

# Ingo Frommholz

*Dr. rer. nat. Dipl.-Inform.*

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## Education

- 2008 **PhD (Dr. rer. nat.) in Computer Science**, *University of Duisburg-Essen*, Duisburg, Germany.  
Thesis: *A Probabilistic Framework for Information Modelling and Retrieval Based on User Annotations on Digital Objects*. Supervisor and examiner: Prof. Norbert Fuhr, 2nd examiner: Prof. Maristella Agosti. **German highest grade (summa cum laude)**.
- 2007 **Certificate in professional teaching competence in higher education**, *University of Duisburg-Essen*, Duisburg, Germany.  
The 200 hours training programme addressed teaching and learning, testing, advising and counselling, evaluating, and innovatively developing study programmes and teaching strategies.
- 2001 **Diploma in Computer Science (Diplom-Informatiker, MSc equivalent)**, *University of Dortmund*, Germany.  
Thesis: *Automatic categorisation of Web documents*. Supervisor: Prof. Norbert Fuhr.  
Main courses during studies: Operating Systems, Computer Networks and Distributed Systems, Databases, Information Retrieval, Business Informatics. **German highest grade (1.0)**.

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## Professional Experience

- 02/2011–Present **Lecturer**, *Department of Computer Science and Technology, University of Bedfordshire*, Luton, UK.  
Delivering teaching at undergraduate and postgraduate levels, to cohorts in excess of 250 students, in the areas of: data modelling and management, information retrieval, distributed and parallel computing, and programming. I am module co-ordinator of the Data Modelling and Management postgraduate module and course-co-ordinator of the Business Information Systems and Information Systems BSc programmes. I also provide research supervision to final year project undergraduate and postgraduate students as well as PhD students. I am continuing my research in the areas of information retrieval and digital libraries, in particular polyrepresentation, probabilistic logics for information retrieval and interactive quantum-based IR models, with currently 1 journal and 1 conference publication in preparation. I am proactively generating opportunities for external research funding from the private sector and funding organisations including the MOD, EPSRC and the EU-FP7 programme.
- 11/2008–01/2011 **Postdoctoral Research Associate**, *Information Retrieval Group, School of Computing Science, University of Glasgow*, Glasgow, Scotland.  
My research work at the University of Glasgow focused on developing a novel geometrical interactive information retrieval model that is inspired by quantum mechanics. I have extended this model by showing how the principle of polyrepresentation can be supported geometrically. I have been participating in the implementation and evaluation of the model. Further tasks comprised the local organisation of the European Conference on Digital Libraries (ECDL 2010), teaching and PhD supervision.

- 10/2004–10/2008 **Research and Teaching Assistant**, *Information Systems Group, Faculty of Engineering Sciences, University of Duisburg-Essen*, Duisburg, Germany.  
In Duisburg I was concerned with specifying probabilistic object-oriented logics for annotation-based modelling and retrieval in digital libraries. My approach is based on probabilistic Datalog. My work also comprised the implementation of a Java prototype of the proposed framework for evaluation. I was also involved in the specification, implementation and integration of annotation management and retrieval services into a digital library infrastructure called Daffodil. Other major tasks were teaching (as tutor, teaching assistant and module coordinator), diploma thesis supervision, project acquisition and Linux system administration. I designed from scratch and delivered a module on information engineering.
- 3/2006–4/2006 **Visiting researcher**, *Information Management Systems Research Group, University of Padua*, Italy.  
The main purpose of my visit to Padua was collaborative work on annotation-based retrieval and service integration in digital libraries, resulting in an accepted workshop submission.
- 3/2001–9/2004 **Research Assistant**, *Fraunhofer Integrated Publication and Information Systems Institute (IPSI)*, Darmstadt, Germany.  
At Fraunhofer IPSI (formerly GMD IPSI) I started my research in information retrieval and digital libraries on the topic of retrieval based on user annotations. I was further responsible for developing retrieval services that were used in several European projects on cultural heritage and eScience I was involved in. I also specified and implemented annotation-based management and retrieval modules. Additional duties comprised teaching, diploma thesis supervision and database administration.
- 11/1999–2/2001 **Software Developer**, *adesso GmbH*, Dortmund, Germany.  
At adesso I assisted in developing a commercial Web portal by integrating an open source intranet search engine software module. Part time whilst at university.
- 5/1998–10/1999 **Software Developer**, *o.tel.o GmbH*, Düsseldorf, Germany.  
One of my main tasks at o.tel.o was the implementation of a technical database which helped managing the technical infrastructure of telephone companies. Part time whilst at university.
- 8/1994–4/1998 **Software Developer**, *Lion Ges. für Systementwicklung mbH*, Bochum, Germany.  
At Lion I was concerned with the documentation of software modules as well as database programming. Part time whilst at university.

## Membership of Professional Organisations

- since 2011 **Steering Committee, British Computer Society (BCS) Information Retrieval Study Group.**  
In November 2011 I was appointed a member of the steering committee of the BCS IRSG
- since 2008 **Steering Committee, German Computing Society Information Retrieval Special Interest Group.**  
I am elected member of the steering committee of the IR Special Interest Group of the German Computing Society (Gesellschaft für Informatik)

## Teaching Experience

### Course/Programme Co-ordinator

- since 2011 **BSc Information Systems**, *University of Bedfordshire*, Luton, UK.  
I am course leader of the BSc Information Systems course at the Dept. of Computer Science and Technology of the University of Bedfordshire. I am responsible for the coordination of the different modules delivered within this course.
- since 2011 **BSc Business Information Systems**, *University of Bedfordshire*, Luton, UK.  
I am course leader of the BSc Business Information Systems course at the Dept. of Computer Science and Technology of the University of Bedfordshire (held in conjunction with the UoB Business School). I am responsible for the coordination of the different modules delivered within this course.

### Module Co-ordinator

- 2011/12 **Data Modelling and Management**, *University of Bedfordshire*, Luton, UK.  
In this postgraduate course I deliver and organise as module leader lectures on UML and data modelling (ERM, SQL).

- 2007 **Information Engineering**, *University of Duisburg-Essen*, Duisburg, Germany.  
The aim of the postgraduate module I designed from scratch (lectures and tutorials) was to give the students an overview of methods, concepts and systems supporting the information life cycle (creation, management, dissemination and processing), which comprised authoring systems, metadata, databases, information and process modelling, digital preservation, access management, digital libraries and information seeking and searching.

### Lecturer

- 2011 **Advanced IT Strategies and Paradigms**, *University of Bedfordshire*, Luton, UK.  
In this 3rd year undergraduate course I deliver lectures on the topic of information retrieval, XML and ontologies
- 2011 **Distributed and Parallel Computing**, *University of Bedfordshire*, Luton, UK.  
In this postgraduate course I delivered lectures on the topics of distributed computing, grid computing and cloud computing. I am further responsible for student assignments the general assessment of student progress
- 2011–2012 **Programming and Modelling**, *University of Bedfordshire*, Luton, UK.  
In this 1st year undergraduate course I deliver lectures relating to advanced Java programming. Furthermore I organised laboratory sessions. I am further responsible for student assignments and the general assessment of student progress.
- 2010–2011 **Distributed Information Management / Information Technology**, *University of Glasgow*, Glasgow, UK.  
The main aim of this postgraduate course is to provide students with a comprehensive overview of web application development. I delivered lectures on XML.
- 2010/2011 **General Readings in Computer Science**, *University of Glasgow*, Glasgow, UK.  
In this postgraduate reading course, students are required to present a variety of topics related to computing science. One of my main duties in this course was marking students' presentations.
- 2006–2008 **Modelling Methods in Computer Science**, *University of Duisburg-Essen*, Duisburg, Germany.  
In this undergraduate course I was responsible for the tutorials and gave occasional lectures.
- 2008 **Information Retrieval**, *University of Duisburg-Essen*, Duisburg, Germany.  
In this postgraduate course I was responsible for the tutorials and gave occasional lectures.
- 2008 **Information Mining**, *University of Duisburg-Essen*, postgraduate course.  
I was responsible for the tutorials and gave occasional lectures.

### Seminar and Student Project Organiser

- 2010 **Geometry and Information Retrieval**, *Fern-Universität Hagen*, Hagen, Germany.  
Postgraduate seminar on geometric and quantum-based information retrieval
- 2008 **Social Information Retrieval**, *University of Duisburg-Essen*, Duisburg, Germany.  
Postgraduate seminar on social information retrieval and Web 2.0
- 2005 **Researcher's Workbench: Managing, annotating and retrieving documents**, *University of Duisburg-Essen*, Duisburg, Germany.  
In this postgraduate project, students had to design and implement a tool for managing, annotating and retrieving documents.
- 2002–2004 **The Semantic Web: Intelligent search for structured data collections**, *Darmstadt University of Technology*, Darmstadt, Germany.  
Postgraduate seminar on Semantic Web concepts and technologies
- 2004 **XML Retrieval**, *University of Duisburg-Essen*, Duisburg, Germany.  
Postgraduate seminar.

### Thesis Supervision and Mentoring

- 2011-2014 **Clustering in Heterogeneous Sources**, *University of Bedfordshire*, UK.  
I am director of studies of the PhD thesis of Kamran Abbasi.
- 2011-2013 **A Framework for Evaluating e-Government Success**, *University of Bedfordshire*, UK.  
I am 2nd supervisor of the PhD thesis of Obaid Almalki.

- 2011-2012 **Balancing Exploration and Exploitation in Learning to Rank Online**, *University of Amsterdam*, The Netherlands.  
In the context of the ECIR 2011 student mentoring program I was appointed the mentor of Katja Hofmann's PhD thesis.
- 2010-2011 **Cognitive IR models for patent search**, *University of Glasgow*, Glasgow, UK.  
I have been assisting in supervising the PhD of Dipl.-Inform. Erik Graf about human information processing and information retrieval (supervisor: M. Lalmas)
- since 2011 **MSc and BSc project supervision**, *University of Bedfordshire*, Luton, UK.  
I have been supervising several MSc and BSc projects about business information systems, distributed systems and computer networks
- 2008-2009 **Email-based Expert Search for Helpdesks**, *University of Duisburg-Essen*, Duisburg, Germany.  
Diploma (master) thesis of Dipl.-Inform. Evgenia Nikiforova
- 2008-2009 **Annotations in Daffodil**, *University of Duisburg-Essen*, Duisburg, Germany.  
Bachelor thesis of BSc Simeon Gerenski
- 2008 **Multifacet-Classification of Emails in a Helpdesk Scenario**, *University of Duisburg-Essen*, Duisburg, Germany.  
Diploma (master) thesis of Dipl.-Inform. Thomas Beckers
- 2007 **Sentiment Classification in Discussions**, *University of Duisburg-Essen*, Duisburg, Germany.  
Diploma (master) thesis of Dipl.-Inform. Marc Lechtenfeld
- 2004 **A dynamic, context-based Retrieval Web Service**, *Darmstadt University of Technology*, Darmstadt, Germany.  
Diploma (master) thesis of Dipl.-Inform. Thomas Fritz
- 2002 **Context-based Retrieval with Discourse Structure Relations**, *Darmstadt University of Technology*, Darmstadt, Germany.  
Diploma (master) thesis of Dipl.-Inform. Gaby Lang

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## Research Projects

- 2008-2011 **RENAISSANCE**, *University of Glasgow*, Glasgow, UK.  
EPSRC project on retrieval models based on the quantum theory framework. Main task: evaluation and further extension of an interactive retrieval framework inspired by quantum mechanics.
- 2010-2011 **QONTEXT**, *University of Glasgow*, Glasgow, UK.  
EU Marie Curie FP7-IRSES project on information retrieval and quantum theory
- 2008 **LACOSTIR**, *University of Duisburg-Essen*, Duisburg, Germany.  
German Research Foundation project on interactive retrieval. Main tasks: specification of a model for interactive retrieval.
- 2006-2007 **DELOS**, *University of Duisburg-Essen*, Duisburg, Germany.  
EU-FP6 Network of Excellence on Digital Libraries. Main task: design and integration of annotation services into the agent-based Daffodil framework.
- 2006 **KIIB**, *University of Duisburg-Essen*, Duisburg, Germany.  
EU-EUREGIO project on business processes and email classification, in collaboration with d.velop AG, Gescher, Germany. Main task: knowledge transfer, development of a study on email classification in a helpdesk scenario.
- 2004-2006 **CLASSIX**, *University of Duisburg-Essen*, Duisburg, Germany.  
German Research Foundation (DFG) project on classification and intelligent search on information in XML. Main task: specification and implementation of an annotation-based retrieval framework for structured documents based on probabilistic logics.
- 2004 **BRICKS**, *Fraunhofer IPSI*, Darmstadt, Germany.  
EU-IST integrated project on distributed resources for integrated cultural knowledge services. Main task: specification of annotation services.
- 2002-2003 **VIP-ADVISOR**, *Fraunhofer IPSI*, Darmstadt, Germany.  
EU project (IST-2001-32440) on a virtual advisor for personal insurance and finance risk management. Main task: integration of case-based retrieval services for advisory dialogues.

- 2001–2003 **COLLATE**, *Fraunhofer IPSI*, Darmstadt, Germany.  
EU project (IST-1999-20882) on the development of a collaboratory for annotation, indexing and retrieval of digitized historical archive material. Main task: design and implementation of context-based retrieval methods based on user annotations, of retrieval Web services and of research prototypes.
- 2001–2003 **SCHOLNET**, *Fraunhofer IPSI*, Darmstadt, Germany.  
EU project (IST-1999-20664) on a digital library infrastructure for supporting communication and collaboration among networked scholarly communities. Main task: design and implementation of search user interfaces.

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## Research Related Activities

### Chair

- 2010 **European Conference on Research and Advanced Technology for Digital Libraries (ECDL 2010)**.  
I have been *local chair* of ECDL 2010 held in Glasgow, Scotland, from September 6-10, with around 200 delegates.
- 2009–2012 **IR workshops at Lernen–Wissen–Adaptivität (LWA-WIR)**.  
I have been *programme chair* of the IR workshops of the IR special interest group of the German Computing Society in 2009 (Darmstadt), 2010 (Kassel and 2011 (Magdeburg). I am programme chair of this workshop in 2012.
- 2011 **International Symposium on Quantum Interaction (QI 2011)**.  
I have been *proceedings chair* of the QI 2011 in Aberdeen

### Organiser

- 2010 **Interactive Track at the Initiative for the Evaluation of XML Retrieval**.  
I am one of the organisers of the INEX 2010 iTrack.
- 2006 **Heterogeneous Track at the Initiative for the Evaluation of XML Retrieval**.  
I was one of the organisers of the INEX 2006 Heterogeneous Track.

### Editorial Board, Managing Editor and Guest Editor

- 2009–Present **Datenbank-Spektrum Journal**.  
Since 2009 I am member of the editorial board of Datenbank-Spektrum, the joint journal of the German special interest groups on databases resp. information retrieval.
- 2001–Present **International Journal on Digital Libraries (IJDL)**.  
I am managing editor of IJDL. Main responsibilities include supervising the whole reviewing life cycle of incoming submissions, including editor and reviewer assignments, and for keeping the journal running.
- 2011 **Guest Editor IJDL Focussed Issue on ECDL 2010**.

### Programme Committee

- 2004–Present I have been member of the programme committee of the following conferences and workshops: SIGIR (2007 (Demonstration committee), 2009, 2010, 2011 (Poster)); IiX (2006, 2008); CIKM (2011); ECIR (2006, 2012); ECDL (2008, 2009); TPDF (2011); WWW (2012); ICCTA (2009); Quantum Interaction (2011); TIR (2009, 2010, 2011); WIRD (2004), LWA-WIR (2008); LSHC (2010, 2011); XSym (2009)

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## Technical Skills

Platforms	Mac OS X, Linux, Solaris, Windows, MS-DOS, AIX, AmigaOS	Programming Languages	Java, Perl, R, C, Unix Shell, Prolog, SQL, PL/SQL, Scheme, Modula 2, Assembler (M6510 (C64), MC68000 (Amiga)), Basic
Databases	MySQL, Oracle, Informix	Markup	HTML, XML, XML schema, RDF(S), OWL

Information Retrieval MG4J, HySpirit, probabilistic Datalog, FAST

Tools R, J2EE, Eclipse, Apache Tomcat, Apache Web server, Oracle Forms, Cyrus IMAP server, SOAP, L<sup>A</sup>T<sub>E</sub>X, CVS, SVN, Protégé 2000, Microsoft Office, Open Office, Inkscape

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## Own Software Projects

- POLAR Prototype of an object-oriented logic-based probabilistic framework for annotation-based document retrieval and discussion search, based on probabilistic Datalog.
- JaySpirit Java API for the HySpirit retrieval framework (which is written in Perl and C).

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## Languages

German **native**  
English **fluent**

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## Publications

### Theses

Ingo Frommholz. *A Probabilistic Framework for Information Modelling and Retrieval Based on User Annotations on Digital Objects*. Phd thesis, University of Duisburg-Essen, 2008. Available at [http://www.is.inf.uni-due.de/bib/docs/Frommholz\\_08.html.en](http://www.is.inf.uni-due.de/bib/docs/Frommholz_08.html.en).

Ingo Frommholz. *Automatische Kategorisierung von Web-Dokumenten*. Diploma thesis, University of Dortmund, January 2001.

### Books and Book Sections

Dawei Song, Massimo Melucci, Ingo Frommholz, Peng Zhang, Lei Wang, and Sachi Arafat, editors. *Proceedings of the Fifth International Quantum Interaction Symposium (QI 2011), Aberdeen, UK*. Springer, LNCS edition, July 2011.

Mounia Lalmas, Joemon Jose, Andreas Rauber, Fabrizio Sebastiani, and Ingo Frommholz, editors. *Research and Advanced Technology for Digital Libraries 14th European Conference, ECDL 2010, Glasgow, UK, September 6-10, 2010. Proceedings*. Springer, LNCS edition, September 2010.

Ingo Frommholz, Keith van Rijsbergen, Fabio Crestani, and Mounia Lalmas. *Towards a Geometrical Cognitive Framework*, In Birger Larsen, Jesper Schneider, Fredrik Aström, and Balázs Schlemmer, editors, *The Janus Faced Scholar. A Festschrift in Honour of Peter Ingwersen*, pages 43–48. July 2010.

Ulrich Thiel, Holger Brocks, Andrea Dirsch-Weigand, André Everts, Ingo Frommholz, and Adelheit Stein. *Queries in Context: Access to Digitized Historic Documents in a Collaboratory for the Humanities*. In Matthias Hemmje, Claudia Niedereé, and Thomas Risse, editors, *From Integrated Publication and Information Systems to Virtual Information and Knowledge Environments. Essays Dedicated to Erich J. Neuhold on the Occasion of His 65th Birthday*, pages 117–127. Springer, 2005.

### Refereed Publications

Ingo Frommholz, Benjamin Piwowarski, Mounia Lalmas, and Keith van Rijsbergen. *Processing Queries in Session in a Quantum-Inspired IR Framework*. In *Proceedings of the 33rd European Conference on IR Research (ECIR 2011)*, pages 751–754. Springer, 2011. **Nominated for best poster award.**

Fabrizio Smeraldi, Miguel Martinez-Alvarez, Ingo Frommholz, and Thomas Roelleke. *Logical Modelling of Quantum- and Geometrically-inspired IR*. In *Proceedings of the 2nd Italian Information Retrieval (IIR) Workshop*, 2011.

David Zellhöfer, Ingo Frommholz, Ingo Schmitt, Mounia Lalmas, and Keith van Rijsbergen. *Towards Quantum-Based DB+IR Processing Based on the Principle of Polyrepresentation*. In *Proceedings of the 33rd European Conference on IR Research (ECIR 2011)*, pages 729–732. Springer, 2011. **Nominated for best poster award.**

Benjamin Piwowarski, Ingo Frommholz, Mounia Lalmas, and Keith Van Rijsbergen. *What can Quantum Theory Bring to Information Retrieval?* In *Proc. 19th International Conference on Information and Knowledge Management (CIKM 2010)*, pages 59–68, October 2010.

- Dawei Song, Mounia Lalmas, Keith van Rijsbergen, Ingo Frommholz, Benjamin Piwowarski, Jun Wang, P Zhang, Guido Zucco, Peter Bruza, Sachi Arafat, Leif Azzopardi, Alvaro Huertas-Rosero, Y Hou, Massimo Melucci, and Stefan R uger. How Quantum Theory is Developing the Field of Information Retrieval. In *Proceedings Quantum Interaction 2010*, October 2010.
- Ingo Frommholz, Birger Larsen, Benjamin Piwowarski, Mounia Lalmas, Peter Ingwersen, and Keith van Rijsbergen. Supporting Polyrepresentation in a Quantum-inspired Geometrical Retrieval Framework. In *Proceedings of the 2010 Information Interaction in Context Symposium*, pages 115–124, New Brunswick, August 2010. ACM. **Shortlisted for best paper award.**
- Benjamin Piwowarski, Ingo Frommholz, Mounia Lalmas, and Keith van Rijsbergen. Exploring a Multidimensional Representation of Documents and Queries. In *Proceedings of the 9th RIAO Conference (RIAO 2010)*, Paris, France, June 2010.
- Benjamin Piwowarski, Ingo Frommholz, Yashar Moshfeghi, Mounia Lalmas, and Keith van Rijsbergen. Filtering documents with subspaces. In *Proceedings of the 32nd European Conference on Information Retrieval (ECIR 2010)*, pages 615–618, January 2010. **Best poster award!**
- Erik Graf, Ingo Frommholz, Mounia Lalmas, and Keith van Rijsbergen. Knowledge Modeling in Prior Art Search. In Hamish Cunningham, Allan Hanbury, and Stefan R uger, editors, *Proceedings of the First Information Retrieval Facility Conference, IRFC 2010*, volume 6107 of *Lecture Notes in Computer Science*, pages 31–46, Berlin, Heidelberg, 2010. Springer Berlin Heidelberg.
- Thomas Beckers, Ingo Frommholz, and Ralf B nning. Multi-facet Classification of E-Mails in a Helpdesk Scenario. In Thomas Mandl and Ingo Frommholz, editors, *Proc. of the GI Information Retrieval Workshop at LWA 2009*, 2009.
- Ingo Frommholz and Keith Van Rijsbergen. Towards a Geometrical Model for Polyrepresentation of Information Objects. In Thomas Mandl and Ingo Frommholz, editors, *Proc. of the GI Information Retrieval Workshop at LWA 2009*, 2009.
- Ingo Frommholz and Marc Lechtenfeld. Determining the Polarity of Postings for Discussion Search. In *Proc. of the “Information Retrieval 2008” Workshop at LWA 2008, W rzburg, Germany*, October 2008.
- Norbert Fuhr, Matthias Jordan, and Ingo Frommholz. Combining Cognitive and System-Oriented Approaches for Designing IR User Interfaces. In *Proceedings of the 2nd International Workshop on Adaptive Information Retrieval (AIR 2008)*, October 2008.
- Ingo Frommholz. Annotation-based Document Retrieval with Probabilistic Logics. In Norbert Fuhr, Laszlo Kovacs, and Carlo Meghini, editors, *Research and Advanced Technology for Digital Libraries. Proc. of the 11th European Conference on Digital Libraries (ECDL 2007)*, Lecture Notes in Computer Science, pages 321–332, Heidelberg et al., September 2007. Springer.
- Ingo Frommholz and Norbert Fuhr. Evaluation of Relevance and Knowledge Augmentation in Discussion Search. In Julio Gonzalo, Costantino Thanos, M Felisa Verdejo, and Rafael C Carrasco, editors, *Research and Advanced Technology for Digital Libraries. Proc. of the 10th European Conference on Digital Libraries (ECDL 2006)*, Lecture Notes in Computer Science, pages 279–290, Heidelberg et al., September 2006. Springer.
- Maristella Agosti, Nicola Ferro, Ingo Frommholz, Emanuele Panizzi, Wolfgang Putz, and Ulrich Thiel. Integration of the DiLAS Annotation Service into Digital Library Infrastructures. In Ann Blandford and Jeremy Gow, editors, *Proc. Digital Libraries in the Context of Users’ Broader Activities Workshop (CUBA) at JCDL 2006*, June 2006.
- Ingo Frommholz and Norbert Fuhr. Probabilistic, Object-oriented Logics for Annotation-based Retrieval in Digital Libraries. In Michael Nelson, Cathy Marshall, and Gary Marchionini, editors, *Proc. of the 6th ACM/IEEE Joint Conference on Digital Libraries (JCDL 2006)*, pages 55–64, New York, 2006. ACM.
- Ingo Frommholz. What did the Others Say? Probabilistic Indexing and Retrieval Models in Annotation-based Discussions. *TCDL Bulletin*, 2(2), 2006.
- Maristella Agosti, Hanne Albrechtsen, Nicola Ferro, Ingo Frommholz, Preben Hansen, Nicola Orio, Emanuele Panizzi, Annelise Mark Pejtersen, and Ulrich Thiel. DiLAS: a Digital Library Annotation Service. In *Proceedings of Annotation for Collaboration – A Workshop on Annotation Models, Tools and Practices*, 2005.
- Ingo Frommholz, Predrag Kne evi , Bhaskar Mehta, Claudia Niedere , Thomas Risse, and Ulrich Thiel. Supporting Information Access in Next Generation Digital Library Architectures.

In Maristella Agosti, Hans-Jörg Schek, and Can Türker, editors, *Digital Library Architectures: Peer-to-Peer, Grid, and Service-Orientation. Proceedings of the Sixth Thematic Workshop of the EU Network of Excellence DELOS*, pages 49–60, Cagliari, Italy, June 2004.

Maristella Agosti, Nicola Ferro, Ingo Frommholz, and Ulrich Thiel. Annotations in Digital Libraries and Collaboratories – Facets, Models and Usage. In Rachel Heery and Liz Lyon, editors, *Research and Advanced Technology for Digital Libraries. Proc. European Conference on Digital Libraries (ECDL 2004)*, Lecture Notes in Computer Science, pages 244–255, Heidelberg et al., 2004. Springer.

Ingo Frommholz, Ulrich Thiel, and Thomas Kamps. Annotation-based Document Retrieval with Four-Valued Probabilistic Datalog. In Thomas Rölleke and Arjen P de Vries, editors, *Proceedings of the first SIGIR Workshop on the Integration of Information Retrieval and Databases (WIRD'04)*, pages 31–38, Sheffield, UK, 2004.

Marcello L'Abbate, Ingo Frommholz, Ulrich Thiel, and Erich Neuhold. Using Case Based Retrieval Techniques for Handling anomalous Situations in Advisory Dialogues. In Fernando Galindo, Makoto Takizawa, and Roland Traummüller, editors, *Proceedings of the 15th International Conference on Database and Expert Systems Application (DEXA 2004)*, pages 539–548, 2004.

Erich Neuhold, Claudia Niedereé, Avaré Stewart, Ingo Frommholz, and Bhaskar Mehta. The Role of Context for Information Mediation in Digital Libraries. In *Proc. of the 7th International Conference on Asian Digital Libraries: International Collaboration and Cross-Fertilization (ICADL 2004)*, pages 133–143, 2004.

Ulrich Thiel, Holger Brocks, Ingo Frommholz, Andrea Dirsch-Weigand, Jürgen Keiper, Adelheit Stein, and Erich Neuhold. COLLATE - A Collaboratory Supporting Research on Historic European Films. *International Journal on Digital Libraries (IJDL)*, 4(1):8–12, 2004.

Ingo Frommholz, Holger Brocks, Ulrich Thiel, Erich Neuhold, Luigi Iannone, Giovanni Semeraro, Magarita Berardi, and Michaela Ceci. Document-centered Collaboration for Scholars in the Humanities - The COLLATE System. In Panos Constantopoulos and Ingeborg T Solvberg, editors, *Research and Advanced Technology for Digital Libraries. Proc. European Conference on Digital Libraries (ECDL 2003)*, Lecture Notes in Computer Science, pages 434–445, Heidelberg et al., 2003. Springer.

Ingo Frommholz, Holger Brocks, Ulrich Thiel, and Adelheit Stein. Kontextbasiertes Retrieval unter Verwendung verknüpfter Annotationen. In *32. GI-Jahrestagung*, Informatik 2002, pages 161–165, Heidelberg et al., October 2002. Springer.

Holger Brocks, Adelheit Stein, Ulrich Thiel, Ingo Frommholz, and Andrea Dirsch-Weigand. How to Incorporate Collaborative Discourse in Cultural Digital Libraries. In *Proceedings of the ECAI 2002 Workshop on Semantic Authoring, Annotation & Knowledge Markup (SAAKM02)*, Lyon, France, July 2002.

Ingo Frommholz. Categorizing Web Documents in Hierarchical Catalogues. In *23th European Conference on Information Retrieval Research (ECIR 2001)*, March 2001.

## Unrefereed Publications and Studies

Ingo Frommholz, Andreas Rauber, and Fabrizio Sebastiani. Guest editors' introduction to the focussed issue on the 14th European Conference on Digital Libraries (ECDL 2010). *International Journal on Digital Libraries*, 2011. In print.

Benjamin Piwowarski, Ingo Frommholz, Mounia Lalmas, and Keith Van Rijsbergen. Exploring a Multidimensional Representation of Documents and Queries (extended version), 2010.

Ingo Frommholz and Ray R Larson. Report on the INEX 2006 Heterogeneous Collection Track. In *SIGIR Forum*, volume 41, June 2007.

Ingo Frommholz and Ray R Larson. The Heterogeneous Collection Track at INEX 2006. LNCS, pages 312–317, Heidelberg et al., 2007. Springer.

Ingo Frommholz and Norbert Fuhr. KI-Methoden zur Email-Archivierung – Technologische Studie zum “Inbox-Szenario”, November 2006. Study examining the application of machine learning and AI methods for archiving emails, on behalf of d.velop AG, Germany. In German.

Ingo Frommholz. Applying the Annotation View on Messages for Discussion Search. In E M Voorhees and Lori P Buckland, editors, *The Fourteenth Text REtrieval Conference (TREC 2005)*, Gaithersburg, MD, USA, 2005. NIST.

Ingo Frommholz and Matthias Hemmje. Ausarbeitung von Lösungsansätzen für die Erstellung eines Thesaurus-basierten Geologischen Informationssystems des Bayerischen Geologischen Landesamts München – Technologische Studie, December 2001. Study examining means for migrating a geological database into a European information system/thesaurus, on behalf of the Bavarian Environment Agency in Munich, Germany. In German.