 pounds)

The conference will be held in Fairbairn House, part of the  
University of Leeds campus, and which offers conference and  
associated facilities to a high standard.

Fees include conference proceedings, lunch and car parking.

CONFERENCE DINNER (Thursday): 25 pounds sterling,  
payable with registration fee.  
Fees should be paid in advance to UNIVERSITY OF LEEDS.

Accommodation in nearby hotels at reasonable prices can be arranged  
if required. Individuals must settle their own accommodation  
expenses.

CONTACT ADDRESS:

Dr. Christine Gill, e-mail: [sta6cag@gps.leeds.ac.uk](mailto:sta6cag@gps.leeds.ac.uk)  
Department of Statistics,  
University of Leeds, tel: 0113 2335157  
Leeds, LS2 9JT fax: 0113 2335102  
UK

DEADLINE FOR REGISTRATION - WEDNESDAY 15TH MARCH 1995

CURRENT ISSUES IN SHAPE ANALYSIS 5 - 7 APRIL 1995

REGISTRATION FORM Please detach and return to Dr C. A. Gill,  
Department of Statistics, University of Leeds, Leeds LS2 9JT.

NAME : ..... Fee enclosed (pounds sterling)

ADDRESS : ..... 110 or 90 ....

..... Dinner 25 ....

..... TOTAL ....

Please tick for:-

conference dinner.... car park space....

accommodation on: Tuesday night.... Wednesday night....

Thursday night.... Friday night....

any other nights, please specify.....

at price (pounds sterling): <30.... 30-40.... 40-50.... 50+....

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Then, the first announcement of the next European Conference on  
Computer Vision

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>From [ahg@eng.cam.ac.uk](mailto:ahg@eng.cam.ac.uk) (A. H. Gee)

FIRST ANNOUNCEMENT

ECCV '96

Fourth European Conference on Computer Vision

14-18 April 1996

University of Cambridge, England

Following the highly successful conferences held in Antibes, Santa  
Margherita Ligure and Stockholm, the Fourth European Conference on  
Computer Vision will be held from 14-18 April 1996 in Cambridge,  
England. The Conference is to be held under the auspices of the  
European Vision Society (EVS) and the British Machine Vision  
Association (BMVA).

The programme will consist of a single track of the highest quality,  
previously unpublished, contributed papers, delivered either orally or  
as a poster. Contributions are sought on new research on any aspect of  
computer vision.

All reviewing will be performed double blind by a Programme Committee  
of leading international researchers selected by the Conference Board  
and, as usual for the European Conference, the proceedings will be  
published by Springer-Verlag.

Deadline for submission of papers 1 October 1995

Notification of acceptance 10 December 1995

Deadline for camera-ready manuscripts 20 January 1996

Conference begins 14 April 1996

A call for papers will be issued shortly. For further details of the  
call for papers, conference programme, workshop facilities,  
registration and local information please contact the Conference  
Secretariat:

ECCV'96 Conference Contact

42 Devonshire Road

Cambridge CB1 2BL

England.

tel: +44/0 1223 323437

fax: +44/0 1223 460396

e-mail: [cc@confcon.demon.co.uk](mailto:cc@confcon.demon.co.uk)

Reduced registration fees will be available to students and to members  
of the EVS and national societies affiliated to the EVS.

In addition, as at previous Conferences, it is planned to hold a small  
number of specialised workshops on Friday 19 April, immediately  
following the main meeting. Anyone interested in organizing a workshop  
is invited to contact the Conference Chairman ([b.buxton@cs.ucl.ac.uk](mailto:b.buxton@cs.ucl.ac.uk)).

Conference Chair:  
Prof. Bernard Buxton (University College London)

Local Arrangements Chair:  
Dr. Roberto Cipolla (University of Cambridge)

Conference Board

N.Ayache INRIA, Sophia Antipolis  
M.Brady University of Oxford  
H.Burkhardt University Hamburg-Harburg  
J.Crowley INPG, Grenoble  
E.Dickmanns Universität der Bundeswehr, Munich  
J-O.Eklundh Royal Institute of Technology, Stockholm  
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H-H.Nagel IITB, Karlsruhe  
B.Neumann Hamburg University  
G.Sandini DIST, University of Genova  
V.Torre University of Genova

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Finally, the CFP for a workshop on vision for robots:

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>From: [Katsushi.Ikeuchi@IUS5.IUS.CS.CMU.EDU](mailto:Katsushi.Ikeuchi@IUS5.IUS.CS.CMU.EDU)

Call for Papers

WORKSHOP on VISION FOR ROBOTS

Sunday August 6th, 1995

The Westin William Penn Hotel, Pittsburgh, PA 15219

in conjunction with International Conference on  
Intelligent Robots and Systems (IROS-95),  
Aug 7-9, 1995.

General Chairman: Katsushi Ikeuchi (Carnegie Mellon Univ.)  
Program Chairman: Avi Kak (Purdue Univ.)

Program Committee:

Minoru Asada (Osaka Univ.)  
Peter Allen (Columbia Univ.)  
Ruzena Bajcsy (Univ. of Pennsylvania)  
Akio Kosaka (Purdue Univ.)  
Martial Hebert (Carnegie Mellon Univ.)  
Seth Hutchinson (Univ. of Illinois, Urbana-Champaign)  
Charles Thorpe (Carnegie Mellon Univ.)

It could be said that the proof of the pudding in building a computer vision system is to demonstrate it on a robot. After all, in order to make a robot do anything useful through the use of its vision sensors, the vision system must work with some degree of competency and robustness, not to mention the fact that in addition to scene interpretation the vision system must also yield information for the pose calculations needed for subsequent robotic manipulation. Over the last decade, a number of research groups have actually demonstrated robotic vision systems for both the arm robots and the mobile robots. For the case of arm robots, researchers have demonstrated bin-picking of non-polyhedral objects using 3-D vision systems. And, for the case of mobile robots, researchers have demonstrated navigation modules using monocular and binocular vision. The aim of this workshop is to bring together people who have some experience with the integration of vision systems with robots, both the arm robots and the mobile robots. Discussions at the workshop will focus on defining more sharply the current state-of-the-art in the design of such systems. We will also try to delineate the next frontier of experiments for this kind of research.

More specifically, in addition to reviewing the progress in the design of integrated robotic vision systems, the workshop will address a host of technical questions that appear highly relevant to the field. For example, while for bin-picking applications we have had great success with 3-D vision, nothing comparable can be said for 2-D vision. Can any lessons learned from 3-D vision be applied to crack the problem of 2-D vision? For the case of mobile robot in indoor environments, is it better to use precompiled models of the environment, or should the robot construct such models using its sensors? What are the geometry vs. topology tradeoffs for the representation of models for mobile robot navigation in general? What are the best algorithms for pose calculation? Where do we stand in bridging the gap between the closed-loop systems for visual servoing and model-based systems for scene recognition? What about the use of motion cues? How successful have been the concepts of purposive vision?

PAPER SUBMISSIONS:

Four copies of the full paper including figures and drawings (double-spaced, not exceeding thirty pages) must be received by Mar 1, 1995 to the Program Chairman.

IMPORTANT DEADLINES:

Submission of papers: Mar 1, 1995

Acceptance notification: May 1, 1995

Submission of final camera-ready papers: Jun 1, 1995

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Well, once again this mail has become quite long. I hope you found at least some of the information useful for you.

Many greetings from your TC10 chairman,

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Karl Tombre - INRIA Lorraine & CRIN-CNRS --- Email: [Karl.Tombre@loria.fr](mailto:Karl.Tombre@loria.fr)  
Post: 615 rue du jardin botanique, BP 101, 54602 Villers CEDEX, France --or--  
Batiment LORIA, BP 239, 54506 Vandoeuvre CEDEX, France  
Phone: +33 83.59.20.71 --- Fax: +33 83.27.83.19 --or-- +33 83.41.30.79  
WWW URL: <http://www.loria.fr/~tombre>