

Information Systems and Database Technology



Staff

- Professors:

Prof. Dr. rer. pol. Matthias Jarke
Prof. Dr. Thomas Berlage
Prof. Gerhard Lakemeyer, Ph.D.
Prof. Wolfgang Prinz, Ph.D.
Prof. Dr. Thomas Rose

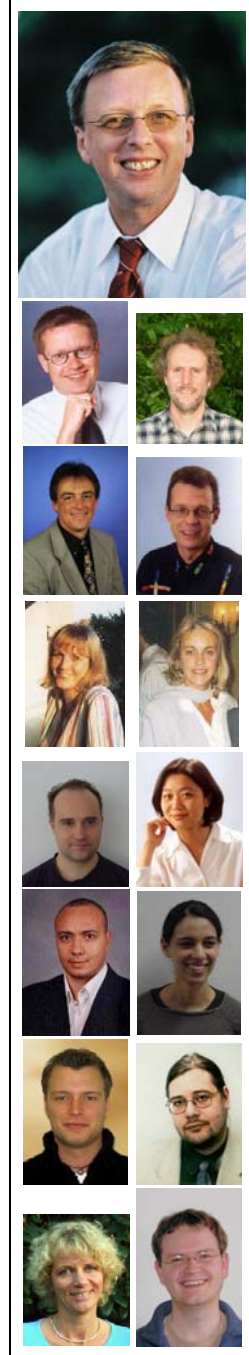
- Secretaries:

Gabriele Hoepfermanns
Irene Wicke (until 31.8.2005)

Tel: (0241) 80-21501, Fax: (0241) 80-22321
E-mail: sekris@i5.informatik.rwth-aachen.de
WWW: <http://www-i5.informatik.rwth-aachen.de>

- Researchers:

Sebastian Brandt
Yiwei Cao (since 15.9.2005)
Mohamed Amine Chatti
Aida Jertila
David Kensche
Dr. Ralf Klamma
Dr. Erika Linz (since 1.7.2005)
Dominik Lübbers
Michael Miatidis
Bernd Quade (until 31.7.2005)
Dr. Christoph Quix
Marcus Raddatz (since 1.3.2005)
Dr. Lemonia Ragia
Dr. Marcus Schlüter (since 1.10.2005)



- Researchers continued:

Dominik Schmitz
 Martin Sedlmayr (until 28.2.2005)
 Christian Seeling
 Marc Spaniol
 Satish Srirama
 Carla Valle (until 31.8.2005)

- Visiting Lecturers:

Dr. Andreas Becks, Fraunhofer FIT
 Dr. Wolfgang Broll, Fraunhofer FIT
 Jessica Huster, Fraunhofer FIT (since 15.5.2005)
 Dr. Yehya Mohamad, Fraunhofer FIT

- Technical Staff:

Tatiana Liberzon
 Reinhard Linde
 Eric Heder (since 1.9.2005)
 Jörg Mathieu

- Student Researchers:

Thomas Arzdorf, Yiwei Cao, Shailesh Chandra,
 Michael Comanns, Dimitar Denev, Andrey Fa-
 lalcev, Tian Gan, Artur Glavic, Anna Glukhova,
 Heike Haegert, Zille Huma, Jessica Huster, Mu-
 hammad Ikram, Iliyana Ivanova, Holger Janßen,
 Irina Kireyev, Evanela Lapi, Yan Leng, Xiang
 Li, Andrea Martini, Ahmed Shiraz Memon,
 Mohammad Shahbaz Memon, Nanda Firdausi
 Muhammad, Emily Nestler, Tim Niemüller, Tomas
 Novotny, Roufaou Oumarou, Achim Passen,
 Monika Pienkos, Johannes Renner, Dominik
 Renzel, Patrick Selders, Leszek Seweryn, Sabrina
 Steinfels, Predrag Stojadinovic, Andreas Walter,
 Sascha Witte, Onusa Yamcharoen, Lanlan Zhang



Overview

Informatik V represents the field of databases and information systems at RWTH Aachen University. A major focus is the formal analysis, prototypical development, and practical application of metadata systems. Specific areas include Internet Information Systems and Knowledge Management, Electronic Business Support, Electronic Learning, Database and Repository Technologies, and Requirements Engineering for Complex Systems.

Informatik V cooperates closely with the Fraunhofer Institute for Applied Information Technology (FIT) of which Prof. Jarke is Executive Director. Two FIT area managers, Professors Wolfgang Prinz and Thomas Berlage, hold cross appointments as Associate Professors in Informatik V. Prof. Jarke is also one of the Founding Directors of the Bonn-Aachen International Center for Information Technology (B-IT); within B-IT, a third joint professorship has been established and filled with Prof. Thomas Rose. Other joint activities with FIT included Semantic Web EU project SEWASIE and the European Network of Excellence in Technology-Assisted Learning (PROLEARN). Dr. Ralf Klamma of Informatik V chaired the highly successful first PROLEARN Summer School with over 45 doctoral students, held in Şile, Turkey.

Two major efforts characterized much of 2005 in Informatik V. Firstly, as president of the German Computer Society GI, Prof. Jarke led the lobbying activities and the preparation effort for the Science Year 2006 which the Federal Government has dedicated, for the first time, to the field of Informatics. Secondly, Informatik V took leading roles in proposals for excellence clusters and graduate schools within the so-called Excellence Initiative of the German government. The BITGRAD Graduate School proposal coordinated by Prof. Jarke as an effort to extend B-IT by a doctoral studies programme, passed the first round of evaluation as the only proposal in computer science throughout Germany.

The staff of Informatik V now comprises about 25 scientists and technicians with a high degree of diversity. Staff members come from six countries in three continents, with about 25% females. In 2005, Yehya Mohamad successfully defended his doctoral thesis and Carla Valle left for a job with the United Nations headquarters in New York, after handing in her thesis. 22 diploma and master theses were also completed at Informatik V. Prof. Prinz received an offer from the University of Vienna, whereas Ralf Klamma spent the spring semester as substitute professor at the University of Passau.

Research Projects

Metadata and Cooperative Knowledge Management

*M. Jarke, C. Quix, M.A. Chatti, D. Kenschke, M. Jeusfeld (Uni Tilburg, NL),
R. Linde, T. Gan, Z. Huma, T. Novotny, X. Li*

ConceptBase is a multi-user deductive object manager mainly intended for conceptual modelling, metadata management and model management. The system implements the knowledge representation language *Telos* which amalgamates properties of deductive and object-oriented languages. After the successful release of ConceptBase 6.1 at the end of 2004, the work concentrated on improving the query evaluator, the active rule system, and the graph editor. In the meantime, almost 400 users have registered for ConceptBase 6.1.

Research in model management focusses on the formal definition of structures and operators for the management of complex data models to support applications dealing with the integration, maintenance, and evolution of data models. The research group defined the generic role-based meta model *GeRoMe* which simplifies the development of model management applications as operators have to be implemented only once for the generic meta model.

Metadata in Community Information Systems

*R. Klamma, Y. Cao, M.A. Chatti, E. Linz, D. Lübbbers, M. Spaniol, D. Denev,
H. Haegert, I. Ivanova, H. Janßen, I. Kireyev, E. Lapi, A. Martini,
N.F. Muhammad, M. Pienkos, D. Renzel, P. Selders, S. Steinfels,
P. Stojadinovic, O. Yamcharoen, L. Ragia, S. Srirama*

Community information systems are a combination of work practices, information, people, digital media theories organized in a way that they support the goals of the community. Metadata in community information systems stabilize the ongoing change management process in these systems. The research goal of the working group is a better understanding of the creation, use, and maintenance of metadata in the context of community systems. Metadata are based on international standards in different domains like Audio-visual Media, E-Learning, Cultural Heritage, Music Information Retrieval, and Geographical Information Systems. Central for our approach is the reflective conceptual architecture ATLAS which incorporates a set of (self-)monitoring tools for the community members and the repository/community middleware. Communities can assess their community needs and evolve the community through the

development and change of the community information systems. The monitoring tools allow the measurement, analysis and simulation of community aspects with methods from the semantic web, information retrieval & visualization, data/text/media mining, geospatial database querying, social network analysis, transcriptive algorithms etc. On the database/repository level we use and develop further scalable state-of-art database technologies for the management of mass data and metadata for community systems. On the middleware level we realize scalable community hosting services like single-login, variable and fine-granular access control, mobility support, multimedia management, multimedia annotation, interoperable search and retrieval, matching, data/text/media mining etc. The following projects have been worked on in the year 2005:

SFB 427: Media and Cultural Communication: Agency in Digital Social Networks by Visualization of Multidimensional Patterns of Disturbance

In 2005 the final four year period of the collaborative research center started with a new project covering community information system and social software analysis by a pattern database. In a multidisciplinary approach we want to identify media constellations which lead to success or failure in media usage. Field of research primarily was intercultural and intergenerational learning. Together with the Chair of Urban History (Prof. M. Jansen) we started a joint initiative to preserve the cultural heritage in Afghanistan by a community driven information system called ACIS. This system is intended to reestablish a community of (old) scientists spread all over the world and to make their knowledge accessible to a new generation of researchers in Afghanistan. In order to understand the impact of media on intercultural learning better, the non-linear multimedia story-telling environment called MIST has been developed. Again, this project was developed in transdisciplinary cooperation together with Prof. Nalin Sharada (Victoria University Melbourne, Australia) and Prof. Jörg Schönert (Forschergruppe Narratologie, University of Hamburg). Recent research results were presented at international conferences such as I-Know, ICITA, ICWL, ICALT. In parallel, we established an MPEG-7/21 community (<http://www.multimedia-metadata.info>) that brings together leading researchers from across Europe and industry partners (e.g. T-Systems and Siemens). Highlight was the hosting of the 3rd MPEG-7/21 community workshop in Aachen in November.

**BMBF/DFG Information System in Earth Management (GeoTech):
from Geodata to Geoservices**

The goal of the project was the development of a geodata infrastructure (GDI) for the preparation of heterogeneous data according to data-driven rules and independent of scales. To demonstrate the use of the GDI, an example application - the development of an ground water protection function - was deployed. The role of our chair in the project was to share our expertise in data mining, databases, web services and information systems architectures. The project was finished successfully in 2005. Three diploma theses have been monitored jointly with the project partners in the context of the project.

Living Coopetition - IBM Shared University Research

Knowledge discovery, knowledge management and mobile access in combination with trusted security play a crucial role in the business processes of the future. Flexible information and knowledge networks with several partners provide the basis for success in the information society. The “Living Coopetition” initiative of Informatik V, FIT, and FIR aims to enable such networks by powerful concepts and information architectures like services-on-demand. In 2005, we have implemented the distributed infrastructure for the project as well as performed first feasibility studies to demonstrate the advantages of our approach based on a software infrastructure centered around WebSphere and DB2. The results were presented at the Workshop “Living Coopetition”, IBM Mainz in May of 2005.

SunSITE Central Europe (<http://sunsite.informatik.rwth-aachen.de>)

Since 1995, Informatik V is active in the field of internet-based community support, both in terms of research on community and web service tools and in terms of providing infrastructures for scientific communities worldwide. For example, Informatik V hosted the first website for the city of Aachen in 1995 and, since the same year, manages one of the most successful public-domain internet servers in the German science net, SunSITE Central Europe. Supported by Sun Microsystems with powerful hardware and base software, SunSITE Central Europe focusses on scientific community support, including mirrors of some of the most important research literature indexes, workspaces for internet cooperation, and about 1 TB of open source software. Typically, the SunSITE enjoys several million accesses per month.

Mobile Web Service Provider

Intelligent phones as web service provider is the topic of a doctoral thesis in cooperation with Ericsson Eurolabs done in the context of the Graduate College “Software for Mobile Communication Systems”.

ERASMUS MUNDUS European Master in Informatics (EuMI)

M. Jarke, G. Lakemeyer, R. Klamma, P. Selders

In winter term 2004/2005 the first row of students were enrolled in this pan-European master programme jointly executed with the universities of Trento and Edinburgh. In three different areas of specialisations, Net-Centric Computing, Embedded Systems, and Lifescience Informatics, students are trained at two of the universities to get a double degree in computer science. The programme is accompanied by a scholar programme to get world class lecturers from different parts of the world. First students will finalize their studies in 2006.

PROLEARN: EU Network of Excellence

R. Klamma, Y. Cao, M.A. Chatti, M. Spaniol, H. Haegert, I. Ivanova, A. Martini, N.F. Muhammad, O. Yamcharoen, D. Senk (IEHK), H.W. Gudenau (IEHK), K. Mavromatis (IEHK), A. Babich (IEHK), and more than 200 other researchers

PROLEARN, started January 1, 2004, is dedicated to joint research in the area of professional learning and training focusing on small and medium enterprises (SME). The NoE advances the state of the art in the key areas personalized adaptive learning and interactive media, with learning resources connected to real-world settings and reusable in different contexts. It investigates and advances issues especially relevant for professional training in SME's and larger companies, including brokerage platforms and services, business models for specific markets, and advanced eLearning and knowledge work management arrangements. As a major event the chair co-organised the PROLEARN summerschool 2005 in Şile, Turkey, from September 5-9. The summerschool brought together PhD students, teachers, academics and industry people for PhD training, entrepreneurial activities, and network events. More than 45 PhD students have successfully attended the summerschool in 2005.

SFB 476 IMPROVE

Information Technology Support for Collaborative and Distributed Design Processes in Chemical Engineering

M. Jarke, M. Miatidis, S. Brandt, M. Schlüter, M. Comanns, M. Ikram, A. Passen, J. Renner

The collaborative research center (CRC) SFB 476 IMPROVE is funded since August 1997 by the Deutsche Forschungsgemeinschaft (DFG), and aims at improving the processes in chemical and plastics engineering.

In the final current phase of the CRC, the research focusses on cooperative work process support and the aspect of synergetic interleaving. Plans are also being made about continuing the basic research while transferring the research results into concrete projects, in cooperation with the chemical and plastics industry. In this context, Informatik V works on two projects.

In the project **“experience-based support for cooperative engineering processes” (B1)**, research concentrates on the direct, experience-based support of developers during creative design processes. The followed approach is based on the key idea of a posteriori process integration of tools that offers the potential for integrated method

guidance and traceability. Currently, further research is being conducted towards cooperative and reuse aspects of design.

In the project “**goal-oriented management of information flows in engineering design processes**” (C1), a process data warehouse is offered as an ontology-oriented infrastructure for semantic access to product and process experience data. The research focusses on supporting interdisciplinary design processes, especially on the problems encountered in the case of inter-organizational cooperation between the domains of chemical and plastics engineering.

MErKoFer

M. Schlüter, M. Jarke, B. Quade, M. Raddatz, M. Sedlmayr

MErKoFer (“Identification and reuse of experience knowledge in rubber extrusion processes”) is a collaborative project of Informatik V and aiXtrusion GmbH in cooperation with Meteor Gummiwerke K.H. Bädje GmbH & Co. KG. The project began in October 2004 and is supported by the Bundesministerium für Bildung und Forschung (BMBF).

In continuous production processes the effects of a modification of process parameters on the product can often only be observed after the entire production cycle has been completed. In case of disturbances this causes the waste of ecological and economical resources, if countermeasures do not directly lead back to a stable production within desired specifications.

After determining the most influential process parameters and applying explorative data mining methods to identify interrelations and temporal dependencies, we correlate product flaws and the according process states. By recording the operator’s actions and evaluating their efficiency, we are able to construct an experience knowledge base. When another problem occurs, we can provide decision support for operators by supplying a number of previously taken actions and an evaluation of their respective efficiency to correct anomalies in a similar context. Based on this additional information the chance to compensate interferences in the production process is significantly increased.

TROPOS – Agent-Oriented Requirements Engineering in Strategic Networks

M. Jarke, G. Lakemeyer, G. Gans, D. Schmitz

Inter-organizational networks of people, information and communication systems are often described by the interplay between individual goals and actions and the strategic dependencies among individuals and subgroups. The TROPOS project started in the context of the DFG Focussed Research Programme on Socionics, jointly conducted with the KBS group of Prof. Lakemeyer and the network sociology group of Dr. Funken, and is expanded in the context of the DFG-funded Graduate School 643 “Software for mobile communication systems”. It aims at improving requirements engineering for such networks by not just representing their goals and dependencies statically, but also by studying the dynamic interactions between both (esp. trust) via agent-based simulation through our SNet prototype environment. Key features of SNet are the automatic translation of extended i* models into the process modeling environment ConGolog (via ConceptBase) and to use sophisticated deliberative representatives within the simulations. This year’s work concerned strengthening of international cooperations and expanding to new application areas. As a result of the 2nd i* Workshop at London in May, a new community platform was established at <http://istar.rwth-aachen.de> by a team of Ph.D. students from Aachen, Barcelona, and Toronto. Furthermore together with researchers from CSIRO Australia, trust relationships within a health care service network were considered as an additional application example.

SEWASIE: Semantic Webs and AgentS in Integrated Economies

M. Jarke, M. Schoop (Uni Hohenheim), D. Kensche, A. Jertila, C. Quix, Y. Cao, A. Becks (Fraunhofer FIT), J. Huster (Fraunhofer FIT), C. Seeling

SEWASIE was a European project with partners from Germany (RWTH Aachen, Informatik V; Fraunhofer Institute for Applied Information Technology (FIT); Thinking Networks AG) and Italy (Universita di Modena; Universita di Roma “La Sapienza”; Universita di Bolzona; CNA Servizi Modena; IBM Italia) funded from 2002-2005 within the Semantic Web initiative. The project designed and implemented an advanced search engine enabling intelligent access to heterogeneous data sources on the web via semantic enrichment to provide the basis of structured secure web-based communication. Informatik V closely cooperates with Fraunhofer-FIT in SEWASIE.

Informatik V has developed a communication tool that supports electronic negotiati-

ons in business-to-business electronic commerce in two ways. Firstly, ontology-based contract negotiations are enabled that allow human negotiators to use the ontological context of semantic search for structured web-based negotiations. Secondly, ontology negotiations enable negotiators to negotiate about ontologies, the normative and terminological basis of their contract negotiations. FIT developed a monitoring agent on top of the query engine to observe information according to long-term interests of users. Graphical methods to explore these personalised information spaces, developed at Informatik V, are included. FIT also provides functionalities to link observed information into decision support environments based on OLAP.

The project was concluded in April 2005 with a very successful final project review in Aachen. The final prototype of the project was also demonstrated at the International Semantic Web Conference (ISWC) in Galway, Ireland.

Zentrum für Softwarekonzepte

*M. Jarke, A. Becks (Fraunhofer-FIT), C. Quix, T. Knieps (Fraunhofer-FIT),
A. Schneider (Fraunhofer-FIT), W. Wirsam (Fraunhofer-FIT)*

The “Zentrum für Softwarekonzepte (ZfS)” is an initiative of Microsoft in cooperation with several academic research institutions in Germany. The goal is to support small- and medium-sized enterprises (SMEs) in Germany by enhancing the knowledge transfer from research institutions to companies. The support is given in form of seminars related to .NET technologies as well as consulting activities for specific problems of a SME. In addition, the ZfS will cooperate with Microsoft Research in researching and developing new and innovative technologies in the area of cooperative information systems, user interfaces, and database technology.

Informatik V works closely together with Fraunhofer-FIT in this project which started in October 2005. The initial work concentrated on defining the contents and timeline for the seminars and marketing activities in early 2006. For example, the ZfS will be presented at the exhibition stand of Microsoft at the CeBIT 2006.

In addition, Informatik V will offer lab courses, lectures and seminars to computer science students that are related to .NET technologies. A first example is a lab course for the development of web services based on .NET.

Other Activities

Service

Prof. Jarke's major administrative and service activities in 2005 included:

- Executive Director, Fraunhofer FIT, Birlinghoven
- Founding Director, Bonn-Aachen International Center for Information Technology (B-IT)
- Coordinator, BITGRAD Graduate School Proposal
- President, GI German Informatics Society (re-elected for 2006-2007)
- Scientific member, steering council Informatikjahr - Science Year 2006
- DFG elected reviewer for practical computer science
- Reviewer for BMBF Programme SE-2006
- member, extended management board of FIR e.V. at RWTH Aachen
- Scientific advisory board, Faculty of Informatics, University of Vienna, Austria
- Scientific advisory board, Learning Lab Lower Saxony (L3S), Hannover
- Scientific advisory board, Beta Research School, Eindhoven/Twente, Netherlands
- Supervisory, curatory and scientific advisory board, IBFI, Schloss Dagstuhl
- Nomination committee, Association for Information Systems, Atlanta, USA
- Jury member, Wissenschaftspreis Stifterverband der Deutschen Wirtschaft

In the context of Informatikjahr 2006 and other GI activities, Prof. Jarke gave about 20 interviews for TV stations (e.g. Heute-Journal), radio stations (e.g. Deutschlandfunk), specialized newspapers (e.g. ComputerZeitung, CHIP, c't), and general newspapers.

Dr. Klamma held a stand-in professorship at the University of Passau (winter term 2004/05). He is a substitute member of the PROLEARN executive board. Dr. Klamma served as advisor of the ERASMUS Mundus master programme European Master in Informatics (EuMI).

Editorial Boards

M. Jarke served on editorial boards:

- Decision Support Systems
- Requirements Engineering Journal
- Organizational Computing and Electronic Commerce
- Intelligent Information Systems
- Group Decision and Negotiation

Conference Organization

M. Jarke was co-organizer of a Dagstuhl Strategy Workshop on "Challenges for Software Engineering in Germany" with M. Broy, M. Nagl, and D. Rombach, held Oct. 11-12, 2005 and co-editor of the resulting Dagstuhl Manifesto on Software Engineering. He also served on the programme committees of the following conferences: Wirtschaftsinformatik 2005, Bamberg (Feb. 2005); 2nd International Workshop on

Information Quality for Information Systems (IQIS-05) at ACM-SIGMOD, Baltimore, USA (June 2005); International Workshop on Context Modeling and Decision Support at CONTEXT 05, Paris (July 2005); 6th International Workshop on Agent-Oriented Software Engineering (AOSE-05) at AAMAS-05, Utrecht (July 2005); 20th International Conference Conceptual Modeling (ER 2005), Klagenfurt, Austria (Oct. 2005); European Conference Information Systems, Göteborg, Sweden (June 2006).

A. Becks was member of the programme committee of the 2nd Indian International Conference on Artificial Intelligence, IICAI-05, Pune, India, December 2005 and the 2nd International Conference on Communities and Technologies, Milano, Italy, June 2005.

R. Klamma was co-chair of the PROLEARN summerschool 2005, Şile, Turkey, September 5-9, 2005. And he was co-organizer of the 3rd MPEG-7/21 Community Workshop on “Test Sets for Multimedia Interoperability & Application Scenarios”, Aachen, November 24-25, 2005. He served as programme committee member / reviewer for the following conferences and journals: FLAIRS 2005, Communities and Technologies Conference 2005, CSCL 2005 Workshop “Fostering Learning Communities: Theoretic Approaches, Empirical Studies and Computer Support”, DELFI 2005, Web Based Communities 2006, CSCW Journal, Electronic Commerce Research Journal, EM - Electronic Markets, i-com, International Journal of Computers and Applications, Pearson Education books.

E. Linz co-chaired the intensive workshop “Politiken der Schrift” hosted by the Kurt-Schumacher-Akademie, Friedrich-Ebert-Stiftung, Bad Münstereifel, Germany, May 30 - June 1, 2005. She was a member of the programme committee of the conference “Unmengen. Szenen verteilter Handlungsmacht” (“Agency”), SFB/FK 427, University of Bonn, Germany, December 15-16, 2005.

M. Spaniol was co-organizer of the 3rd MPEG-7/21 Community Workshop on “Test Sets for Multimedia Interoperability & Application Scenarios”, Aachen, November 24-25, 2005. He was member of the programme committee of the I-Know’05 special track on “Knowledge Discovery and Semantic Technologies (KDaST’05)”, Graz, Austria, June 29, 2005.

Software Demonstrations

- Meta Modelling with ConceptBase, Workshop on Meta-Modelling and Corresponding Tools, Essen, Germany, March 2005.
- ACIS: 1st International Workshop on Geographic Hypermedia, Denver, USA, April 2005.
- SOCRATES end-user workshop, Cologne, July 15-16, 2005.
- MECCA, MEDINA & MIST: MPEG-7/21 community workshop, Aachen, November 25, 2005.
- Value-Added Services enabling Semantic Web Technologies for SMEs, International Semantic Web Conference (ISWC), Galway, Ireland, November 2005.

Talks and Publications

Talks

T. Berlage: *Overview of the Living Coopetition Project*, Workshop “Living Coopetition”, IBM, Mainz, May 25, 2005.

T. Berlage: *Live Cell Monitoring*, Jahrestagung Arbeitskreis “Mikrosysteme in der Biotechnologie”, Sankt Augustin, June 21, 2005.

S.C. Brandt: *Integriertes Dokumentenmanagement für Reengineering-Prozesse*, 2nd Symposium Informationstechnologien für Entwicklung und Produktion in der Verfahrenstechnik, Berlin, Germany, April 7, 2005.

S.C. Brandt, M. Schlüter, and M. Jarke: *A Process Data Warehouse for Engineering Design Processes*, 2nd International Conference on Innovations in Information Technology - IIT'05, Dubai, United Arab Emirates, September 27, 2005.

Y. Cao: *A Hypermedia Afghan Sites and Monuments Database*, 1st International Workshop on Geographic Hypermedia, Denver, CO, USA, April 4-5, 2005.

M.A. Chatti: *LM-DTM: An Environment for XML-Based, LIP/PAPI-Compliant Deployment, Transformation and Matching of Learner Models*, ICALT 2005, Kaohsiung, Taiwan, July 6, 2005.

M. Jarke: *User-Centred Computing - an NRW research focus*, NRW Representation to EU, Brussels, January 19, 2005.

M. Jarke et al.: *Panel Discussion on Germany as an IT Industry Location*, Roundtable Discussion with Bill Gates, Munich, January 31, 2005.

M. Jarke: *Feasibility Study Government out of a Box*, German Embassy at the UN, New York, March 2, 2005.

M. Jarke: *Software Engineering in Germany*, Opening Remarks, Software Engineering 2005, Essen, March 9, 2005.

M. Jarke et al.: *Panel Discussion 'Gesundheitskarte'*, CeBIT 2005, Hannover, March 10, 2005.

M. Jarke: *SEWASIE Value-Added Services*, Final Review, EU Project Semantic Web and Agents in Integrated Economies (SEWASIE), Aachen, March 14, 2005.

M. Jarke: *Menschzentriertes Computing*, Opening Talk, GI - Informatiktage 2005, Schloss Birlinghoven, April 8, 2005.

M. Jarke: *Informatics in Germany and Austria*, 30 Years OCG, Vienna, April 13, 2005.

M. Jarke et al.: *Future of Business Informatics*, Panel Discussion, 30 Jahre IWI Saarbrücken, April 29, 2005.

M. Jarke: *Living Coopetition - a project overview*, Workshop “Living Coopetition”, IBM, Mainz, May 25, 2005.

- M. Jarke: *Opening Remarks*, Workshop 10 Years BSCW, Schloss Birlinghoven, June 6, 2005.
- M. Jarke: *Aktuelle Trends in der Softwareforschung*, Opening Keynote, doIT - Forschungstag, Karlsruhe, June 9, 2005.
- M. Jarke: *Human-Centered Computing*, Inaugural Keynote Talk, Faculty of Informatics, University of Vienna, June 16, 2005.
- M. Jarke: *Strategy Plan Fraunhofer FIT*, Technical Audit, Fraunhofer FIT, Schloss Birlinghoven, June 27, 2005.
- M. Jarke: *Bonn-Aachen International Center for Information Technology (B-IT)*, Unterausschuss Wissenschaft der Stadt Bonn, September 7, 2005.
- M. Jarke: *Opening Remarks*, Informatik 2005, Bonn, September 20, 2005.
- M. Jarke: *Universitäten als Wirtschaftsförderer - Innovationsmotor Informatik*, Invited Talk, 10 Years TZI, Bremen, October 6, 2005.
- M. Jarke: *Final Report Feasibility Study Governance out of a Box*, European Commission, Brussels, October 20, 2005.
- M. Jarke, J. Weizenbaum et al.: *PISA-Panne - machen Computer schlauer?*, CHIP-Panel, Medientage München, October 27, 2005.
- M. Jarke: *Wirtschaftsinformatik - Innovationsmotor für Deutschland*, Invited Talk, 15 Years Wirtschaftsinformatik Münster, October 27, 2005.
- M. Jarke, A. Schavan: *From Einsteinjahr 2005 to Informatikjahr 2006*, Closing Event Einsteinjahr, Berlin, November 23, 2005.
- M. Jarke: *Chancen und Perspektiven der Wirtschaftsinformatik - aus informatischer Sicht*, WI-Habilitandenworkshop, Schloss Rauischholzhausen, Marburg, Nov. 25, 2005.
- M. Jarke: *Informatikjahr 2006*, Press Conference WissensWerte, Bremen, November 29, 2005.
- A. Jertila: *Electronic Contracts for Negotiation Support Systems: Challenges, Design and Implementation*, Seventh IEEE International Conference on E-Commerce Technology (CEC 2005), Munich, July 19-22, 2005.
- D. Kensch: *GeRoMe: A Generic Role Based Metamodel for Model Management*, International Conference on Ontologies, DataBases, and Applications of Semantics (ODBASE), Agia Napa, Cyprus, November 2005.
- R. Klamma: *Cross-Media Knowledge Management*, 1st MPEG-7 Community Workshop, Klagenfurt, Austria, March 10, 2005.
- R. Klamma: *Semantic Web Technologien für das Cross Media Management*, Workshop "Living Coopetition", IBM, Mainz, May 25, 2005.
- R. Klamma: *MPEG-7 Databases in Cultural Heritage Management*, 2nd MPEG-7 Community Workshop, Know Center, Graz, June 30, 2005.

- R. Klamma: *ACIS: Intergenerational Community Learning by a Hypermedia Afghan Sites and Monument Database*, ICALT 2005, Kaohsiung, Taiwan, July 8, 2005.
- R. Klamma: *ACIS: A Hypermedia Afghan Site and Monument Database*, MIST International CODATA Symposium 2005, Berlin, September 20, 2005.
- R. Klamma: *Hightech Entrepreneurship and new Media - Experiences from an ongoing course*, PROLEARN Summerschool 2005, Şile, Turkey, September 9, 2005.
- R. Klamma: *Cross-Media Knowledge Management*, PROLEARN Thematic Workshop Interactive Media, Madrid, Spain, November 16, 2005.
- R. Klamma: *Community Workshop Introduction: Test Sets for Multimedia Interoperability and Application Scenarios*, 3rd MPEG-7 Community Workshop, Aachen, November 24, 2005.
- R. Klamma: *Future Trends in Professional Learning: The PROLEARN Approach*, SELEAC Final Seminar, London, UK, December 2, 2005.
- R. Klamma: *New Learning Paradigms for the Workplace: Semantic Zapping and Digital Storytelling*, Professional Learning Facts 2005, Stuttgart, December 7, 2005.
- E. Linz: *Mediale Agency. Zu den Veränderungen des kommunikativen Nahraums durch Netz- und Mobilfunkkommunikation*, Lecture series "Gender and digital Media", Forum für Geschlechterforschung und Institut für Medienwissenschaften, University Paderborn, Germany, January 26, 2005.
- E. Linz: *Die Spur des Anderen in der Stimme*, Conference "Fremde Stimmen", University Bayreuth, Germany, August 27, 2005.
- E. Linz: *Bildzeichen. Zur Entgegensetzung von Sprachlichkeit und Bildlichkeit*, University Koblenz Landau, Germany, November 9, 2005.
- E. Linz: *Deixis - Indexikalität*, Talk together with Gisela Fehrmann, Workshop, Internationales Forschungszentrum Kulturwissenschaften, Vienna, Austria, Dec. 10, 2005.
- E. Linz: *Sprecher-Hörer: über das 'Inter' der Interaktion*, Conference "Unmengen. Szenen verteilter Handlungsmacht", SFB/FK 427 "Media and Cultural Communication", University of Cologne, Germany, December 15, 2005.
- W. Prinz: *Document Tracking and Collaboration Support using RFID*, Informatik LIVE!, GI-Jahrestagung 2005, Bonn.
- W. Prinz: *Proactive Support for the Organization of Shared Workspaces Using Activity Patterns and Content Analysis*, ACM GROUP'05: 2005 International ACM SIGGROUP Conference on Supporting Group Work, Sanibel Island, Florida, USA.
- W. Prinz: *Using content analysis to support the noise detection and visualization of shared workspaces*, Mensch und Computer 2005, Linz, Austria.
- W. Prinz: *Kooperationssysteme: Trends und Herausforderungen*, an invited talk at University Hamburg.

T. Rose: *APNEE: Air Pollution Network for Early warning and on-line information Exchange in Europe*, Press Conference by Comminier Viviane Reding on Success Stories of the IST Programme, February 21, 2005.

D. Schmitz: *SNet: A Modeling and Simulation Environment for Inter-Organizational Networks*, 2nd i* Workshop, London, UK, April 21, 2005.

D. Schmitz: *Using BPEL Process Descriptions for Building Up Strategic Models of Inter-Organizational Networks*, Graduiertenkolleg 643 “Software für mobile Kommunikationssysteme”, RWTH Aachen, May 4, 2005.

D. Schmitz: *Coupling Agent-Based Simulation and Execution Environments in Applications for Mobile Production Engineering*, Dagstuhl-Workshop von 7 Informatik-Graduiertenkollegs, Dagstuhl, May 24, 2005.

M. Spaniol: *Konzeption und Realisierung medienzentrierter Informationssysteme auf Basis von MPEG-7*, Workshop “MPEG-7 und Multimedia Metadaten: Standardisierung und Anwendungen”, Klagenfurt, Austria, March 10, 2005.

M. Spaniol: *From MECCA (Movie E-learning Combination and Categorization Application) to MASTER (Multimedia Analysis of Soccer/Sports Tactics and E-training Resource): Proposing MPEG-7 annotated sports videos as part of a testbed*, 2nd Workshop “MPEG and Multimedia Metadata Community”, Graz, Austria, June 30, 2005.

M. Spaniol: *MEDINA: A Semi-automatic Dublin Core to MPEG-7 Converter for Collaboration and Knowledge Management in Multimedia Repositories*, Conference I-KNOW '05, Graz, Austria, June 30, 2005.

M. Spaniol: “Do you know a similar project I can learn from?” *Self-monitoring of Communities of Practice in the Cultural Sciences*, Conference ICITA'05, Sydney, Australia, July 5, 2005.

M. Spaniol: *Collaborative Multimedia Information Systems for Cultural Science Communities*, Seminar at School of Computer Science & Mathematics (CSM), Melbourne, Australia, July 15, 2005.

M. Spaniol: *MECCA-learn: A Community Based Collaborative Course Management System for Media-rich Curricula in the Film Studies*, Conference ICWL 2005, Hong Kong SAR, China, August 1, 2005.

M. Spaniol: *Media-centric Information Systems for Communities of Practice in the Cultural Sciences*, PhD students forum at the PROLEARN Summer School 2005, Şile, Turkey, September 7, 2005.

M. Spaniol: *Enhancing MECCA (Movie E-learning Combination and Categorization Application) for Movement Inspired Story-Telling (MIST): Conceptualization and Realization of an MPEG-7 based Story-Telling Environment*, Workshop “Test Sets for Multimedia Interoperability & Application Scenarios”, Aachen, November 25, 2005.

S. Srirama: *Mobile Web Service Provisioning*, Graduiertenkolleg “Software für mobile Kommunikationssysteme”, February 9, 2005.

Publications

Books and Edited Volumes

G. Fehrmann, E. Linz, C. Epping-Jäger (eds.): *Spuren Lektüren. Praktiken des Symbolischen*, Festschrift für Ludwig Jäger zum 60. Geburtstag, München: Fink, 2005.

F. Fuchs-Kittowski, W. Prinz, (eds.): *Interaktionsorientiertes Wissensmanagement*, Peter Lang Verlag, Frankfurt/Main. 245 pages, 2005.

Y. Mohamad: *Integration von emotionaler Intelligenz in Interface-Agenten am Beispiel einer Trainingssoftware für lernbehinderte Kinder*, Fraunhofer Series in Information and Communication Technology, Dissertation at RWTH Aachen, 2005.

Journal Articles

T. Berlage: *Analyzing and mining image databases*, Drug Discovery Today, 10(11), 2005, pp. 795-802.

G. Gans, M. Jarke, G. Lakemeyer, D. Schmitz: *Deliberation in a metadata-based modeling and simulation environment for inter-organizational networks*, Information Systems 30(7), 2005, pp. 587-607.

M. Koch, W. Prinz: *Communities und Community Support Systeme*, i-com: Zeitschrift für interaktive und kooperative Medien, Vol. 4, No. 2, 2005, pp. 4-7.

R. Klamma, M. Spaniol, M. Jarke: *MECCA: Hypermedia Capturing of Collaborative Scientific Discourses about Movies informing science*, the International Journal of an Emerging Discipline, Volume 8, 2005, N. Sharda (ed.): Special Series on Issues in Informing Clients using Multimedia Communications, pp. 3-38.

C. Quix, D. Kensche, M.A. Chatti: *Rollenbasierte Metamodellierung zur Datenintegration*, Datenbank Spektrum 15 (2005), dpunkt.verlag, pp. 5-11.

Conference and Book Contributions

W. Abramowicz, A. Bassara, A. Filipowska, G. Peinel, T. Rose, T. Wisniewski, P. Zebrowski: *Technical Implications and Business Recommendations for Building Open and Interoperable Platforms for m-Services Provisioning*, Proceedings of the First European Conference on Mobile Government, 2005, Brighton, Großbritannien.

O. Armbrust, T. Berlage, T. Hanne, P. Lang, J. Mnch, H. Neu, S. Nickel, I. Rus, A. Sarishvili, S. Van Stockum, A. Wirsen: *Simulation-Based Software Process Modeling and Evaluation*, Chang, S.K. (ed.): Handbook of Software Engineering and Knowledge Engineering, Vol. 3 Recent Advances, World Scientific Publishing, 2005, pp. 333-364.

A. Becks, J. Huster, M. Jarke, A. Jertila, D. Kensche, C. Quix, C. Seeling: *Value-Added Services enabling Semantic Web Technologies for SMEs*, International Semantic Web Conference (ISWC), Poster & Demonstration Proceedings, 2005, Galway, Ireland.

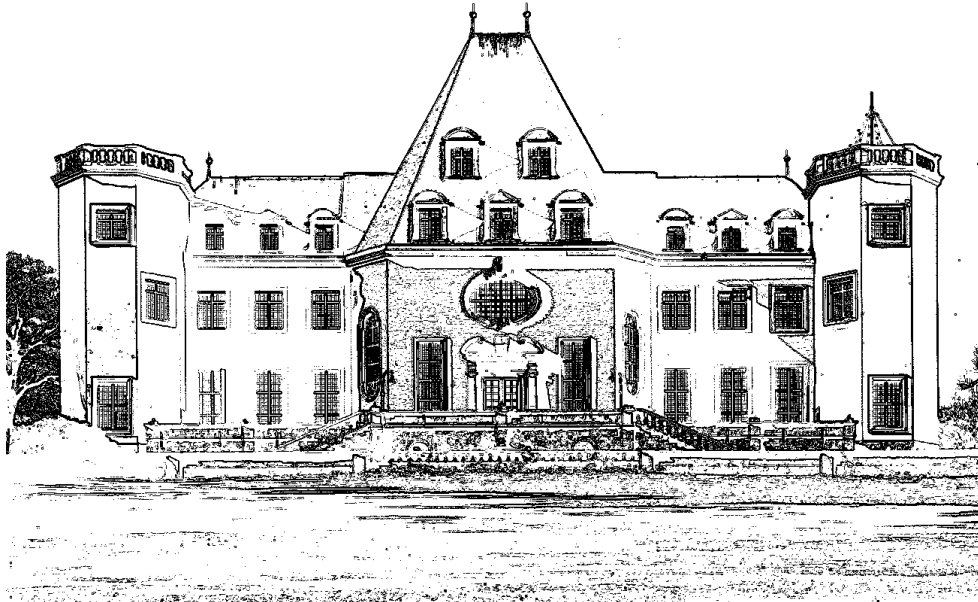
- S.C. Brandt, M. Schlüter, and M. Jarke: *A Process Data Warehouse for Tracing and Reuse of Engineering Design Processes*, 2nd International Conference on Innovations in Information Technology – IIT'05, Dubai, UAE, September 2005.
- M.A. Chatti, R. Klamma, C. Quix, D. Kensche: *LM-DTM: An Environment for XML-Based, LIP/PAPI-Compliant Deployment, Transformation and Matching of Learner Models*, P. Goodyear, D.G. Sampson, D.J.-T. Yang, Kinshuk, T. Okamoto, R. Hartley, and N.-S. Chen (eds.): *Proceedings of the 5th International Conference on Advanced Learning Technologies (ICALT 2005)*, July 5-8, 2005, Kaohsiung, Taiwan, pp. 567-569.
- G. Gans, D. Schmitz, T. Arzdorf, M. Jarke, G. Lakemeyer: *SNet releaded - roles, monitoring, and agent evolution*, Bresciani, Giorgini, Henderson-Sellers (eds.): *Agent-Oriented Information Systems II: 6th International Bi-Conference Workshop*, Riga, Latvia and New York, 2004, Springer LNAI 3508, 2005, pp. 68-84.
- W. Gräther, K. Klöckner, S. Kolvenbach, W. Prinz, D. Tan: *Unterstützung von Web-Communities: die Community-Toolbar*, Interaktionsorientiertes Wissensmanagement, F. Fuchs-Kittowski and W. Prinz (eds.), Peter Lang, Frankfurt/Main, 2005, pp. 39-54.
- M. Jarke: *Mensch-Maschine-Interaktion: Fortschritte und Perspektiven*, Fraunhofer-Jahresbericht 2004, pp. 44-51.
- M. Jarke, R. Klamma: *Transkriptivität als informatisches Designprinzip. Mediale Spuren in rechnergestützten Entwicklungsprozessen*, G. Fehrmann, E. Linz, C. Epping-Jäger (eds.): *Spuren Lektüren. Praktiken des Symbolischen*, Festschrift für Ludwig Jäger zum 60. Geburtstag, München: Fink, 2005, pp. 105-120.
- A. Jertila, M. Schoop: *Electronic Contracts for Negotiation Support Systems: Challenges, Design and Implementation*, Müller, G., Lin, K.-J. (eds.): *Proceedings of the Seventh IEEE International Conference on E-Commerce Technology (CEC 2005)*, München.
- A. Jertila, M. Schoop: *LAP and Semantic Web: A Language Action Perspective on Electronic Contracts*, *Proceedings of the 10th International Working Conference on the Language Action Perspective on Communication Modeling (LAP 2005)*, pp. 157-171.
- M. Jeusfeld, M. Jarke, H. Nissen, M. Staudt: *ConceptBase - Managing Conceptual Models about Information Systems*, Bernus, Mertins, Schmidt (eds.): *Handbook of Architectures of Information Systems*, Springer, 2nd edn. 2005, pp. 273-294.
- D. Kensche, C. Quix, M. A. Chatti, M. Jarke: *GeRoMe: A Generic Role Based Metamodel for Model Management*, *Proceedings of 4th International Conference on Ontologies, DataBases, and Applications of Semantics (ODBASE)*, Agia Napa, Cyprus, 2005.
- S. Kethers, G. Gans, D. Schmitz, and D. Sier: *Modelling Trust Relationships in a Healthcare Network: Experiences with the TCD Framework*, *Proceedings of the 13th European Conference on Information Systems (ECIS)*, Regensburg, Germany, 2005.

- R. Klamma, M. Spaniol, M. Jarke: “Do you know a similar project I can learn from?” *Self-monitoring of Communities of Practice in the Cultural Sciences*, He, X., Hintz, T., Piccardi, M., Wu, Q., Huang, M., and Tien, D. (eds.): Proceedings of the 3rd International Conference on Information Technology and Applications ICITA’05, Sydney, Australia, July 4-7, 2005, Volume II, pp. 608-613.
- R. Klamma, M. Spaniol, M. Jarke, Y. Cao, M. Jansen, G. Toubekis: *ACIS: Intergenerational Community Learning Supported by a Hypermedia Sites and Monuments Database*, P. Goodyear, D.G. Sampson, D.J.-T. Yang, Kinshuk, T. Okamoto, R. Hartley, and N.-S. Chen (eds.): Proceedings of the 5th International Conference on Advanced Learning Technologies (ICALT 2005), July 5-8, Kaohsiung, Taiwan, pp. 108-112.
- R. Klamma, M. Spaniol, M. Jarke, Y. Cao, M. Jansen, G. Toubekis: *A Hypermedia Afghan Sites and Monuments Database*, Proceedings of the 1st International Workshop on Geographic Hypermedia “Geographic Hypermedia: Concepts & Systems”, Denver, USA, April 4-5, 2005, pp. 59-73.
- E. Linz, G. Fehrmann: *Die Spur der Spur. Zur Transkriptivität von Wahrnehmung und Gedächtnis*, G. Fehrmann, E. Linz, C. Epping-Jäger (eds.): Spuren Lektüren. Praktiken des Symbolischen, Festschrift für Ludwig Jäger zum 60. Geburtstag, München: Fink, 2005, pp. 89-103.
- D. Lübbers: *soniXplorer: Combining Visualization and Auralization for Content-Based Exploration of Music Collections*, J. Reiss, G. Wiggins (eds.): Proceedings of the 6th International Conference on Music Information Retrieval (ISMIR 2005), September 11-15, 2005, London, England.
- M. Miatidis, M. Jarke: *Integrating Workflow Extensions into a Process-Integrated Environment for Chemical Engineering*, Proceedings of the 7th International Conference on Enterprise Information Systems, Miami, USA, 2005.
- M. Miatidis, M. Jarke: *Toward Improvement-Oriented Reuse of Experience in Engineering Design Processes*, Proceedings of the 9th International Conference on Knowledge -Based Intelligent Information & Engineering Systems, Melbourne, Australia, 2005.
- M. Miatidis, M. Jarke: *Towards an Integrated Modelling Framework for Engineering Design Processes*, Proceedings of the SIGMoBIS-EMISA Workshop on Enterprise Modelling and Information Systems Architectures, Klagenfurt, Austria, 2005.
- M. Pallot, W. Prinz and H. Schaffers: *Future Workplaces, towards the “Collaborative Web”*, Proceedings of 1st AMI@Work Communities Forum Day 2005, M. Pallot and K.S. Pawar (eds.), Munich, Germany, 2005, pp. 3-16.
- W. Prinz, B. Zaman: *Proactive Support for the Organization of Shared Workspaces Using Activity Patterns and Content Analysis*, Proceedings of GROUP’05: 2005 International ACM SIGGROUP Conference on Supporting Group Work, K. Schmidt, M. Pendergast, et al. (eds.), Sanibel Island, Florida, USA, ACM Press, 2005, pp. 246-255.

- W. Prinz, B. Zaman: *Using content analysis to support the noise detection and visualization of shared workspaces*, Proceedings of Mensch und Computer 2005, C. Stary (eds.), Linz, Oldenbourg, 2005, pp. 171-180.
- W. Prinz, Z. Javeed: *Document Tracking and Collaboration Support using RFID*, Proceedings of Informatik 2005 - Informatik LIVE!, A.B. Cremers, R. Manthey, et al. (eds.), Bonn, Springer LNI, Vol. 1, 2005, pp. 292-296.
- L. Ragia: *Seven Important Issues to a Successful Geo Model*, IEEE Conference IPSI 2005 Special focus: Quality of life, Bled, Slovenia, December 8-11, 2005.
- M. Rohde, R. Klamma, V. Wulf: *Establishing Communities of Practice among Students and Start-up Companies*, T. Koschmann, D. Suthers & T. W. Chun (eds.): Computer Supported Collaborative Learning 2005: The Next 10 Years!, Lawrence Erlbaum Associates, Mahwah, NJ, 2005, pp. 514-519.
- T. Rose: *Wissensmanagement - Nutzung und Management von Kernkompetenzen*, Schäppi, M.M. Andreasen, M. Kirchgeorg, F.-J. Radermacher (eds.): Handbuch Produktentwicklung, 2005, Hanser, pp. 103-119.
- C. Seeling, A. Becks: *Semantische Interaktionspfade: Ein MultiView System für betriebswirtschaftliche Entscheidungsprobleme*, 35. Jahrestagung der Gesellschaft für Informatik (Informatik 2005), Workshop Integration heterogener interaktiver Systeme, September 19-22, 2005, Bonn.
- M. Spaniol, R. Klamma: *MEDINA: A Semi-Automatic Dublin Core to MPEG-7 Converter for Collaboration and Knowledge Management in Multimedia Repositories*, K. Tochtermann, H. Maurer (eds.): Proceedings of I-KNOW '05, 5th International Conference on Knowledge Management, Graz, Austria, June 29 - July 1, 2005, J.UCS (Journal of Universal Computer Science) Proceedings, Springer, pp. 136-144.
- M. Spaniol, R. Klamma, T. Waitz: *MECCA-learn: A Community Based Collaborative Course Management System for Media-rich Curricula in the Film Studies*, Lau, R. W. H., Li, Q., Cheung, R. and Liu, W. (eds.): Advances in Web-Based Learning, Proceedings of ICWL 2005, Hong Kong SAR, China, July 31 - August 3, 2005, Springer-Verlag, Berlin Heidelberg, LNCS 3583, pp. 131-143.
- L. Springer, T. Hupp, R. Klamma, M. Spaniol: *Unterstützte Chat-Kommunikation für Menschen mit zentralorganischen Sprach- und Sprechstörungen (Aphasien und Dysarthrien)*, J. Boenisch and K. Otto (eds.): Leben im Dialog - Unterstützte Kommunikation über die gesamte Lebensspanne. Proceedings of ISAAC 2005, Loeper Literaturverlag, pp. 356-366.
- W. Wirsam, W. Prinz: *Supporting Distribution Networks of Industrial Small and Medium Sized Enterprises*, Proceedings of 11th International Conference on Concurrent Enterprising, K.S. Pawar, F. Weber, et al. (eds.), Munich, 2005, pp. 271-278.

Fraunhofer FIT

*Matthias Jarke, Andreas Becks, Thomas Berlage,
Wolfgang Prinz, Thomas Rose, Jessica Huster*



The mission of the Fraunhofer FIT Institute for Applied Information Technology in Birlinghoven Castle and Aachen is to support human-centered computing in the context of organizational processes. Researchers in FIT study lifecycle-wide methods for the design and evolution of adaptive, user-oriented information and cooperation systems in the interplay of human work practice with organizational processes.

In June 2005, a five-year technical and business audit for FIT was held with a very positive evaluation of the institute's development since the merger of GMD into Fraunhofer in 2001, and excellent prospects for the future. Third-party funding of FIT grew by 7% to 4.6 million EUR in 2005, fostered by major cooperation projects with leading companies such as SAP, Telekom, and Microsoft, as well as with several small and medium enterprises.

With a research staff of about 80, plus about 60 student researchers, FIT pursues its mission in three major research areas which are complemented by special business fields and competence centers (see www.fit.fraunhofer.de for details):

- **FIT.CSCW** (leader: Prof. Dr. Wolfgang Prinz) investigates the field of Cooperation Systems. In 2005 two EU projects were successfully finished. The DRM project developed project management tools for the Microsoft SharePoint colla-

boration platform. The MOSAIC project investigated a roadmap for future collaboration environments and published the results in a book. COMIST a strategic support action of the EU developed a community portal for the AMI@Work communities of the EU. Within the recently started pervasive games project iPerG, a first version of the Epidemic Menace game was successfully demonstrated and played by two teams at the Fraunhofer Campus in Sankt Augustin.

The CONNECT project demonstrated the augmentation of museum exhibits successfully at several European science museums. A new version of BSCW, the web-based groupware platform of FIT.CSCW has been released and the 10th anniversary of BSCW has been celebrated at a users group meeting. For a large Swiss organisation a tool for the migration of the LinkWorks groupware system to MS-SharePoint has been developed. In a study for the United Nations the feasibility of a Government out of the Box solution for the rapid installation of eGovernment solutions in failed states has been analysed; one of the field studies was linked to the research on cultural heritage recovery in Afghanistan done at Informatik V.

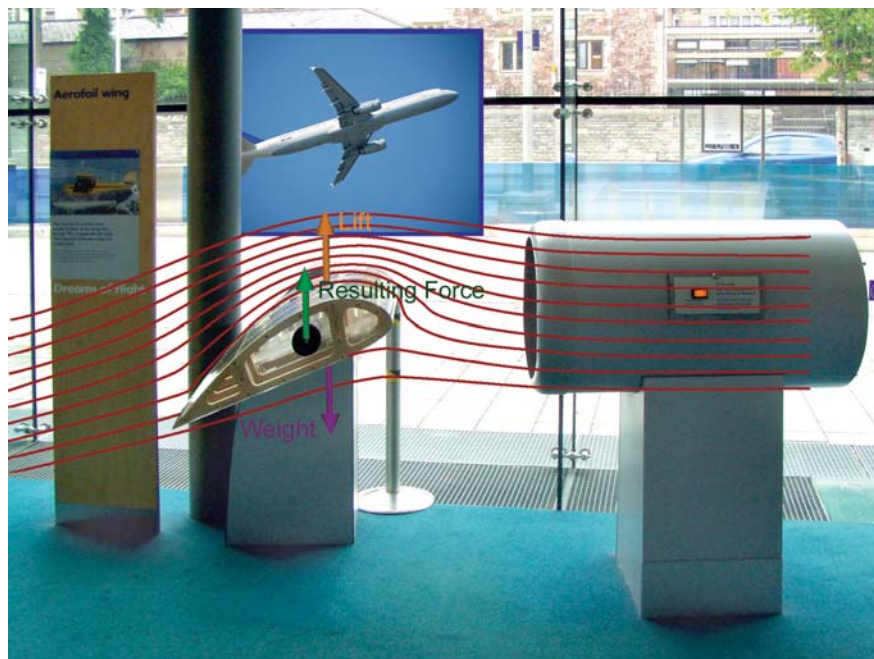
- **FIT.LIFE** (leader: Prof. Dr. Thomas Berlage) investigates the field of Life Science Informatics, addressing navigational support for micro-surgery, systems environments for large-scale bioinformatics research, and assistive devices for users with special needs. The group investigates navigational software support in a newly established FUSION project on minimally-invasive liver therapy (<http://www.somit-fusion.de>). The group also developed a first prototype of a user-trainable analysis software for cell-based high throughput experiments that is being evaluated by multiple industrial users. Jointly with RWTH's Informatik V and FIR institutes, an IBM Shared University Grant awarded in late 2004 provides the technical infrastructure. The FIT.BIKA competence center on barrier-free internet access (leader: Dr. Carlos Velasco) achieved a world-wide distribution agreement of their web content checking technology and continued to broaden the approach through their involvement in multiple European projects and activities.
- **FIT.ICON** (leader: Prof. Dr. Reinhard Oppermann) develops context-adaptive and mobile systems for eLearning and mobile work. Jointly with Informatik V, they are main partners in the ProLearn European Network of Excellence in Professional Technology-Enhanced Learning; other large eLearning projects include the AILB project which develops novel tools to enhance the basic professional competencies for hearing-impaired young workers; the latter is a joint project with the DESIRE research team at RWTH Aachen University led by Prof. Dr. Ludwig Jäger. Contextualization in mobile work settings is also the main topic of the MICA project that was recently started to make the SAP software environment more flexibly usable, and of a project with the new Telekom Labs in Berlin that addresses end-user development of advanced phone functionalities.

The FIT working group in Aachen is led by Dr. Andreas Becks and addresses information management aspects in business and engineering processes. Two major projects have been completed with remarkable success in 2005. The SEWASIE EU project has built a semantic web infrastructure for electronic business in cooperation with Informatik V, an Aachen-based software house, and a number of partners in Italy. In a final project review in Aachen, not only the project as a whole but in particular FIT and Informatik V received very high scores for their scientific and practical results.

Another effort, in cooperation with the Japanese Ricoh Corporation, has been concluded successfully with a project presentation in Tokyo. In close cooperation with the chemical engineering projects at Informatik V this project has addressed the media change between paper-based and electronic information media in business processes. This work has been embedded in the Business Process and Decision Support business field at Fraunhofer FIT which is coordinated by Prof. Dr. Thomas Rose.

As a new major activity, FIT and Informatik V have started the pre-launch phase of the “Zentrum für Softwarekonzepte - ZfS”, an initiative of Microsoft Germany in cooperation with several academic research institutions in Germany. In ZfS, researchers from FIT and Informatik V will work together in transferring research and development knowledge related to .NET technologies to small and medium enterprises.

Through these research activities, and through the teaching cooperation in the context of the Bonn-Aachen International Center for Information Technology (B-IT) and the BITGRAD Graduate School Proposal within the German Excellence Initiative, Fraunhofer FIT has further deepened its ties to RWTH Aachen University in 2005.



EU project CONNECT allows highschool teachers to configure their own dynamic augmentation of museum exhibits.



A lab course team of the master programme Media Informatics at B-IT

The Bonn-Aachen International Center for Information Technology (B-IT) is a pioneering activity of the German Federal government and the state of North-Rhine Westphalia in their effort to establish excellence clusters across universities and research institutes in Germany. B-IT is a joint institute of RWTH Aachen University and Bonn University in cooperation with the Fraunhofer Institute Center Birlinghoven Castle and the FH Bonn-Rhein-Sieg in Sankt Augustin. B-IT aims at the internationalization and acceleration of study programmes in Applied Informatics.

Supported by the B-IT Foundation and supplementary NRW state and federal funds, B-IT offers highly selective English-language master programmes in Media Informatics, Life Science Informatics, and Autonomous Systems. Moreover, B-IT offers summer

and winter schools for qualified undergraduate students from Bonn and RWTH Aachen University. The B-IT programmes are distinguished by a deep integration of teaching and research through close cooperation with the participating Fraunhofer institutes of Applied Information Technology (FIT), Autonomous Intelligent Systems (AIS), Media Communication (IMK), and Scientific Computing and Algorithms (SCAI).

From RWTH Aachen University, Prof. Dr. Matthias Jarke serves as Founding Director (together with Prof. Dr. A.B. Cremers, Bonn, and Prof. Dr. K. Witt, FH Bonn-Rhein-Sieg), whereas Prof. Dr. Otto Spaniol is Study Coordinator of the Media Informatics programme and Dr. Jürgen Rapp serves as study advisor. Main highlights of the year 2005 include:

- The accreditation process for the B-IT University Master Programmes was successfully completed officially in March 2005.
- The cooperation programmes signed in 2004 concerning pre-selection of top students from the Chinese provinces of Jiangsu and Sichuan were successfully brought into practical operation, as was the Erasmus-Mundus programme awarded to the Media Informatics programme together with the Computer Science departments of the Universities of Trento (Italy) and Edinburgh (UK), as one of only two successful applications in the computer science field. This 2.5 million EUR programme, called the European Master of Informatics (EuMI), will enable us for the next five years to support top extra-European students with quite generous stipends.
- While eight of the nine endowed B-IT professorships are now filled, the number of students has reached full capacity in Media Informatics and is approaching it in the other programmes. Students stem from 34 countries throughout the world, including an increasing number of German bachelor graduates.

A major effort was dedicated to the preparation of a BITGRAD proposal within the Graduate School section of the German Excellence Initiative, aimed at augmenting B-IT with a doctoral programme. As countrywide the only computer science graduate school proposal, BITGRAD passed the first round of reviews and was asked to prepare a full proposal which will be decided in the fall of 2006.