



SIGIR '89

Proceedings of the Twelfth Annual International ACM SIGIR Conference on Research and Development in Information Retrieval

edited by N.J. Belkin and C.J. van Rijsbergen

held in cooperation with
AICA-GLIR (Italy)
BCS-IRSG (UK)
GI (Fed. Rep. of Germany)
INRIA (France)

with additional support from
Bell Communications Research
Lotus Development Corporation
OCLC
Thinking Machines Corporation

Cambridge, Massachusetts USA
June 25-28, 1989

Special Issue of the
SIGIR Forum
June 25-28, 1989

Table of Contents

Keynote Address

- Parallel Processing and Information Retrieval**1
David Waltz *Thinking Machines Corporation*

Artificial Intelligence/Connectionism

Chair: C. Stanfill *Thinking Machines Corporation*

- In Search of Knowledge-Based Search Tactics**3
P.J. Smith, S.J. Shute, D. Galdes, *Ohio State University*, M.H. Chignell *USC*
- Adaptive Information Retrieval: Using a Connectionist Representation to Retrieve and Learn About Documents**11
R.K. Belew *University of California, San Diego*
- A Neural Network for Probabilistic Information Retrieval**21
K.L. Kwok *Western Connecticut State University*

Interfaces

Chair: N.J. Belkin *Rutgers University*

- Design of a Browsing Interface for Information Retrieval**32
R. Godin *Université de Québec à Montréal*, J. Gecsei *Université de Montréal*,
C. Pichet *Université de Québec à Montréal*
- A Library System for Information Retrieval Based on a Cognitive Task Analysis and Supported by an Icon-Based Interface**40
A.M. Pejtersen *FCI Informatics Research Center, Denmark*
- Integrated Information Retrieval in a Knowledge Worker Support System**48
G. McAlpine *FCI Informatics Research Center, Denmark*,
P. Ingwersen *Royal Danish School of Librarianship*

Information Retrieval Theory

Chair: A. Bookstein *University of Chicago*

- Retrieval System Evaluation Using Recall and Precision: Problems and Answers**59
V.V. Raghavan *University of Southwestern Louisiana*, P. Bollmann *TU Berlin*,
G.S. Jung *University of Southwestern Louisiana*
- Optimum Polynomial Retrieval Functions**69
N. Fuhr *TH Darmstadt*
- Towards an Information Logic**77
C.J. van Rijsbergen *Glasgow University*

Architectures

Chair: S. Christodoulakis *University of Waterloo*

X **A Parallel Indexed Algorithm for Information Retrieval**88
C. Stanfill, R. Thau, D. Waltz *Thinking Machines Corporation*

An Optical System for Full Text Search98
P.A. Mitkas, P.B. Berra *Syracuse University*, P.S. Guilfoyle *OPTICOMP Corporation*

Retrieving Highly Dynamic, Widely Distributed Information108
M.F. Wyle, H.P. Frei *Swiss Federal Institute of Technology*

Natural Language

Chair: Y. Chiaramella *LGI-IMAG, Grenoble*

**The Constituent Object Parser: Syntactic Structure
Matching for Information Retrieval**117
D.P. Metzler, S.W. Haas *University of Pittsburgh*

Word Sense Disambiguation Using Machine-Readable Dictionaries127
R. Krovetz, W.B. Croft *University of Massachusetts, Amherst*

On the Application of Syntactic Methodologies in Automatic Text Analysis137
G. Salton, M. Smith *Cornell University*

Information Access Methods

Chair: F. Rabitti *CNR-IEI, Pisa*

File Organizations and Access Methods for CLV Optical Disks152
S. Christodoulakis, D.A. Ford *University of Waterloo*

X **Storing Text Retrieval Systems on CD-ROM:
Compression and Encryption Considerations**160
S.T. Klein, A. Bookstein, S. Deerwester *University of Chicago*

X **A New Approach to Text Searching**168
R.A. Baeza-Yates, G.H. Gonnet *University of Waterloo*

**Multikey Access Methods Based on
Term Discrimination and Signature Clustering**176
J.W. Chang, J.H. Lee, Y.J. Lee *KAIST, Seoul*

Representation

Chair: M. Agosti *University of Padova*

X **Indexing Medical Reports in a Multimedia Environment:
The RIME Experimental Approach**187
C. Berrut, Y. Chiaramella *LGI-IMAG, Grenoble*

X **Full Text Indexing Based on Lexical Relations
An Application: Software Libraries**198
Y.S. Maarek *IBM Thomas J. Watson Research Center*, F.Z. Smadja *Columbia University*

How a Personal Document's Intended Use or Purpose Affects its Classification in an Office	207
B. Kwasnik <i>Syracuse University</i>	

Hypermedia

Chair: R.B. Allen *Bell Communications Research*

Information Retrieval Using a Hypertext-Based Help System	212
F.R. Campagnoni, K. Erlich <i>Sun Microsystems Inc.</i>	

A Hypertext Knowledge Base for Primary Care - LIMEDS in LINCKS	221
T. Timpka, L. Padgham, P. Hedblom, S. Wallin <i>Linkjoping University</i> , T. Tibblin <i>Uppsala University</i>	

Settings and the Setting Structure: The Description and Automated Propagation of of Networks for Perusing Videodisk Image States	229
A. Parkes <i>University of Lancaster</i>	

Panel Sessions:

The Lexicon and Information Retrieval

Chair: R. Krovetz *University of Massachusetts, Amherst*

Session Description	240
----------------------------------	-----

Research Toward the Development of a Lexical Knowledge Base for Natural Language Processing	242
R.A. Amsler <i>Bell Communications Research</i>	

ASIS Panel on New Developments and Future Prospects for Electronic Databases

Chair: G. Salton *Cornell University*

Session Description	250
----------------------------------	-----

Information Retrieval and Software Reuse

Chair: W.B. Frakes *AT&T Bell Laboratories*

Session Description	251
----------------------------------	-----

Author Index	257
---------------------------	-----