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#### **About Informer**

Informer is the quarterly newsletter of the BCS Information Retrieval Specialist Group (IRSG). It is distributed free to all members. The IRSG is free to join via the BCS website (<a href="http://irsg.bcs.org/">http://irsg.bcs.org/</a>), which provides access to further IR articles, events and resources.

The British Computer Society (BCS) is the industry body for IT professionals. With members in over 100 countries around the world, the BCS is the leading professional and learned society in the field of computers and information systems.

Informer is best read in printed form. Please feel free to circulate this newsletter among your colleagues.



It's often been said that there's "no such thing as a free lunch" – unless you're an IRSG member, that is.

How so? Well, as you may have heard, there are changes afoot in the way BCS Specialist Groups are

to be run. Foremost among these is the fact that from May 1<sup>st</sup> SGs will become a *members-only* benefit, i.e. you have to be a BCS member to be considered part of IRSG. Evidently, for those of us who are BCS members already, this will make little difference. But for the majority of the IRSG, this is a significant change.

Now, with any large organisation, there are rules, there are guidelines, and there are interpretations. And our interpretation of the rules is that we can still operate as a professional network, with a newsletter, website, and events diary open to anyone interested in IR - but to be a bona-fide member of IRSG, you must now also be a member of BCS.

So, where's the free lunch? Well, if you are a non-member, our colleagues at BCS HQ have made joining rather easy for you – as a special offer, you can now sign up for a year's membership totally free of charge. That's right – non members can join the BCS for free. For further details, turn to p2, and be sure to sign up before May 1<sup>st</sup>.

Meanwhile, this issue brings you an article that's been 'incubation' a little while now – the results of our student survey. If you were one of those who took part, then great – if not, you can always have your say by contacting us at: <a href="mailto:informer@bcs.org">informer@bcs.org</a>.

Complementing this is a couple of excellent book reviews – first up is Gregor Erbach's review of "Making Search Work", a book that has been on my wish list for quite some time now. Following that we have "Anti-Spam Measures" by Guido Schryen, which is



reviewed by Kevin Curran. Thanks to both for their contributions.

Finally, don't forget to mark September 23 in your diary – for Search Solutions 2008, at BCS HQ, in London. Hope to see you there.

Best regards, Tony

Tony Rose, PhD MBCS CEng Editor, Informer Vice chair, IRSG

Email: irsg@bcs.org.uk

#### **Changes to IRSG Membership**

The BCS has very recently changed its policy regarding the membership of specialist groups. To conform with theses changes, the BCS-IRSG membership structure will need to be amended to consist of two tiers (as proposed at the AGM):

- FULL BCS-IRSG Members (FIRSG)
- AFFILIATE BCS-IRSG Members (AIRSG)

FIRSG Members will need to hold BCS membership and will have to select the IRSG on their preferences on the online BCS membership system. All current members of the BCS-IRSG will be considered as Affiliate Members of the IRSG, under the new membership structure from the 1st of May, 2008. In general all the same benefits will be afforded to AIRSG members (such as discounts to BCS-IRSG Events, subscribe to Informer, joining JISC, etc). However, only FIRSG Members will be allowed to serve on the IRSG committee under the proposed BCS Specialist Group Constitution.

To encourage current IRSG members to become Full IRSG members, the BCS has offered one year's free membership to non-BCS members, if you sign up before the 1st of May, 2008. This is a great way to experience the BCS and its benefits without any initial cost, and to join not only the BCS-IRSG but many other specialist groups too! And if you like it then after the first year, you can continue your membership with the BCS for as little as £25 per year!

If you would like to take advantage of the BCS's offer, then visit:

http://www.bcs.org/server.php?show=conWebDoc.17489

#### **Feature Article**

## Are we getting it right? The results of the student survey

By Simon Overell

Back in Spring 2006, Ali Azimi Bolourian and I took over as student officers of the BCS IRSG. Our remit was to provide a student voice and perspective for the IRSG committee and promote the IRSG to the IR student community. After exchanging dozens of emails and negotiating with the committee for a prize to serve as a suitable incentive, we ran the survey over spring and summer 2007.

Information retrieval has a huge research community. Masters' and PhD students keep the research fresh and flowing. Our first priority was to check the student community knew who the IRSG was and what we were already doing. Beyond that, we wanted to know who was out there, what they wanted and what we should offer.

#### The Survey

We hosted the survey ourselves on the BCS IRSG website. We targeted student attendees to conferences and student colleagues in the IR community. We asked 18 questions on the IRSG, our website, ECIR, and the Informer. The results of the main questions are summarised below with graphs in the appendix.

#### The Results

51 people responded: 82% were PhD Students and 37% were not members of the IRSG before filling in the questionnaire.

- 1. The top attractions for students to join the IRSG are that it is free, and reduced fees to conferences and workshops. This was followed by networking opportunities. The answers continued in a financially motivated vain when asked what else the IRSG could do, more funding available for ECIR and conferences was top of the list; again followed by more academic and industrial networking opportunities.
- 2. People said they rarely visited the IRSG website, although the most



popular section was the conferences page. Requested features were a calendar of information retrieval events and a Jobs sections.

- 3. The majority of people had both submitted to and attended ECIR 2007. Comments were positive. Students liked the fact that ECIR was more accessible than SIGIR for new research as there was less emphasis on results and evaluation. Requested sessions for ECIR 2008 were Machine Learning, Web IR and Multimedia IR.
- 4. The most popular sections of the Informer were the featured article and the editorial. Requested sections were free-software reviews, job adverts and articles on the work of PhD students.

#### **In Summary**

In answer to the question at the very start of this article: yes we are getting it right, but we can always do better. The priorities of IR students are publishing their work in conferences and meeting other students & academics. The role of the IRSG must be to help create opportunities for students to meet and publish (as with ECIR), and offer financially support to other major information retrieval events.

The future role of the IRSG must continue in this vein: helping students network and publish. The introduction of tutorials and workshops in the 2008 ECIR is a big step in the right direction.

#### **The Prizes**

With every on-line survey, there has to be a fantastic prize at the end. We considered an iPhone or Sony Vaio but managed to get something even better. Gianluca Demartini, Guido Zuccon and Chirag Shah have received limited edition IRSG polo shirts designed by Ali and I (soon to become collectors' items).

Simon Overell is a PhD student at Imperial College London. His thesis topic covers mining information from Wikipedia and geographic information retrieval. He can be contacted by e-mail via: <a href="mailto:seo01@doc.ic.ac.uk">seo01@doc.ic.ac.uk</a>.

## Book Review "Making Search Work" by Martin White (Facet Publishing, 2007)

Reviewed by Gregor Erbach



Although more and more organizations have projects to implement an enterprise search solution, there is very little published literature that would provide an introduction to the subject and practical guidelines how to

implement a solution that delivers the expected business benefits – a search solution that works. Martin White's fills this gap with a concise book that provides a non-technical introduction to search engines, search usability, multilingual search and the search business, followed a series of chapters with practical step-by-step guidelines for selecting and implementing a search solution, and a final chapter outlining future directions. The appendix contains a list of search engine vendors and a glossary, as well as a company and subject index.

The book is aimed at a non-technical audience, primarily at IT and business managers. It was derived from the author's conference presentations and workshops and this shows in his colloquial style of writing and the frequent use of lists and bullet points.

The book is tightly focused on the business benefits and the usability of the search solution, and addresses a range of issues that can cause a project to fail. It has a number of features that make it a very useful practical resource for carrying out the selection and implementation of a search engine:

- Checklists of issues to consider and question to ask
- Practical advice for setting up and running a search project
- Practical advice for dealing with vendors



Step-by-step guides for implementing search functionality

The book conveys a number of very useful lessons relating to the critical success factors of a search engine implementation. First of all, enterprise search solutions must be trusted and usable, or they won't be used. Users must have confidence that they can retrieve all required documents. Usability design and testing are important success factors. The author recommends to approach usability design by defining a number of persona, that is prototypical users of the application, and analyse what they would need to search for, and how they would search.

Search that works requires properly organized content, or as the author puts it "search is not a solution to poor information architecture". A well thought-out set and consistently applied set of metadata is of critical importance to the success of an enterprise search project. A document audit should be carried out as one of the first steps in a search project, in order to determine the nature of the document collection and its metadata, and to constitute a test set of documents for evaluation of search software. In an organization which has documents in multiple languages, the issues of multilinguality must be thoroughly considered, and the author devotes an entire chapter to this point.

The author stresses that "search has to be a joint project between IT and the business units", in order to deliver the expected business benefits. In many organizations, it will be the first IT solution which is made available to all staff in all divisions and all locations. Due to this integrative function of search, it is important to involve all stakeholders and assure top management sponsorship. Making a convincing business case for search in terms of financial return on investment is difficult because the benefits of search are hard to measure with sufficient precision. Therefore it is more feasible to construct the business case around the risks that the organization faces if relevant information cannot be found when it is needed.

Enterprise search, which searches across heterogeneous repositories, aims at a moving target since the IT applications, databases and document repositories which are being searched are themselves under continual development.

Search engines must respect corporate rules for security and confidentiality of documents, and care must be taken that a user can only retrieve the set of documents for which she or he has the access rights.

Although the overall content of the book is valuable and thought-provoking, its presentation could be improved. The most annoying issue is that the book is full of unsubstantiated claims, often introduced by phases such as "it would seem preferable". The author makes many important points, but uses neither his own experience nor references to relevant publications to provide any supporting evidence. Such lack of context makes it difficult for the reader to judge whether and how a particular point would apply to his own situation.

The chapters of the book are not self-contained, and therefore the book should be read sequentially. This applies particularly to the chapters relating to web search, intranet search and enterprise search. Sometimes the author uses odd terminology, for example speaking of a user interface as a "desktop". This can result in confusion particularly for non-expert readers.

Some issues are treated too briefly. The author stresses the importance of optimizing the search engine after its deployment, but does not say much about how this is done in practice. Other important issues are not mentioned at all. For example, the chapter on multilingual search makes no mention of crosslanguage homonymy, which is a major source for irrelevant search results (for example the word "cute" means 'skin' in Italian). Statistical approaches in which classifiers are trained on classified document collections are used by a number of major search engine vendors including Autonomy, but neither the approach nor the practical issues connected with its implementation are mentioned in the book. The discussion of the issues relating to the presentation of search results might benefit from making a clear distinction between the information which is presented about each individual result on the one hand, and the way



the entire result set is presented and manipulated on the other hand. In the book these issues are a bit mixed up, resulting in a lack of clarity.

The book contains a number of errors concerning some fundamental technical concepts. The author credits the invention of hypertext to Tim Berners-Lee in the 1980s, whereas the concept was invented by Vannevar Bush in the 1940s<sup>1</sup> and the term "hypertext" was coined by Ted Nelson in 1965<sup>2</sup>. Berners-Lee popularized hypertext through his invention of the HyperText Markup Language (HTML). TD.IDF term weighting is contrasted with vector space models, whereas it is in reality a method for the calculation of term weights within vector space models. The author claims that "relevance is a mathematical analysis of the content", whereas relevance is generally understood as the match between a user's information need (expressed as a search query) and a retrieved document. Mathematical analysis of the content is only a tool for finding potentially relevant documents.

A number of points in the book should be taken with caution. The author proposes that search engines must handle document security through access control lists. However, if such access control lists are managed separately from the organization's access control systems for its file systems, document repositories and databases, there will be a risk of inconsistency. A better option would be for the search engine to make use of the corporate access control systems.

The author claims that an option for finding similar documents is not useful. However, such relevance feedback has been shown to be very effective in information retrieval evaluations<sup>3</sup>. It would be helpful to know how the author

arrived at this opinion, in order to identify in which scenarios searching for similar documents might or might not be useful. In the step-by-step project plans, the order of the steps is not always logical or justified. For example, in the ten-step plan for enterprise search, it is not evident why the risk analysis comes only at a rather late stage (step 6), or why future of the existing search applications should be decided before examining the implementation options for the new search engine. There may be good reasons, but these need to be presented to the reader.

Despite these issues, the book does an excellent job in outlining the major business, technical, and usability issues related to intranet and enterprise search, and providing a practical framework for setting up a project to select and implement a search solution. Martin White has managed to convey his considerable experience in the area into a concise, readable and well-structured guidebook. The issues to consider and the potential pitfalls are clearly identified, and the book is an invaluable source of information for every business manager or IT professional considering to implement an enterprise search solution.

Gregor Erbach is Head of Online Services at the Library of the European Parliament in Brussels. Before that he worked as a researcher in natural language processing and information retrieval. He holds an MBA from the Open University. and a PhD in Computational Linguistics from Saarland University.

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<sup>&</sup>lt;sup>1</sup> Vannevar Bush, "As we may think", *Atlantic Monthly*, July 1945

<sup>&</sup>lt;sup>2</sup> Nelson, Ted. "Complex information processing: a file structure for the complex, the changing and the indeterminate". *ACM/CSC-ER Proceedings of the 20th national conference*, 1965

<sup>&</sup>lt;sup>3</sup> for a comprehensive overview, see: Ruthven, I. and Lalmas, M. A survey on the use of relevance feedback for information access systems. *Knowledge Engineering Review* 18, 2 (Jun. 2003), 95-145.



#### Book Review "Anti-Spam Measures" by Guido Schryen

Reviewed by Kevin Curran



As a communications medium, email has become very useful and practically universal. However, the usefulness of email and its

potential for future growth are jeopardized by the rising tide of unwanted email, both Spam and viruses. This threatens to wipe out the advantages and benefits of email. An important flaw in current email standards is the lack of any technical requirement that ensures the reliable identification of the sender of messages. A message's domain of origin can easily be faked, or 'spoofed'. This book investigates the problem of email spam and identifies methods to efficiently minimize the volumes. The primary goal of this work is the methodical analysis of the potential, limitations, advantages, and drawbacks of antispam measures. These determine to which extent the measures can contribute to the reduction of spam in the long run. The range of considered anti-spam measures includes legislative, organizational, behavioural and technological ones. Furthermore, the conceptual development and analysis of an infrastructural email framework that features such a complementary application, is pointed out.

#### A logical Approach

The book contains most parts of the author's habilitation thesis at the RWTH Aachen University, Germany and at times it does show that this is an adaptation of a thesis. Chapter 1 provides a gently introduction to the problem & history of Spam. Chapter 2 introduces Spam and its economic significance especially with regards economic harm and benefit. Chapter 3 explains nicely the e-mail delivery process and its susceptibility to spam. Chapter 4 in my opinion is the real core where Anti-spam measures are outlined concisely. This chapter is organised into a number of sections focusing

on legislative measures, organisational measures, behavioural measures and technological measures. Chapter 5 outlines a model-driven analysis of the effectiveness of technological anti-spam measures. Chapter 6 introduces an infrastructure framework for addressing spam while chapter 7 presents an empirical analysis of the abuse of e-mails addresses placed on the Internet. The does consider deployment issues, as the framework will have to be integrated in both the technological and the organizational Internet infrastructure.

Anti-spam measures outlines in a logical manner the problem and proposed solutions to spam. It more than adequately introduces a model-driven analysis of the effectiveness of technological anti-spam measures and the price of the book is worth it for this alone and indeed the excellent chapter 4 which covers the main behavioural and technological measures to cope with spam. The book also provides a process for parsing, classifying, and storing e-mails.

#### No More Spam

The book discusses all the major technical anti-spam methods currently in use along with the advantages and disadvantages of each method. It also touches upon commercial proposals which attempt to address the shortcomings of the current anti-spam approaches. All parties however are seeking to implement a more robust, future-proof, and all-encompassing solution to stopping spam. Many of the proposals often comprise hybrid approaches i.e. combinations of a number of methods to stop spam, but are generally more complex to implement as they require changes to the email infrastructure.

The book is never a chore to read. It is littered with diagrams, equations and comparison tables. It is well written and important concepts such as SMTP's susceptibility to spam are exhaustively outlined along with relevant code headers and sensible discussions. I was actually very impressed with the work here and once I started to delve into the contents of this book, I did discover a lot more about this field – even though I have worked in a similar field some years ago. It is a tour de force of anti-spam measures and I would hope



that this book will become a bedtime read for researchers in the field.

Kevin Curran is a senior lecturer in Computer Science at the University of Ulster. His achievements include winning and managing UK & European Framework projects and Technology Transfer Schemes. He has published over 300 research papers to date in the field of distributed computing especially emerging trends within computer networks, autonomic computing and middleware. He is a regular contributor to both BBC radio and TV news bulletins. He is also the Editor in Chief of the International Journal of Ambient Computing and Intelligence and is a member of 15 Journal Editorial Committees and numerous international conference organising committees.

#### Nominations invited for the Tony Kent Strix Award

The UKeiG Tony Kent Strix Award is given annually to an individual or a team based in any country of the world in recognition of an outstanding contribution to the field of information retrieval.

Nominations will be judged by a panel of experts, and the statuette will be presented to the winner during the annual Online Information Meeting in London, December 2-4th 2008.

Key characteristics that the judges will look for in nominations are innovation and initiative, and in particular the originality and practicality of approach that Tony Kent exemplified.

Nominations should take the form of a short description (no more than 3 sides of A4) of the work in question, together with full contact details of both the nominee and the nominator. Further details can be found on the UKeiG website at:

http://www.ukeig.org.uk/awards/tonykentstrix.html

#### **Forthcoming Events**

Edited By Andy MacFarlane

#### **Conferences/Workshops**

#### EuroITV 2008 Changing Television Environments

Event focusing on television which will be of interest to members working in the area of video IR and user needs.

Salzburg, Austria, 3<sup>rd</sup>-4<sup>th</sup> July 2008. http://www.euroitv2008.org/

### ACM Conference on Electronic Commerce (EC'08)

Of interest to members working in the area of Spam control, web search etc.
Chicago, Illinois, 8<sup>th</sup>-12<sup>th</sup> July, 2008
http://www.acm.org/sigs/sigecom/ec08

#### AAAI 2008 Workshop - WIKIPEDIA AND ARTIFICIAL INTELLIGENCE: AN EVOLVING SYNERGY

Wikipedia as a source, with various themes of interest such as semantic web and cross language. Chicago, Illinois, 13<sup>th</sup>-14<sup>th</sup> July, 2008 <a href="http://lit.csci.unt.edu/~wikiai08">http://lit.csci.unt.edu/~wikiai08</a>

# Second International Workshop on Scalable Data Management Applications and Systems (SDMAS'08) to be held within The 2008 International Conference on Parallel and Distributed Processing Techniques and Applications

A conference focused on scalability issues, of interest to members working on large scale IR problems such as web search.

Las Vegas Nevada, USA, 14<sup>th</sup>-17<sup>th</sup> July, 2008

<a href="http://www.arcos.inf.uc3m.es/~jdaniel/sdmas08/">http://www.arcos.inf.uc3m.es/~jdaniel/sdmas08/</a>

## 8th Industrial Conference on Data Mining (ICDM 2008)

Of interest to members working in the area of text mining.

Leipzig, Germany, 16<sup>th</sup>-18<sup>th</sup> July, 2008. http://www.data-mining-forum.de/

## The 31<sup>st</sup> Annual International ACM SIGIR Conference (SIGIR 2008)

The big annual IR get together for researchers all over the world.
Singapore, 20<sup>th</sup>-24<sup>th</sup> July 2008.
http://www.sigir2008.org/

## Uncovering Plagiarism, Authorship, and Social Software Misuse (PAN-08) — Workshp @ ECAI 2008

Of interest to researchers working in the area of plagiarism and search for detection of this problem. Patras, Greece, 21<sup>st</sup>-25<sup>th</sup> July 2008.



#### http://www.aisearch.de/pan-08

## Mobile and Ubiquitous Systems: Computing, Networking and Services (MobiQuitous 2008)

Of interest to members working in the area of mobile search.

Dublin, Ireland, 21st-25th July 2008.

http://www.mobiquitous.org

## The Semantic Web meets the Deep Web (SWDW'08).

A workshop of interest to members working in the area of semantic search – part of an e-commerce conference.

Washington, D.C., USA, 21<sup>st</sup>-24<sup>th</sup> July 2008. http://cec2008.cs.georgetown.edu/

## The Seventh International Conference on Mathematical Knowledge Management (MKM 2008)

A workshop with various themes of interest including digital libraries and search/retrieval for mathematical knowledge.
Birmingham, UK, 28<sup>th</sup>-30<sup>th</sup> July 2008

http://events.cs.bham.ac.uk/cicm08/mkm08/

#### 5th International Conference on Adaptive Hypermedia and Adaptive Web-Based Systems (AH2008)

Of interest to members working in the area of areas such as recommender systems Hannover, Germany, 28<sup>th</sup> July - August 1<sup>st</sup> 2008.

http://www.ah2008.org/

## Fifth International Conference on Visual Information Engineering (VIE'08)

The more visual aspects of IR is an important theme of this conference. Xi'an, China, 29<sup>th</sup> July - 1<sup>st</sup> August 2008. http://vie08.gmul.net/

## 22nd International Conference on Computational Linguistics (COLING 2008)

Members working in the area of NLP and IR will find this conference of interest.

Manchester, U.K., 18<sup>th</sup>-22<sup>nd</sup> August 2008. http://www.coling2008.org.uk/

## The 10th International Conference on Music Perception and Cognition (ICMPC10)

Of interest to members interested in the cognitive aspect of music retrieval.

Hokkaido University, Sapporo, Japan, 25<sup>th</sup>-29<sup>th</sup> August 2008

http://icmpc10.psych.let.hokudai.ac.jp/

#### **DEXA 2008**

A collection of various conferences with themes on  $\ensuremath{\mathsf{IR}}$ 

Turin, Italy, 1<sup>st</sup>–5<sup>th</sup> September 2008.

http://www.dexa.org

## 1st Computer Cooking Contest (CCC 2008 @ ECCBR 2008)

An interesting contest associated with a case based reasoning conference. Basic idea is to create a database of ingredients and query them to create menus – IR technologies can be used for this.

Trier, Germany, 1<sup>st</sup> September 2008.

http://www.wi2.uni-

trier.de/eccbr08/index.php?task=ccc

## Session 'Information and Evaluation' on the 7th RC33 International Conference on Social Science Methodology

Session on evaluation which can apply to IR evaluation.

Naples, Italy, 1<sup>st</sup>-5<sup>th</sup> September 2008.

http://www.rc332008.unina.it/

## Special Track on Ontology Lifecycle Methods - Algorithms for Ontology Learning, Evolution and Mining (workshop at TRIPLE-I '08/I-SEMANTICS '08)

Of interest to members working in the area of knowledge representation and search.

Graz, Austria, 3<sup>rd</sup> – 5<sup>th</sup> September 2008.

http://www.triple-

i.tugraz.at/i semantics/special tracks/olm

#### Mobility 2008

Conference of interest to members working in the area of Mobile search.

Yilan, Taiwan, 10<sup>th</sup>-12<sup>th</sup> September 2008. http://www.mobilityconference.org/

## 24th Conference of the Spanish Society for Natural Language Processing (SEPLN 2008)

Members working in the area of NLP and IR will find this conference of interest.

Madrid, Spain, 10<sup>th</sup>-12<sup>th</sup> September 2008.

http://basesdatos.uc3m.es/sepln2008/web/index\_e n.html

## Ninth International Conference on Music Information Retrieval (ISMIR 2008)

Of interest to members who work in the area of music retrieval

Philadelphia, USA, 14<sup>th</sup>-18<sup>th</sup> September 2008.

http://ismir2008.ismir.net/

## Eight ACM Symposium on Document Engineering (DocEng '08)

General conference on documents engineering including retrieval.

Sao Paulo, Brazil, 16<sup>th</sup>-19<sup>th</sup> September 2008. http://www.icmc.usp.br/doceng08

## 2008 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC'08)

A general visualisation conference of interest to members working in visualisation and search. Herrsching am Ammersee, Germany, 16<sup>th</sup>-20<sup>th</sup> September 2008

http://vlhcc08.cs.unibw.de/



## Information Seeking in Context 2008 (ISIC 2008)

Of interest to members who work in the area of context and IR Vilnius, Lithuania, 17<sup>th</sup>-20<sup>th</sup> September 2008 <a href="http://www.kf.vu.lt/isic2008/">http://www.kf.vu.lt/isic2008/</a>

## International Conference on Dublin Core and Metadata Applications (DC 2008)

Conference on meta-data of interest to members concerned with search and meta-data.

Berlin, Germany, 22<sup>nd</sup>-26<sup>th</sup> September 2008.

http://dc2008.de/

## Second Information Interaction in Context Symposium (IIIX 2008)

Of interest to members who work in the area of context and IR BCS Covent Garden, London, 14<sup>th</sup>-17<sup>th</sup> October 2008. http://irsq.bcs.org/iiix2008/index.php

#### **Summer Schools**

## 2nd Russian Summer School in Information Retrieval (RuSSIR 2008).

Monday September 1 - Friday September 5, 2008, Taganrog, Russia <a href="http://romip.ru/russir2008/">http://romip.ru/russir2008/</a>

#### **Contacts**

Web: <a href="http://irsg.bcs.org/">http://irsg.bcs.org/</a>
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Subscriptions: <a href="http://irsg.bcs.org/membership.php">http://irsg.bcs.org/membership.php</a>

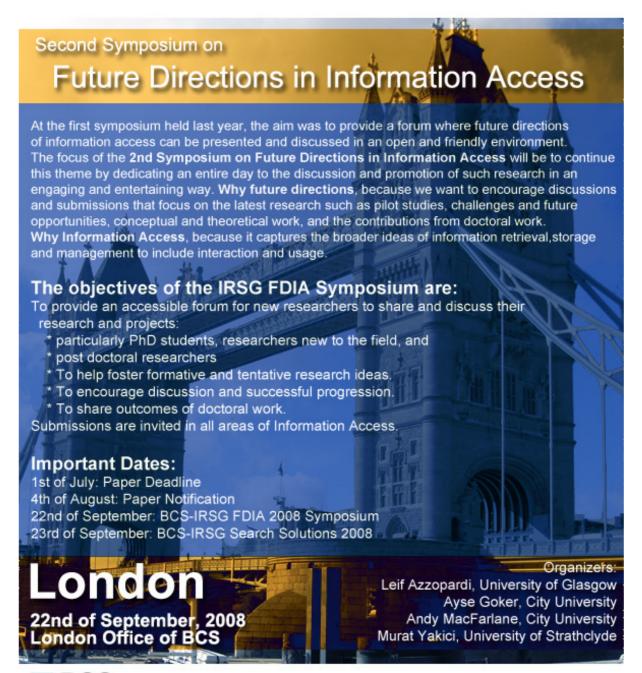
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The IRSG is a specialist group of the <u>British Computer Society</u>. To automatically receive your own copy of Informer, simply join the IRSG via the <u>IRSG website</u>.



## FD1A 2008





http://irsg.bcs.org/fdia2008







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