

Enrico Franconi

Curriculum Vitæ

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I am **full professor** with tenure at the Free University of Bozen-Bolzano, Italy. My duties include teaching, supervising activities, projects and theses of BSc, MSc and PhD students, doing scientific research, coordinating research projects, supporting the administration of the faculty, being the director of a research group, being the president of an international master of science degree programme, and other academic duties.

Statement of intent

The research area I am working on is related to the application of database, artificial intelligence, and semantic technologies to concrete problems in information systems design and maintenance, in data intensive applications, in intelligent interfaces, in data integration, data preparation, intelligent access, analysis and restructuring of big data for Business Intelligence and Machine Learning. This subject area is quite vast, and involves both theoretical and applicative skills: the appropriate balance between these two aspects can provide a unique added value to the research area. My goal is to let practitioners to apply foundational results, and push theoreticians to understand the complex nature of the real issues. This can be achieved together with a research group which has a critical mass to include a variety of perspectives in the entire range from theory to practice. The interdisciplinary aspects of this research area are also crucial: together with the theory vs practice aspect, these are system aspects, methodological aspects, interaction and communication aspects, usability aspects, complexity aspects, correctness aspects, efficiency aspects, deployability aspects. I have also applied artificial intelligence techniques in different disciplines: for example, in the telecom area, in the space domain, in natural language applications.

The research projects coordinated by me gathered around 1,800,000 Euro of external non-university fundings. I have been pro-rector for research at the Free University of Bozen-Bolzano, and I have been the founder in 2002, and I am currently the director, of the KRDB Research Centre for Knowledge and Data, which counts 19 faculty members (full, associate, and assistant professors) and more than 20 research fellows and PhD students. I have substantially contributed to the development of the young faculty of Computer Science of the Free University of Bozen-Bolzano since 2002, when the faculty was founded and I was the second hired professor, until now, when the faculty is ranked (by the Times Higher Education ranking) fourth best Computer Science faculty overall in Italy, 21st best Computer Science faculty in the world, and best for citations and for international outlook in Italy.

In the CV, in the section “Research”, I describe in details the different aspects of my research in the area of computational data science and artificial intelligence, showing a record of excellence in research with international impact.

Because of the intrinsic goals of my research activity, an interaction with the concrete enterprise and societal worlds is needed as well. Collaborations with developers, industries, and SME/users have an important role in my activity. In the CV, in the section “Applied research and third mission”, I describe how I have built industry engagement, showing how I contribute to the leadership, service and engagement missions of the university.

Teaching is also central in my interests. I’ve taught bachelor, master, and PhD courses: I believe that a rigorous and expert presentation of topics and methodologies is needed by students, together with hands-on practice strictly interconnected with both the theory and the actual real world needs. I have founded and managed two successful international masters programmes; since 2004 I am the course director of the European Masters Program in Computational Logic, a two-years international joint Master of Science degree in cooperation with the Technische Universität Dresden, Germany, the Universidade Nova de Lisboa, Portugal, and the Technische Universität Wien, Austria; the programme has graduated more than 150 students. In the CV, in the section “Teaching”, I describe in details my teaching experience, showing a commitment to delivering high quality and innovative teaching at undergraduate and graduate levels.

Educational and pro- fessional experience

From/to	Job title	Institution	Responsibilities
1987	Master of Science, degree in Physics	University of Rome "La Sapienza"	Thesis on knowledge representation for experiment data, 110/110 cum laude
1988-1997	Ricercatore R1 with tenure	Istituto per la Ricerca Scientifica e Tecnologica ITC-IRST (now called FBK), Trento, Italy	Member of the research groups headed by dr. O. Stock and by Prof. F. Giunchiglia. Research activity in Knowledge Representation, Formal Ontology, Computational Logic, Natural Language Semantics, Conceptual Modelling, and Information Systems.
1991-92	Guest scientist	Deutsches Forschungszentrum für Künstliche Intelligenz (DFKI) in Saarbrücken, Germany	Research for three months within the WIP project, headed by Prof. Wolfgang Wahlster, under the supervision of Prof. Bernhard Nebel.
1998	Guest professor	Dresden University of Technology, Germany	Two months teaching the Description Logics winter semester course of the "Computational Logic International Masters Programme".

1998-2002	Senior lecturer with tenure	Department of Computer Science, University of Manchester, UK	Member of the Information Management Group, teaching BSc and MSc courses, supervising BSc, MSc, PhD theses, deputy director of the PhD board, PI in a government funded research project.
2002-2016	Associate professor with tenure	Faculty of Computer Science, Free University of Bozen-Bolzano, Italy	
2005-2006	Pro-rector for research	Free University of Bozen-Bolzano, Italy	“Delegato alla ricerca” under the rector prof. Rita Franceschini.
2006-2007	Visiting professor	Univ. Nacional del Sur (Argentina); Univ. of Otago (New Zealand); National ICT Australia (NICTA) in Sydney (Australia)	On sabbatical, visiting professor and visiting researcher
2008	Visiting researcher	National ICT Australia (NICTA) in Sydney (Australia)	Visiting researcher for three months
2013	Visiting fellow	Macquarie University in Sydney (Australia)	Visiting fellow for one month
2016-	Full professor with tenure	Faculty of Computer Science, Free University of Bozen-Bolzano, Italy	
2017	Visiting fellow	University of Waterloo (Canada)	Visiting fellow for two months

Academic Activities

- The Free University of Bozen-Bolzano has been founded in 1997. I have been the second professor hired in the faculty after its establishment in 2001. In the first years of life of the faculty I've been very active in forming the nature, the spirit, and the structure of the faculty. In the period when the BSc and MSc degree councils were not yet activated, I was acting as the responsible of the first MSc programme. I also cooperated a lot with the central university administration to set up from scratch the regulations for the post-docs and the research assistants, for the management of external and internal research projects, for the travels.
- In 2005-2006 I have been **pro-rector for research** at the Free University of Bozen-Bolzano, (“Delegato alla ricerca”) under the rector prof. Rita Franceschini. My main tasks have been related to the setting up of regulations for the management of external and internal research projects, and to initiate an evaluation procedure for the research activities of academics and of departments.
- I founded in 2002 and I am currently director of the *KRDB Research Centre for Knowledge and Data*. The centre includes 19 faculty members (full, associate, and assistant professors), 11 research fellows, 11 PhD students, and some young research assistants. The Scientific Advisory Board of the KRDB Research Centre is composed by: Ron Brachman (Director of the Joan & Irwin Jacobs Technion-Cornell Institute), Thomas Eiter (Professor, Technische Universität Wien, Head of the Institute of Information Systems), Alon Halevy (Executive director of the Recruit Institute of Technology (R.I.T)), Rick Hull (Research Manager, IBM Research), and John Mylopoulos (Professor, Università di Trento and University of Toronto). The centre managed 10 major European research projects so far, gathering only from those projects more than 3,000,000 Euro of external non-university fundings. The vital and dynamic research activities of the centre are playing a crucial role in the scientific success of the faculty - see the bibliometric data below. The KRDB web site describes the activities of the centre: <http://krdb.eu>
- Among the more recent duties, I am representative of the faculty at the national association of university computer scientists, and for the educational activities for the academic personnel organised by the university.
- I have been expert evaluator for research project proposals submitted to the British Engineering and Physical Sciences Research Council (EPSRC),

to The Netherlands Organisation for Scientific Research (NWO) division Physical Sciences, to the Austrian public funding scheme FIT-IT at the Austrian Research Promotion Agency FFG, to the Natural Sciences and Engineering Research Council of Canada (NSERC), to the Academy of Finland, to the European Research Council (ERC), and to Italian university research fundings.

Research Bibliometric Data and Rankings

- H-index: 35; citations: 4759 (source: Google Scholar <http://scholar.google.com/citations?user=QI5asAEAAAAJ>)
- Research quality evaluation (VQR) by the Italian governmental Agency for the Evaluation of Universities and Research (ANVUR):
 - (2011-2014) I got the mark “high” for all publications.
 - (2004-2010) I got the mark “3 out of 3” for all publications.
- I have the 7th highest h-index among all the academics at the Free University of Bozen-Bolzano (source: Google Scholar https://scholar.google.com/citations?view_op=view_org&org=17829143710397673419).
- I am ranked as having the 31st h-index among all computer scientists in Italy (source: Top Italian Scientists Ranking http://www.topitalianscientists.org/TIS_HTML/Top_Italian_Scientists_Computer_Sciences.htm).
- The ranking of the KRDB centre, of the Faculty, and of the University:
 - Among the top 12 most cited academics in the Faculty of Computer Science of the Free University of Bozen-Bolzano, 8 are from the KRDB Research Centre of which I am director (source: Google Scholar https://scholar.google.com/citations?view_op=view_org&org=17829143710397673419).
 - Research quality evaluation (VQR) by the governmental Agency for the Evaluation of Universities and Research (ANVUR):

- * (2011-2014) Our Faculty of Computer Science (INF/01) is the fourth best Italian computer science department in research.
- * (2004-2010) Our Faculty of Computer Science (INF/01) is the second best Italian computer science department in research.
- The *Times Higher Education World University Rankings* 2019:
 - * The Free University of Bozen-Bolzano is the *ninth world's best small university*.
 - * The Free University of Bozen-Bolzano is the *second best young Italian university*.
 - * The Faculty of Computer Science of the Free University of Bozen-Bolzano ranks in the *126–150 range in the world*.
 - * The Faculty of Computer Science of the Free University of Bozen-Bolzano is the *21st best Computer Science department in the world* for citations.
 - * The Faculty of Computer Science of the Free University of Bozen-Bolzano is the *fourth best Italian computer science department*.
 - * The Faculty of Computer Science of the Free University of Bozen-Bolzano is the *best for international outlook Italian computer science department*.
 - * The Faculty of Computer Science of the Free University of Bozen-Bolzano is the *best for citations Italian computer science department*.

Research grants

Since I am at the Free University of Bozen-Bolzano, the research projects coordinated by me gathered around 1,350,000 Euro of external non-university fundings. Before that, the research projects coordinated by me gathered around 430,000 Euro of external non-university fundings.

- 1983-84 Coordinator of the master students research grant funded by the Univ. of Rome "La Sapienza": *Computer Education and Artificial Intelligence*.
- 1987-89 Co-investigator of the research project "Onion: A memory supporting Dynamic Data Structures", based on a particular connectionist model of Boltzmann Machine. The project was conducted at the G-18 Lab, headed

by Prof. Maurizio Bonori, Physics Dept., Univ. of Rome “La Sapienza”, supported by the Natl. Inst. for Nuclear Physics (INFN).

- 1989-94 ITC-irst Scientific Coordinator of the Italian National Research Council (CNR) funded project “Sistemi Informatici e Calcolo Parallelo”, area “Hybrid Systems”. Co-members are: University of Rome (Prof. Maurizio Lenzerini, coordinator), CNR-IP, Rome (C. Castelfranchi), CNR-Computational Linguistics Institute, Pisa (A. Cappelli), CNR-LADSEB, Padova (N. Guarino), Quinary SpA, Milano (L. Spampinato). Goal of the project was the study and the development of hybrid knowledge representation systems, based on Description Logics. The YAK knowledge representation system – developed by me – was chosen as the final prototype of the project. ITC-irst was funded for 50,000,000 Italian lire (25,800 Euro) per year (total: 5 years).
- 1994-96 ITC-irst Principal Investigator of the Italian National Research Council (CNR) project “*Ontological and Linguistic Tools for Conceptual Modelling*” (Strumenti ontologico-linguistici per la modellazione concettuale). Co-members are: Università di Trento (R. Poli), Ladseb-CNR, Padova (N. Guarino), Università di Modena (F. Bonfatti), ILC-CNR, Pisa (A. Cappelli), Università di Torino (L. Lesmo). Goal of the project is the study of ontological and linguistic tools for the domain analysis phase within the conceptual design of data and knowledge bases. ITC-irst activity was funded for 4,000,000 Italian lire (2,000 Euro) per year (total: 2 years).
- 1994-1998 *Contact person* for the ITC-irst node of the ESPRIT funded European Network of Excellence *Compulog Net*, in computational logics. Goal of Compulog-Net is the study of the foundations of an integrated software tool for the development of knowledge based systems, by extending the logic programming paradigm with enrichments from areas such as databases, artificial intelligence, knowledge representation and logics.
- 1996 Principal Investigator of the ITC-irst project *Conceptual Modelling and Intelligent Integration of Information* (Modellazione Concettuale ed Integrazione Intelligente dell’Informazione). Goal of the project was the study and implementation of description logics based techniques for conceptual modelling, aggregation, and intelligent integration of information and their evaluation in some experimental applicative contexts, in the domains of databases and natural language semantic interpretation.

- 1996 Member of the ITC-irst project *Large Multimedia Libraries*, whose aim is the study of advanced solutions for the management of large multimedia libraries in the Public Administration. Within this project, co-author of the document for the reorganisation of the information system of the “Commissione Terrorismo e Stragi del Senato della Repubblica” committee of Italian Parliament.
- 1996-99 Principal Investigator of the European ESPRIT-4 Long Term Research (LTR) project *Foundations of Data Warehouse Quality “DWQ”*, No. 22469. Co-partners are: *National Technical University of Athens (NTUA), Greece* – Prof. Yannis Vassiliou (coordinator), Prof. Timos Sellis; *DFKI Saarbrücken, Germany* – dr. Werner Nutt; *INRIA Rocquencourt, France* – Prof. Eric Simon, Prof. Mokrane Bouzeghoub; *RWTH University Aachen, Germany* – Prof. Matthias Jarke, Prof. Franz Baader; *Università di Roma ‘La Sapienza’, Italy* – Prof. Maurizio Lenzerini. The goal of the DWQ project is to develop a semantic foundation that will allow the designers of data warehouses to link the choice of deeper models, richer data structures and rigorous implementation techniques to quality-of-service factors in a systematic manner, thus improving the design, the operation, and the evolution of data warehouse applications in the *telecom* domain. My research is funded for 42,000 Euro per year (total: 3 years).
- 1997-98 Principal Investigator in the Italian Space Agency (**ASI**) funded project “Integrazione ed Accesso a Basi di Dati Eterogenee” (*Integration and Access to Heterogeneous Databases*). Project partners are the leading Italian research groups in knowledge representation applied to databases. The goal of this project is to study and develop methodologies, techniques, algorithms, and software modules specifications for the integration of and the access to heterogeneous databases. The research activity will be evaluated in its wholeness in a experimental domain of data in the space sciences, including images, spectra and other data products from a wide range of space-based missions. My research is funded for 30,000,000 Italian lire (15,500 Euro) per year (total: 2 years).
- 1997-98 Scientific Coordinator of the ITC-irst coordinated project on “*Conceptual Modelling and Databases*”, leading to a methodology for the organisation, the classification, and the conceptual modelling of scientific databases, and to a tool supporting the flexible access to data in different modalities with the aid of the information schema. This project is in cooperation with

the scientific department of CSM (Centro Sviluppo Materiali), Pomezia, Roma, an industry interested in developing tools for managing and reusing corporate technical knowledge.

- 1997-98 Principal Investigator of the Italian National Research Council (CNR) special project "Strumenti ontologici per l'organizzazione e l'integrazione di conoscenze eterogenee" (*Ontological tools for the management and the integration of heterogeneous knowledge*). The project studies theories and tools, derived from the field of formal ontology, for applications in information systems. My research is funded for 8,000,000 Italian lire (4,100 Euro) per year (total: 2 years).
- 1999-2000 Co-leader of the workpackage *Reasoning* within the European ESPRIT **AgentLink** Network of Excellence on Agent-based Computing, Special Interest Group on *Intelligent Information Agents*, Working Group WG-1 on *Agent-Based Data and Knowledge Management*. The goal is to study existing metadata and domain standards in electronic commerce, digital libraries and the web, and to develop a general and well founded approach for the design of reusable conceptualisations (i.e., ontologies) which can be combined with reasoning services at a higher conceptual and formal level.
- 1999-2002 Co-Investigator of the British Engineering and Physical Sciences Research Council (EPSRC) project in the Distributed Information Management (DIM) programme "Flexible source integration in distributed knowledge-based query processing for bioinformatic information sources" (**TAMBIS-II**, EPSRC GR/M76607). TAMBIS aims to aid researchers in biological science by providing a single access point for biological information sources round the world. The access point will be a single interface (via the World Wide Web) which acts as a single information source. It will find appropriate sources of information for user queries and phrase the user questions for each source, returning the results in a consistent manner which will include details of the information source. The research is funded for 60,000 Euro per year (total: 3 years).
- 2000-2001 Principal Investigator of the British Engineering and Physical Sciences Research Council (EPSRC) project *Knowledge Representation meets Databases: Tools for Conceptual Modelling and Query Management* (**KRDB**, EPSRC GR/R04348/01). The aim of the project is to devise and evaluate algorithms, methodologies, techniques, and interaction paradigms

to build a tool for conceptual modelling and query management of complex data repositories, based on a framework with solid formal foundations. We wish that this will contribute to a better understanding of the cross-fertilisations between the Knowledge Representation and Database technologies. The research is funded for 90,000 Euro and it lasts 18 months.

2002-2005 *Principal investigator* of the 5th framework European RTD project “**SeWAsIE**” – *SEmantic Webs and AgentS in Integrated Economies*, a 3 years project funded by the European Commission. SeWAsIE will design and implement 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. Partners are: University of Modena, Italy; University of Roma “La Sapienza”, Italy; Confederazione Nazionale dell’Artigianato e della Piccola e Media Impresa, CNA SERVIZI Modena, Italy; IBM Italia SpA, Italy; Technical University of Aachen – RWTH, Germany; Thinking Networks AG, Aachen, Germany. My research is funded 260,000 Euro for 3 years.

2002-2012 *Principal investigator* of the research project “Technologies for Knowledge Representation meets Databases” (KRDB-TECH). The research focus is on basic foundational issues in knowledge representation applied to database technologies. My research is funded for 10 years by UniBZ for 130,000 Euro and by external funds for 150,000 Euro.

2004-2007 *Principal investigator* of the 6th Framework European Network of Excellence “**KnowledgeWeb**”, a 4 years Network of Excellence project funded by the European Commission. Knowledge Web began on January 1st, 2004. Supporting the transition process of Ontology technology from Academia to Industry is the main and major goal of Knowledge Web. Partners are: University of Innsbruck, Ecole Polytechnique Federale de Lausanne, France Telecom, Freie Universitat Berlin, Institut National de Recherche en Informatique et en Automatique, Informatics and Telematics Institute (Greece), Learning Lab Lower Saxony, National University of Ireland Galway, The Open University, Universidad Politecnica de Madrid, University of Karlsruhe, University of Liverpool, University of Manchester, University of Sheffield, University of Trento, Vrije Universiteit Amsterdam, Vrije Universiteit Brussels. My research is funded for 220,000 Euro for four years.

- 2004-2007 *Principal investigator* of the 6th Framework European Network of Excellence “**Interop**” – *Interoperability Research for Networked Enterprises Applications and Software*, a 3 years Network of Excellence project funded by the European Commission. The Interop Network of Excellence aims to create the conditions of an innovative and competitive research in the domain of Interoperability for Enterprise Applications and Software. This project is an association of 50 partners from 15 countries coming from numerous sectors spanning academic institutions, research centres, industrial stakeholders and standards communities. My research is funded for 60,000 Euro for three years.
- 2005-2008 *Co-investigator* of the 6th Framework European STREP FET basic research project “**Tones**” – *Thinking ONtologiES*, a 3-years project funded by the European Union. The aim of the project is study and develop automated reasoning techniques for both offline and online tasks associated with ontologies, either seen in isolation or as a community of interoperating systems, and devise methodologies for the deployment of such techniques, on the one hand in advanced tools supporting ontology design and management, and on the other hand in applications supporting software agents in operating with ontologies. Partners are: University of Roma “La Sapienza” (Italy), University of Manchester (UK), Technische Universitaet Dresden (Germany), Technische Universitaet Hamburg-Harburg (Germany). The project is funded at our site for 320,000 Euro for 3 years.
- 2009-2010 *Principal investigator* of the Italian side of the joint research project “Technologies for Conceptual Modelling and Intelligent Query Formulation” funded by the Executive Programme of the Scientific and Technological Co-operation between the Republic of South Africa and the Italian Republic. The aim of the project is to devise and evaluate algorithms, methodologies, techniques, and interaction paradigms to build a tool for conceptual modelling and query management of complex data repositories, and to experiment them in the context of medical and bio-diversity South African data banks. The research cooperation is funded 45,000 Euro for 3 years.
- 2009-2011 *Principal investigator* of the 7th Framework European large-scale integrating project (IP) “**Ontorule**” – *ONTOlogies meet business RULEs*, a 3-years project funded by the European Union. Ontorule aims at developing a methodological, theoretical and technological platform for the mutually aware acquisition, management, and use of ontologies and business rules.

This is achieved by considering semantically well-founded combinations of rules and ontologies, together with efficient methodologies for their integrated processing. Partners are: ILOG (France), University of Innsbruck (Austria), Ontoprise (Germany), Open University (UK), Vienna University of Technology (Austria), and other technological partners. My research is funded for 576,000 Euro for 3 years.

2009-2012 *Principal investigator* of the UniBZ CRC research project “Theoretical foundations for combining Rules and Ontologies”. This project aims to develop semantically well-founded combinations of rules and ontologies, together with efficient methodologies for the integrated processing of rules and ontologies. My research is funded for 63,000 Euro for 3 years.

2010-2013 *Principal investigator* of the 7th Framework European ICT Marie Curie research exchange action on a Network for Enabling Networked Knowledge “**NET2**”. Partners are: National University of Ireland; Universität Koblenz-Landau, Germany; Technische Universiteit Delft, The Netherlands; Technische Universität Wien, Austria; Universidad de Chile, Santiago de Chile; University of South Africa, Pretoria; Shanghai Jiao Tong University, China. My exchange activity is funded for 65,000 Euro for 3 years.

2012-2013 *Principal investigator* of the CNR (Italian National Research Council) research project “Business Process Engineering” (**BPE**). The topic of the research has been the study and testing of a business process (re)engineering software environment for conceptual modelling of processes and organisations. My research is funded for 30,000 Euro for 16 months.

2013-2015 *Principal investigator* of the UniBZ CRC research project “An intelligent query interface based on ontologies”. In this project we have devised and evaluated algorithms, methodologies, techniques, and interaction paradigms to build a tool based on artificial intelligence technologies for natural language query formulation of relational data repositories. The research is funded for 50,000 Euro for 2 years.

2014-2015 *Principal investigator* of the UniBZ CS Faculty research project “Fluent User Interface for Discovery”. The research, in collaboration with the Art and Design faculty of UniBZ has focused on the Semantic Media Browser, an interaction concept and interface system for exploratory search and media discovery. The research is funded for 15,000 Euro for 15 months.

- 2015-2017 *Principal investigator* of the UniBZ CRC research project “Conceptual Modelling with the ORM Inference Engine” (**ORMiE**). The project focuses on the study and deployment of a plugin extending with artificial intelligence technologies the Microsoft Visual Studio conceptual modelling system. The research is funded for 42,000 Euro for 3 years.
- 2018-2020 *Principal investigator* of the UniBZ CRC research project “From Ontologies to SAT” (**FO2S**). The research activity focuses on the topic of handling imperfect knowledge (uncertainty, preferences, defeasibility, and others) with ontology languages. The research is funded for 100,000 Euro for 3 years.
- 2018-2020 *Principal investigator* of the UniBZ CRC research project “Semantic Enrichment and Interoperability” (**SemInt**) in cooperation with the European Space Agency (ESA). In the context of complex Space Information Systems, the activity is about the foundations and the realisation of supporting tools for the semantic enrichments of the information sources, and for their semantic-based integration. The research is funded for 83,000 Euro for 2 years.
- 2018-2019 *Principal investigator* of the *applied research* project “Semantic modelling and semantic interoperability” funded by the European Space Agency (ESA). Support in modelling the “Space System Reference Database” of ESA, to capture, verify and validate all data required to operate the spacecraft in-flight. The activity is funded for 30,000 Euro for 6 months.
- 2018-2020 *Principal investigator* of the *applied research* project “Smart Data Integration 4.0” funded by the Datatellers startup. The applied research activity is in the area of semantic enrichment of information sources and their semantic integration for the so-called data preparation phase in the context of Business Intelligence. The research is funded for 80,000 Euro for 2 years.
- 2018-2019 *Principal investigator* of the *applied research* project “Legal Opinion Generator” (LEOGEN) funded by the uLegale startup. The activity supports the design of the LEOGEN chatbot system, which provides legal advice, using artificial intelligence techniques. The activity is funded for 18,000 Euro for 1 year.
- 2018-2019 *Principal investigator* of the *applied research* project “Augmented Marketing” funded by the Datef S.p.A. company. The activity is about method-

ologies for the elicitation, design, verification, development, and evaluation of decision systems in declarative format, based on knowledge representation and artificial intelligence techniques. The activity is funded for 10,000 Euro for 1 year.

Invited and keynote talks at scientific events

- Invited Speaker on *Temporal Description Logics* at the Workshop on *Combinations of Temporal and Modal Logics '98* (CMTL'98), Manchester Conference Centre, Manchester, UK, 16 December, 1998.
- Invited Speaker on *Conceptual Modelling with Temporal Description Logics* at the *British Colloquium for Theoretical Computer Science*, sponsored by EPSRC, London Mathematical Society, and Microsoft Research, University of Keele, UK, 15 April 1999.
- Invited Speaker on *Temporal Description Logics* at the *6th International Symposium on Temporal Representation and Reasoning* (TIME'99), Orlando, Florida, USA, May 1-2, 1999.
- Invited Speaker at the Dagstuhl Seminar on *Logics for Emerging Applications of Databases*, 16-21 July 2000, Schloß Dagstuhl, Germany, organised by J. Chomicki, R. van der Meyden, G. Saake.
- Invited Speaker on *Conceptual Modelling with Description Logics* at the *8th International Conference on Conceptual Structures* (ICCS-2000), 14-18 August 2000, Darmstadt, Germany.
- Invited Speaker, together with Prof. Gio Wiederhold, on *Ontology-driven Information Integration* at the *Information Integration Workshop at CERN*, 19 June 2000, Geneva, Switzerland.
- Invited Speaker on *Tools for Knowledge Engineering* at the 2^o workshop *Methods for Modalities* (M4M-2), 29-30 Novembre 2001, Amsterdam, Olanda.
- Tutorial on "Description Logics for Conceptual Design, Information Access, and Ontology Integration: Research Trends" at the 1st International Semantic Web Conference (ISWC-2002), Chia, Sardinia (Italy), 9-12th June 2002.

- Invited Speaker on “(Description) Logics for Information Modelling and Access” at the Fifth International Conference on Flexible Query Answering Systems (FQAS-2002), Copenhagen, Denmark, October 27 - 29, 2002.
- Invited speaker at the Workshop on Logic-based Methods for Information Integration, Vienna, Austria, on 23 August 2003.
- Invited tutorial at the 2nd Italian Semantic Web Workshop Semantic Web Workshop (SWAP’05), Trento, Italy, 15-16/12/2005.
- Invited speaker at the 25th ACM Symposium on Principles of Database Systems (PODS-2006) Chicago IL, on 26-28/6/2006.
- Invited speaker at the 3rd workshop on Logic and MultiAgent Systems (LAMAS-2007), the University of Otago in Dunedin, New Zealand, 15-16/2/2007.
- Keynote speaker at the 26th International Conference on Conceptual Modeling (ER-2007), in Auckland, New Zealand, 5-9/11/2007.
- Joint invited speaker at both the 4th Workshop on Ontologies-based Techniques for DataBases in Information Systems and Knowledge Systems (ODBIS-2008) and the International Workshop on New Trends in Information Integration (NTII-2008), colocated with VLDB-08 in Auckland, New Zealand, 23 August 2008.
- Invited tutorial at the 34th International Conference on Very Large Data Bases (VLDB-2008), in Auckland, New Zealand, 23-28 August 2008.
- Invited speaker at the Knowledge Representation Ontology Workshop (KROW-2008), colocated with KR-08 in Sydney, Australia, 17 September 2008.
- Invited lecturer on Description Logics at the 3rd International ALP/GULP Spring School on Computational Logic (ISCL-2011), held in Bertinoro, Italy, 10-15 April 2011.
- Invited to give a lectio magistralis on Description Logics at the AILA Summer School, held in Gargnano del Garda, Italy, 22-27 August 2011.
- Keynote speaker at the 2nd European Semantic Web Conference (ESWC) Summer School, held in Crete May 21st to May 26th 2012.

- Invited keynote speaker at the Brazilian Ontology Research Seminar (ONTOBRAS), held on September 8th to 11th, 2015 in São Paulo, Brazil.

Chair of scientific committees

- Chair of the workshop on *Events, Actions and Plans: Representation, Reasoning and Applications*, ITC-irst Trento, Italy, October 23-24 1994.
- General Chair of the 1998 *International Workshop on Description Logics* (DL'98), Trento, Italy, June 6-8 1998. Co-editor of the proceedings, published by ITC-irst, Trento, Italy, Ref. No. 9805-03; also electronically available as CEUR Publication Vol. 11, RWTH Aachen, Germany. Co-author of a report on the workshop in the *Journal of Logic and Computation* (JLC), 9(3):449–456, 1999, Oxford University Press. The workshop received sponsorships from the Italian National Research Council (CNR) and COMPULOG ESPRIT European Network of Excellence for a total of 3,500 Euro. Web page: <<http://www.dl.kr.org/dl98/>>.
- Publicity Chair of *6th International Conference on Principles of Knowledge Representation and Reasoning* (KR'98), Trento, Italy, June 2-5 1998. Web page: <<http://www.kr.org/kr98/>>.
- Co-organiser of the *AAAI'99 Fall Symposium on Modal and Temporal Logics based Planning for Open Networked Multimedia Systems*, North Falmouth, Cape Cod MA, USA, November 5-7, 1999.
- General co-Chair, together with Prof. Michael Kifer (University at Stony Brook, USA), of the *6th International Workshop on Knowledge Representation Meets Databases* (KRDB'99), Linköping, Sweden, July 29-30, 1999; KRDB'99 is an affiliate event with IJCAI'99 and DL'99. Co-editor of the proceedings, published by Linköping University, Sweden, July 1999; also electronically available as CEUR Publication, Vol. 21, RWTH Aachen, Germany, July 1999. The workshop is sponsored by the COMPULOG ESPRIT European Network of Excellence for a total of 2,000 Euro. Web page: <<http://www.cs.man.ac.uk/img/krdb99/>>.
- Co-editor of the special issue on *Methods for Modalities* of the *Logic Journal of the IGPL*, a *Journal on Pure and Applied Logic*, vol. 8, no. 3, May 2000, Oxford University Press.

- Chair of the Programme Committee of the *12th European Summer School in Logic, Language and Information* (ESSLLI'2000), Birmingham, UK, August 2000. The summer school has been highly successful, attracting around 500 students from Europe and elsewhere. The school has developed into an important meeting place and forum for discussion for students and researchers interested in the interdisciplinary study of Logic, Language and Information. ESSLLI'2000 is organised under the auspices of the European Association for Logic, Language and Information (FoLLI). Web page: <<http://www.folli.uva.nl/Esslli/2000/esslli-2000.html>>.
- General Chair of the *International Workshop on Foundations of Models for Information Integration* (FMII'2001), the 10th workshop in the series "Foundations of Models and Languages for Data and Objects" (FMLDO), Viterbo, near Rome, Italy, 16-18 September 2001, in conjunction with VLDB'2001 and KRDB'2001. The main principle of this workshop series is to focus on one selected theme different from year to year, and to offer the opportunity for in-depth exchange of ideas and experiences between the best database researchers in the area. FMII'2001 will enjoy the talks of three invited speakers: Amr El Abbadi, Serge Abiteboul, and Tamer Özsu. Web page: <<http://www.fmldo.org/FMII-2001/>>.
- Co-chair of the Organising Committee of the 9th International Symposium on Temporal Representation and Reasoning (TIME-2002), Manchester (UK), 4-6 July 2002.
- Co-chair the 2003 International Workshop on Description Logics (DL'2003), 5-7/9/2003 in Rome, Italy.
- Co-chair the Dagstuhl Seminar on Logic Based Information Agents, in Schloss Dagstuhl, Germany, 18-24/4/2004.
- Chair of the organising committee of the 13th Italian Symposium on Advanced Database Systems (SEBD-2005); Brixen-Bressanone, Italy, 20-22/6/2005.
- Chair of the 2nd International Workshop on Exchange and Integration of Data (EID-2006), Brixen-Bressanone, Italy, 9-11/6/2006.
- Co-chair of the program committee of the International Conference on Rules and Rule Markup Languages for the Semantic Web (RuleML-2006), Athens GA, USA, 9-10/11/2006.

- General chair of the 4th Annual European Semantic Web Conference (ESWC-2007), in Innsbruck, Austria, 3-7/6/2007.
- Co-chair of the 2007 International Description Logics workshop (DL-2007), in Brixen-Bressanone BZ, Italy, 8-10/6/2007.
- Co-chair of the 2009 Reasoning Web Summer School, in Brixen-Bressanone, Italy September 2009.
- Chair the 3rd KRDB school on Trends in the Web of Data (KRDBs-2010), held in Brixen-Bressanone (near Bozen-Bolzano), Italy, 17-18 September 2010.
- Co-chair the Dagstuhl Seminar on Foundations and Challenges of Change and Evolution in Ontologies, held in Schloss Dagstuhl, Germany, 3-7 September **2012**.
- Chair of the Foundations and Challenges of Change in Ontologies and Databases Research School, held on 29-31 January **2014** in Bozen-Bolzano, Italy.
- Co-Chair of the International Workshop on Fact-Oriented Modeling (ORM 2014), held in Bolzano, Italy, 22-23 September **2014**.
- Co-chair of the program committee of the 1st International Joint Conference on Semantic Rules and Reasoning (RuleML-RR 2017), held in London (UK), 12-15 June 2017.

Memberships in scientific committees

- Founder member of the *AI*IA Italian Association for Artificial Intelligence* (Associazione Italiana per l'Intelligenza Artificiale) (1989-...).
- Former member of the *Advisory Board of KR, Inc.*, Jon Doyle (MIT, Boston MA, USA) president. KR, Inc. is a charitable organisation incorporated in the state of Massachusetts of the United States of America concerned with fostering research and communication on knowledge representation and reasoning. Its primary activities include organising the series of *Conferences on Principles of Knowledge Representation and Reasoning*.

- Former member of the Advisory Committee of the World Wide Web Consortium (W3C). The W3C was created in October 1994 to lead the World Wide Web to its full potential by developing common protocols and standards that promote its evolution and ensure its interoperability. The Advisory Committee reviews proposals for new Activities and proposed Recommendations.
- Former delegate and Member of the Board of STI (Semantic Technology Institute) International, Vienna, whose mission is to exploit semantic technologies to address the various challenges associated with communication and collaboration at large scales. <http://www.sti2.org>
- Area Scientific Editor for Logic and Databases of the Journal of Applied Logic (JAL), published by Elsevier.
- Member of the editorial board of the AAAI Press, which co-publishes books with MIT Press.
- Member of the Scientific Program Committees:
 - Italian Association for Artificial Intelligence (AI*IA) workshop on *Temporal Reasoning*, Parma, Italia, 28/9/1994.
 - IJCAI-95 workshop on *The Next Generation Of Plan Recognition Systems*, Montreal, Canada, 20/8/1995.
 - Italian Association for Artificial Intelligence (AI*IA) 1996 workshop on *Access, Extraction and Integration of Knowledge*, Napoli, Italia, 28/9/1996.
 - 1996 *International Workshop on Description Logics (DL'96)*, Boston MA, USA, 2-4/11/1996. Co-editor of the proceedings, published by AAAI Press - American Association for Artificial Intelligence, TR-WS-96-05, Cambridge MA, USA.
 - 1997 *International Workshop on Description Logics (DL'97)*, Paris, France, 27-29/9/1997. Co-editor of the proceedings, published by Université Paris-Sud, Centre d'Orsay, Laboratoire de Recherche en Informatique LRI, URA-CNRS 410.
 - *7th European/Japanese Conference on Information Modeling and Knowledge Bases (EJIMKB'97)*, Toulouse, France, 27-30/5/1997.

- *2nd International and Interdisciplinary Workshop Intelligent Information Integration (I³'98)*, Brighton, UK, 25/8/1998, associated with the 13th European Conference on Artificial Intelligence (ECAI'98).
- International Workshop *Methods for Modalities (M4M)*, Amsterdam, 6-7/5/1999.
- *CAiSE'99 Workshop on Design and Management of Data Warehouses*, Heidelberg, Germany, 14-15/6/1999.
- *Third International and Interdisciplinary Workshop on Intelligent Information Integration, (I³'99)*, associated with IJCAI'99, Stockholm, 31/7/1999.
- *International Conference on Conceptual Modeling (ER'99)*, Paris, France, 15-18/11/1999.
- *14th European Conference on Artificial Intelligence (ECAI'2000)*, Berlin, Germany, 20-25/8/2000.
- *7th International Workshop on Knowledge Representation meets Databases (KRDB'2000)*, Berlin, Germany, 21-22/8/2000, associated with ECAI'2000 and DL'2000.
- *8th International Workshop on Knowledge Representation meets Databases (KRDB-2001)*, Roma, Italia, 15/9/2001, associated with VLDB-2001 and FMII-2001.
- Workshop on Formal Ontology, Knowledge Representation and Intelligent Systems for the World Wide Web (SemWeb@KR02), Toulouse (France), 19-20/4/2002, colocated with KR-2002.
- 9th International Workshop on Knowledge Representation meets Databases (KRDB-2002), Toulouse (France), 21/4/2002, colocated with KR-2002.
- British National Conference on Databases (BNCOD-2002), Sheffield (UK), 17-19/7/2002.
- 18th American National Conference on Artificial Intelligence (AAAI-2002), Edmonton, Alberta, Canada, 28/7-1/8/2002.
- Workshop on Foundations for the Semantic Web, at the European Summer School in Logic, Language and Information (ESSLLI-2002), 5-16/8/2002, Trento Italy.

- Workshop on Ontologies for multi-agent systems, at the 13th International Conference on Knowledge Engineering and Knowledge Management (EKAW-2002), Sigüenza (Spain), 1-4/10/2002.
- Second International Workshop on Evolution and Change in Data Management (ECDM-2002), Tampere, Finland, 11/10/2002, in conjunction with the 21st International Conference on Conceptual Modelling - ER 2002.
- Italian National Database Conference (SEBD-2003), Cosenza, Italy, 24-27/6/2003.
- Joint 10th international symposium on "Temporal Representation and Reasoning" and 4th International Conference on Temporal Logic (TIME-ICTL-2003), Cairns, Queensland, Australia, 8-10/7/2003.
- 5th International Workshop on Design and Management of Data Warehouses (DMDW'2003), 8/9/2003, in conjunction with the 29th International Conference on Very Large Databases (VLDB 2003), in Berlin, Germany.
- Int. Conf. on Logic for Programming, Artificial Intelligence and Reasoning (LPAR'2003), 22-26/9/2003, in Almaty, Kazakhstan.
- 10th International Workshop on Knowledge Representation meets Databases (KRDB'2003), in Hamburg, Germany, 15-18/9/2003.
- 3rd workshop on Methods for Modalities (M4M-3), 22-23/9/2003, in Nancy, France.
- XXIII International Conference of the Chilean Computer Science Society (SCCC'2003), in Chillan, Chile, 3-8/11/2003.
- 2nd CoLogNET-EISNET Symposium on Questions and Answers: Theoretical and Applied Perspectives, Amsterdam, NL, on 18/12/2003.
- 1st European Semantic Web Symposium (ESWS-2004), Heraklion, Greece, on 10-12/5/2004.
- 13th International World Wide Web Conference (WWW2004) for the Semantic Web area; in New York (US) 17-22/5/2004.
- 2004 International Workshop on Description Logics (DL'2004), Whistler, British Columbia, Canada, 6-8/6/2004.
- 11th International Symposium on Temporal Representation and Reasoning (TIME-2004), Caen, France, 7/2004.

- 2nd Workshop on Principles and Practice of Semantic Web Reasoning (PPSWR-2004), St. Malo, France, 6-10/9/ 2004.
- Workshop on The Model-driven Semantic Web: Enabling Knowledge Representation and MDA; Technologies to Work Together (MDSW-2004), Monterey CA, USA, 20-24/9/2004.
- 14th International World Wide Web Conference (WWW-2005) for the Semantic Web area; Chiba, Japan, 10-14/5/2005.
- 12th International Symposium on Temporal Representation and Reasoning (TIME-2005), Burlington, Vermont, USA, 23-25/5/2005.
- International Workshop on Principles and Practice of Semantic Web Reasoning (PPSWR'05), Dagstuhl, Germany, 11-16/9/2005.
- International Conference on Ontologies, Databases and Applications of SEmantics (ODBASE'05), Cyprus, 31/10-4/11/2005.
- 3rd International Workshop on Regulatory Ontologies (WORM'05), Cyprus, 31/10-4/11/2005.
- International Workshop on OWL: Experiences and Directions, Galway, Ireland, 11-12/11/2005.
- International Workshop on Methods for Modalities (M4M'05), Berlin, Germany, 1-2/12/2005.
- 2nd Italian Semantic Web Workshop Semantic Web Workshop (SWAP'05), Trento, Italy, 15-16/12/2005.
- International Workshop on Inconsistency and Incompleteness in Databases (IIDB-2006), Munich, Germany, 26/3/2006.
- 2006 International Workshop on Description Logics (DL'2006), the Lake District, UK, 30/5-1/6/2006.
- 10th International Conference on Principles of Knowledge Representation and Reasoning (KR-2006), the Lake District, UK, 2-5/6/2006.
- 3rd European Semantic Web Conference (ESWS-2006) Budva, Montenegro, on 11-14/6/2006.
- 14th Italian Symposium on Advanced Database Systems (SEBD-2006) Portonovo AN, Italy, on 18-21/6/2006.
- 21st National (USA) Conference on Artificial Intelligence (AAAI-2006), Boston, USA, 16-20/7/2006.

- 2nd Summer School on Reasoning Web (Reasoning Web 2006), Lisbon, Portugal, 4-8/9/2006.
- European Conference on Logics in Artificial Intelligence (JELIA-2006), Liverpool, UK, 13-15/9/2006.
- 7th ACM International Workshop on Web Information and Data Management (WIDM-2006), Bremen, Germany, 10/11/2006.
- 4th Semantic Web and Databases Workshop (SWDB-2007), Vienna, Austria, 9/2007.
- 5th European Semantic Web Conference (ESWC-2008), Tenerife, Spain, 1-5/6/2008.
- 20th European Summer School in Logic, Language and Information (ESSLLI-2008) for the Logic and Computation area, Hamburg, Germany, 4-15/8/2008.
- 11th Intl. Conference on Principles of Knowledge Representation and Reasoning (KR-2008), Sydney, Australia, 16-19/9/2008.
- Logic in Databases workshop (LID-2008), Rome, Italy, 19-20 May 2008.
- 5th European Semantic Web Conference (ESWC-2008), Tenerife, Spain, 1-5 June 2008.
- 25th International Conference on Data Engineering (ICDE-2009), Shanghai, China, March 29 - April 4, 2009.
- 32nd Annual Conference on Artificial Intelligence (KI-2009), Paderborn, Germany, 15-18 September 2009.
- 21st International Joint Conference on Artificial Intelligence (IJCAI-2009), Pasadena CA, USA, 11-17 July 2009.
- 17th Italian Symposium on Advanced Database Systems (SEBD-2009), Camogli, Genova, Italy, 21-24 June 2009.
- Workshop on Controlled Natural Language (CNL-2009), Marettimo Island, Italy, 8-10 June 2009.
- Alberto Mendelzon Workshop on Foundations of Data Management (AMW-2009), Arequipa, Peru, May 12–15, 2009.
- 2010 International Workshop on Description Logics (DL-2010), Waterloo, Canada, 4-7 May 2010.

- 12th International Conference on the Principles of Knowledge Representation and Reasoning (KR-2010), Toronto, Canada, 9-13 May 2010
- 9th International Semantic Web Conference (ISWC-2010), held in Shanghai, China, 7-11 November 2010.
- 10th International Semantic Web Conference (ISWC-2011), held in Koblenz, Germany, 23-27 October 2011.
- 24th International Description Logics workshop (DL-2011), held in Barcelona, Spain, 13-16 July 2011.
- 19th Italian Symposium on Advanced Database Systems (SEBD-2011), held in Maratea, Italy, 26-29 June 2011.
- 2011 SIGMOD conference on databases (SIGMOD-2011), held in Athens, Greece, 12-16 June 2011.
- 11th International Semantic Web Conference (ISWC-2012), held in Boston, USA, 11-15 November 2012.
- 25th International Description Logics workshop (DL-2012), held in Rome, Italy, from June 7 to June 10, 2012.
- 20th Italian Symposium on Advanced Database Systems (SEBD-2012), held in Venice, Italy, 24-27 June 2012.
- 12th International Semantic Web Conference (ISWC-2013), held in Sydney, Australia, 21- 25 October 2013.
- Member of the *senior* program committee of the 23rd International Conference on Artificial Intelligence (IJCAI-2013), held in Beijing, China from August 3-9, 2013.
- 29th “Convegno Italiano di Logica Computazionale” (CILC-2014), held in Torino, Italy, 16-18 June 2014.
- 27th International Description Logics workshop (DL-2014), held on 17–20 July 2014, in Vienna.
- 21st European Conference on Artificial Intelligence (ECAI-2014), held in Prague, Czech Republic, 18-22 August 2014.
- 13th International Semantic Web Conference (ISWC-2014), held on October 19-23, 2015, in Riva del Garda, Italy.
- 29th AAAI Conference on Artificial Intelligence (AAAI-15), held on January 25–29, 2015, in Austin Texas, USA.

- 14th International Semantic Web Conference (ISWC-2015), held on October 11-15, 2015, in Bethlehem PA, USA.
- 2016 ACM Principles of Database Systems (PODS-2016) Conference, held in San Francisco, USA, on June 26th - July 1st, 2016.
- Member of the *senior* program committee of the 26th International Joint Conference on Artificial Intelligence (IJCAI-2017), to be held in Melbourne (Australia), 19-25 August 2017.
- 36th International Conference on Conceptual Modeling (ER-2017), to be held in Valencia (Spain), on 6th-9th November 2017.
- 16th International Semantic Web Conference (ISWC-2017), to be held in Wien (Austria), 21-25 October 2017.
- Member of the *senior* program committee of the 27th International Joint Conference on Artificial Intelligence (IJCAI-2018), to be held in Stockholm, Sweden, 13-19 July 2018.
- Member of the *senior* program committee of the 27th ACM International Conference on Information and Knowledge Management (CIKM 2018), held in Torino, Italy on 22-26 October 2018.
- 33rd AAAI Conference on Artificial Intelligence (AAAI-2019), to be held January 27 - February 1 in Honolulu, Hawaii, USA.
- Member of the *senior* program committee of the 28th International Joint Conference on Artificial Intelligence (IJCAI-2019), to be held in August 10-16, 2019, Macao, China.

Applied research and third mission

My activity as a university professor is not limited to education (qualifying the human capital) and research (producing new knowledge). My activity is motivated by and connected to societal needs and market demands. Coherently with the two above activities, my third mission activities are mainly devoted to get from the industry and the community at large motivations, problems, use cases, testbeds for my applied research. My idea of third mission service is to try to seriously connect research ideas with applications needed in the real market, without shortcuts and looking for real advances which could not have been obtained without the involved academic activities.

In the past I have collaborated with software service provider companies related to my research areas in order to support them in testing new ideas, making

their tools better, experimenting with their settings – for example IBM/ILOG, IBM/CAS, Ontoprise (now *semafora*, Semantic Web infrastructures), ORM Solution LLC (main developer of Microsoft Visual Studio – still active collaboration). I also collaborated with large service companies in order to find real world motivations for my research, experimenting with real data, supporting the development of tools – for example Telecom Italia, France Telecom, CNA (Small Enterprises Services), CSM (Centre for the Development of Materials), ASI (Italian Space Agency), ESA (European Space Agency – still active collaboration).

In 2018 I have started several funded applied research / industrial projects funded by SMEs and startups mainly on data integration and data preparation for complex information systems and for Business Intelligence, and on knowledge representation and artificial intelligence technologies for chatbots.

The following are the *tools* I've developed coherently with my research.

YAK YAK is a fully implemented knowledge representation description logics based system. The YAK system has been developed initially as the KR module of the AIFresco natural language system, a multi-modal dialogue prototype for the exploration of Italian art history. The YAK project ended in 1991. YAK is being used as main module for the multimedia presentation system BEHEIM, at the Erlangen University, Germany; the aim of the system is to explore the information regarding the oldest globe of the world – the Beheim globe (1492). YAK has been licensed to 15 international research centres.

CRACK The aim of the CRACK project is the research and the development of a knowledge representation system based on description logics. The CRACK language differentiates itself from previous knowledge representation systems for its high expressivity and its provably sound and complete reasoning procedures. The CRACK project ended in 1998. Among the various installations of CRACK in different research institutes, it is relevant the use of CRACK as the main reasoning module for a *process modelling* application in the domain of chemical plants, developed by the Technical University of Aachen (RWTH), Germany.

i•com The i•com tool supports the conceptual design phase of an information system, and in particular of an integration information system such as a data warehouse. i•com allows for the specification of multiple Entity/Relationship (ER) and UML diagrams and inter- and intra-schema

(OCL-like) constraints. i•com adopts an extended conceptual data model, enriched with multidimensional aggregations and very expressive constraints. i•com has been installed at 3,500+ sites since 2001. Web site: <http://www.inf.unibz.it/~franconi/icom/>

coDBz The coDBz project studies the problem of efficient query processing in a network of databases, possibly with different schemas, interconnected by means of mapping rules at the schema level. The system has been demonstrated at the 30th International Conference on Very Large Data Bases (VLDB 2004). Web site: <http://www.inf.unibz.it/~franconi/coDBz/>

Quelo The Quelo project studies the problem of supporting the user in the task of formulating a precise query – which best captures her information needs – even in the case of complete ignorance of the vocabulary of the underlying information system holding the data. Our intelligent interface is driven by means of appropriate automated reasoning techniques over an ontology describing the domain of the data in the information system. This project is still active. Web site: <http://www.inf.unibz.it/~franconi/quelo/>

ORMiE The ORMiE tool is a plugin for Microsoft Visual Studio, and it provides intelligent reasoning capabilities during the design phase of an information system with ORM diagrams. It is the i•com successor project. ORMiE is being natively integrated in NORMA for Microsoft Visual Studio, so it will become available for free to all the ORM designers with Microsoft Visual Studio. This project is still very active, and it is currently co-funded by the European Space Agency (ESA).

Teaching

1990-1998 Supervisor of 6 Master (“Laurea”) Theses at various Italian Universities (Milano, Padova, Udine, Verona), in Artificial Intelligence, Knowledge Representation, and Databases.

1996 Lecturer of the *Introduction to Prolog* course (Introduzione al Prolog) at the first Master on “Tecnologie Avanzate dell’Informazione e della Comunicazione” (Information and Communication Advanced Technologies),

organised by the IIASS - International Institute for Advanced Scientific Studies, Vietri sul Mare SA, Italy, funded by the European Union.

- 1997 Lecturer of the *Database Design* and *Deductive Databases and Logic Programming* courses at the second Master on “Tecnologie Avanzate dell’Informazione e della Comunicazione” (Information and Communication Advanced Technologies), organised by the IIASS - International Institute for Advanced Scientific Studies, Vietri sul Mare SA, Italy, funded by the European Union.
- 1997 Lecturer of *Applied Logics for Information Systems and Artificial Intelligence* (Logica Applicata per Sistemi Informativi e Intelligenza Artificiale) within the *Applied Computer Science* (Informatica Applicata) programme at the University of Verona, Italy.
- 1998 Lecturer of the *Description Logics* winter semester course of the “Computational Logic International Masters Programme” at the Dresden University of Technology, Germany, sponsored by *Compulog Net* – the ESPRIT European Network of Excellence in Computational Logic.
- 2000 Lecturer of the *Logics and Databases* (CT481) Master course at the Department of Computation, UMIST University, Manchester, UK.
- 2001 Lecturer of the “Description Logics and Ontologies” course within the PhD program at the Computer Science department of the University of Milan, Italy.
- 2002 Lecturer of the *Description Logics* course within the International Doctoral school of Technology and Science of Aalborg University, Denmark.
- 2002 Lecturer of the “Description Logics for Conceptual Design, Information Access, and Ontology Integration: Research Trends” within the PhD program “Representation Formalisms for Ontologies” at the Copenhagen Business School, Denmark.
- 1998-2002 The following teaching activities have been carried on as part of my teaching duties as Senior Lecturer at the Department of Computer Science, University of Manchester.
- Personal tutor of 17 1st year Undergraduate students (1998/1999, 1999/2000, 2000/2001).

- Supervisor of 7 Master projects and 10 Undergraduate projects (1998/1999, 1999/2000, 2000/2001).
 - Lecturer of the *Advanced Knowledge Based Systems* (CS341) 3rd year Undergraduate course (1999).
 - Lecturer of the *Advanced Database Models and Languages* (CS336) 3rd year Undergraduate course (2000, 2002).
 - Lecturer of the *Advanced Database Technologies* (CS636) Master in Advanced Computer Science course (2000, 2001, 2002).
 - Lecturer of the *Data Modelling and databases* (CS530) Master in Computer Science course (2001).
 - Various support activities for other courses:
- CS231 Fundamentals of Databases: lectures, laboratories, example classes (1998/1999, 1999/2000, 2000/2001); 2nd year compulsory UG course.
- CS102 Discrete Mathematics: example classes, tutorial and exam marking (1999/2000, 2000/2001); 1st year compulsory UG course.
- CS235 Software Engineering 2: lecture (1999/2000); 2nd year compulsory UG course.

2002-now The following teaching activities have been carried on as part of my teaching duties as Associate Professor at the Faculty of Computer Science, Free University of Bozen-Bolzano.

- Supervisor of several Undergraduate and Master projects and theses (2002-).
- Lecturer of the *Logic* 2nd year undergraduate course (2002, 2003, 2004, 2005, 2007, 2008, 2009, 2012).
- Lecturer of the *Databases and Data Modelling* 2nd year undergraduate course (2002, 2003, 2004).
- Lecturer of the *Knowledge Representation* master course (2004, 2005, 2007, 2008, 2009).
- Lecturer of the *Computer Systems Architecture* 1st year undergraduate course (2007, 2008, 2009).
- Lecturer of the *Seminars in Knowledge Representation* master course (2007).

- Lecturer of the *Intelligent Systems* 3rd year undergraduate course (2012, 2014, 2015, 2016, 2017).
- Lecturer of the *Discrete Mathematics and Logics* 2nd year undergraduate course (2014).
- Lecturer of the *Semantic technologies* 2nd year master course (2015, 2016, 2017, 2018).
- Lecturer of the *Artificial Intelligence* 2nd year undergraduate course (2018).

Supervision of PhD theses

- External supervisor of the PhD Thesis by Carlos Areces on Logic Engineering at the University of Amsterdam (Netherlands) with supervisors Prof. J. van Benthem and Prof. M. de Rijke (2000).
- External supervisor of the PhD Thesis by David Rudloff on Natural Language and Databases at the Ecole Nationale Supérieure des Arts et Industries de Strasbourg, France (2000).
- Supervisor of the PhD Theses by Anand Kamble – currently Director at the Department of Information Technology, Govt. of India – on Data Warehouse Conceptual Data Modelling at the University of Manchester (2000-2003).
- Supervisor of the PhD Theses by Andrei Lopatenko – currently Director of Engineering at the Recruit Institute of Technology www.recruit.ai (USA) – on Knowledge Representation and Databases at the University of Manchester (2002-2005).
- Supervisor of a PhD Thesis by Paolo Dongilli – currently inspector for school technologies at the Province of Bozen-Bolzano – on Natural Language Generation Applied to Intelligent Query Interfaces at the Free University of Bozen-Bolzano (2004-2008).
- Supervisor of a PhD Thesis by Marijke Keet – currently Senior Lecturer at the University of Cape Town – on Knowledge Representation and Bioinformatics at the Free University of Bozen-Bolzano (2005-2007).
- External examiner of the PhD Research Thesis of Yuan An on Conceptual Modelling at the University of Toronto (Canada) (2007).

- Supervisor of a PhD Thesis by Inanç Seylan – currently at Siemens (Germany) – on Query Answering in Description Logics at the Free University of Bozen-Bolzano (2008-2010).
- Supervisor of a PhD Thesis by Paolo Guagliardo – currently post-doc at the University of Edinburgh (UK) – on Database View Updates at the Free University of Bozen-Bolzano (2010-2014).
- Supervisor of a PhD Thesis by Volha Kerhet – currently post-doc at the Free University of Bozen-Bolzano – on Query Reformulation at the Free University of Bozen-Bolzano (2010-2014). This thesis has been the only computer science thesis published so far by **bu,press** in the series *unibz junior researcher* (ISBN: 978-88-6046-134-6).
- External examiner of the PhD Research Thesis of Héctor Pérez-Urbina at the University of Oxford (UK) (2010).
- Supervisor of a PhD Thesis by Nhung Ngo – currently post-doc at the University of Karlsruhe - Karlsruhe Institute of Technology (Germany) – on Reasoning and Query Answering with Complete Data at the Free University of Bozen-Bolzano (2012-2017).
- Supervisor of a PhD Thesis by Francesco Sportelli on Intelligent Conceptual Modelling Support for Data Intensive Applications at the Free University of Bozen-Bolzano (2015-...).
- Supervisor of a PhD Thesis by Nonyelum Ndefo on Reverse Engineering Big Data at the Free University of Bozen-Bolzano (2016-...).

Teaching organisational matters

- I am currently president of the *Master Degree Council* – and the founder in 2004 – at the Free University of Bozen-Bolzano of the *European Masters Program in Computational Logic* (EMCL), an international joint Master of Science degree in cooperation with the Technische Universität Dresden, Germany, the Universidade Nova de Lisboa, Portugal, and the Technische Universität Wien, Austria. This is one of the few European Masters of Science awarded since its first year of existence in 2004 by the European Union's Erasmus Mundus programme; the Erasmus Mundus programme is a co-operation and mobility programme which promotes the European Union as a centre of excellence in learning around the

world by supporting European top-quality Masters Courses. So far, the European Master had graduated more than 150 students. Web site: <http://www.computational-logic.eu>

- I am the founder (in 2004) and director until 2013 at the Free University of Bozen-Bolzano of the *European Master Program on Language and Communication Technologies* (EMLCT), an international joint Master of Science degree, sponsored by the Erasmus Mundus programme of the European Union, in cooperation with 9 European universities. Since 2013 the EMLCT programme is not held at the Free University of Bozen-Bolzano anymore. Web site: <http://www.lct-master.org>
- I have published on the web a self-standing introductory course on *description logics*, including slides, course material, reference literature, exercises <http://www.inf.unibz.it/~franconi/dl/course/>. The course has been adopted by more than 20 university courses around the world, and it had an average of up to 1,500 unique accesses every month. The material includes the above-mentioned software tools developed by me and my research group *Quelo* and *ORMiE* to experiment with the use of ontologies and description logics as knowledge representation and conceptual modelling languages.

Publications

- [1] Enrico Franconi, Alessandro Mosca, Xavier Oriol, Guillem Rull, and Ernest Teniente. OCL_{FO} : first-order expressive OCL constraints for efficient integrity checking. *Software & Systems Modeling*, pages 1–24, 2018.
- [2] Diego Calvanese and Enrico Franconi. First-order ontology mediated database querying via query reformulation. In Sergio Flesca, Sergio Greco, Elio Masciari, and Domenico Saccà, editors, *A Comprehensive Guide Through the Italian Database Research Over the Last 25 Years.*, volume 31 of *Studies in Big Data*, pages 169–185. Springer International Publishing, 2018.
- [3] Alessandro Artale, Enrico Franconi, Rafael Penaloza, and Francesco Sportelli. A decidable very expressive description logic for databases. In *The Semantic Web - ISWC 2017 - 16th International Semantic Web Conference*, 2017.
- [4] Stefania Costantini, Enrico Franconi, William Van Woensel, Roman Kontchakov, Fariba Sadri, and Dumitru Roman, editors. *Rules and Reasoning*, volume 10364 of *Lecture Notes in Computer Science*. Springer, 2017.
- [5] Alessandro Artale, Enrico Franconi, Rafael Peñaloza, and Francesco Sportelli. A decidable very expressive n-ary description logic for database applications (extended abstract). In *Proceedings of the 25th Italian Symposium on Advanced Database Systems (SEBD-2017)*, 2017.
- [6] Alessandro Artale and Enrico Franconi. Extending DLR with labelled tuples, projections, functional dependencies and objectification. In *Proceedings of the 29th International Workshop on Description Logics*, 2016.
- [7] Nhung Ngo and Enrico Franconi. Unique solutions in data exchange under STS mappings. In *Proceedings of the 10th Alberto Mendelzon International Workshop on Foundations of Data Management (AMW-2016)*, 2016.
- [8] Francesco Sportelli and Enrico Franconi. Formalisation of ORM derivation rules and their mapping into OWL. In *ODBASE Conference 2016*, pages 827–843, 2016.

- [9] Ingo Feinerer, Enrico Franconi, and Paolo Guagliardo. Lossless selection views under conditional domain constraints. *IEEE Trans. Knowl. Data Eng.*, 27(2):504–517, 2015.
- [10] Ingo Feinerer, Paolo Guagliardo, and Enrico Franconi. Lossless selection views under constraints. In *Proceedings of the 8th Alberto Mendelzon Workshop on Foundations of Data Management (AMW-14)*, 2014.
- [11] Enrico Franconi, Claire Gardent, Ximena Juarez-Castro, and Laura Perez-Beltrachini. Quelo natural language interface: Generating queries and answer descriptions. In *Proceedings of the workshop on Natural Language Interfaces for Web of Data*, 2014.
- [12] Enrico Franconi and Paolo Guagliardo. Translatable updates of selection views under constant complement. In *Database and Expert Systems Applications*, pages 295–309. Springer International Publishing, 2014.
- [13] Enrico Franconi, Paolo Guagliardo, Volha Kerhet, and Nhung Ngo. Interpolation and domain independence applied to databases. In *Abstracts of the iPRA 2014 workshop – Interpolation: From Proofs to Applications*. easychair.org, 2014.
- [14] Enrico Franconi, Alessandro Mosca, Xavier Oriol, Guillem Rull, and Ernest Teniente. Logic foundations of the OCL modelling language. In Eduardo Fermé and Joao Leite, editors, *Logics in Artificial Intelligence - 14th European Conference, JELIA 2014*. Springer, 2014.
- [15] Nhung Ngo and Enrico Franconi. Unique solutions in data exchange. In *22nd Italian Symposium on Advanced Database Systems, SEBD 2014*, pages 185–192, 2014.
- [16] Nhung Ngo and Enrico Franconi. Unique solutions in data exchange. In *Database and Expert Systems Applications*, pages 281–294. Springer International Publishing, 2014.
- [17] Laura Perez-Beltrachini, Claire Gardent, and Enrico Franconi. Incremental query generation. In *Proceedings of the 14th Conference of the European Chapter of the Association for Computational Linguistics (EACL 2014)*, pages 183–191, 2014.

- [18] Balder ten Cate, Enrico Franconi, and İnanç Seylan. Beth definability in expressive description logics. *Journal of Artificial Intelligence Research (JAIR)*, 48:347–414, 2013.
- [19] Ingo Feinerer, Enrico Franconi, and Paolo Guagliardo. Lossless horizontal decomposition with domain constraints on interpreted attributes. In *Big Data - 29th British National Conference on Databases (BNCOD 2013)*, volume 7968 of *Lecture Notes in Computer Science*, pages 77–91. Springer, 2013.
- [20] Enrico Franconi and Paolo Guagliardo. Effectively updatable conjunctive views. In *Proceedings of the 7th Alberto Mendelzon International Workshop on Foundations of Data Management*, 2013.
- [21] Enrico Franconi, Claudio Gutierrez, Alessandro Mosca, Giuseppe Pirrò, and Riccardo Rosati. The logic of extensional rdfs. In *International Semantic Web Conference (ISWC 2013)*, volume 8218 of *Lecture Notes in Computer Science*, pages 101–116. Springer, 2013.
- [22] Enrico Franconi, Volha Kerhet, and Nhung Ngo. Exact query reformulation over databases with first-order and description logics ontologies. *Journal of Artificial Intelligence Research (JAIR)*, 48:885–922, 2013.
- [23] Enrico Franconi and Alessandro Mosca. Towards a core ORM2 language (research note). In *OTM Workshops*, volume 8186 of *Lecture Notes in Computer Science*, pages 448–456. Springer, 2013.
- [24] Nhung Ngo and Enrico Franconi. Getting unique solution in data exchange. *Proceedings of the VLDB Endowment*, 6(12):1440–1443, 2013.
- [25] Dmitry Solomakhin, Enrico Franconi, and Alessandro Mosca. Logic-based reasoning support for sbvr. *Fundamenta Informaticae*, 124(4):543–560, 2013.
- [26] Ronell Alberts and Enrico Franconi. An integrated method using conceptual modelling to generate an ontology-based query mechanism. In *Proceedings of OWL: Experiences and Directions Workshop 2012 (OWLED-2012)*, 2012.

- [27] Pablo R. Fillottrani, Enrico Franconi, and Sergio Tessaris. The ICOM 3.0 intelligent conceptual modelling tool and methodology. *Semantic Web journal*, 3(3):293–306, 2012.
- [28] E. Franconi, V. Kerhet, and N. Ngo. Exact query reformulation over shox dboxes. In *Proc. of the 2012 International Workshop on Description Logics (DL-2012)*, 2012.
- [29] E. Franconi, A. Mosca, and D. Solomakhin. ORM2 encoding into description logics. In *2012 International Description Logics workshop (DL-2012)*, 2012.
- [30] Enrico Franconi and Paolo Guagliardo. On the translatability of view updates. In Juliana Freire and Dan Suciu, editors, *Proceedings of the 6th Alberto Mendelzon International Workshop on Foundations of Data Management*, volume 866 of *CEUR Workshop Proceedings*, pages 154–167, 2012.
- [31] Enrico Franconi, Paolo Guagliardo, and Sergio Tessaris. Quelo at the IESD challenge 2012. In *International Workshop on Intelligent Exploration of Semantic Data (IESD'2012)*, 2012.
- [32] Enrico Franconi, Volha Kerhet, and Nhung Ngo. Exact query reformulation with first-order ontologies and databases. In *Logics in Artificial Intelligence - 13th European Conference, JELIA 2012*, pages 202–214, 2012.
- [33] Enrico Franconi, Alessandro Mosca, and Dmitry Solomakhin. The formalization of orm2 and its encoding in owl2. In *International Workshop on Fact-Oriented Modeling (ORM 2012)*, 2012.
- [34] Enrico Franconi, Nhung Ngo, and Evgeny Sherkhonov. The definability abduction problem for data exchange - (abstract). In *Web Reasoning and Rule Systems - 6th International Conference, RR 2012*, pages 217–220, 2012.
- [35] Enrico Franconi and Sergio Tessaris. On the logic of SQL nulls. In Juliana Freire and Dan Suciu, editors, *Proceedings of the 6th Alberto Mendelzon International Workshop on Foundations of Data Management, Ouro Preto, Brazil, June 27-30, 2012*, volume 866 of *CEUR Workshop Proceedings*, pages 114–128, 2012.

- [36] Enrico Franconi and Sergio Tessaris. The algebra and the logic for sql nulls. In *Twentieth Italian Symposium on Advanced Database Systems, SEBD 2012*, pages 163–176. Edizioni Libreria Progetto, 2012.
- [37] Volha Kerhet and Enrico Franconi. On checking domain independence. In *Proceedings of the 9th Italian Convention on Computational Logic*, number 857 in CEUR Workshop Proceedings, pages 246–250, 2012.
- [38] Peter F. Patel-Schneider and Enrico Franconi. Ontology constraints in incomplete and complete data. In *ISWC 2012 - 11th International Semantic Web Conference*, volume 7649 of *Lecture Notes in Computer Science*, pages 444–459. Springer-Verlag, 2012.
- [39] R. Rosati and E. Franconi. Generalized ontology-based production systems. In *Proceedings of the 13th International Conference on Principles of Knowledge Representation and Reasoning (KR 2012)*, 2012.
- [40] Enrico Franconi, Yazmin Angelica Ibanez-Garcia, and Inanc Seylan. Query answering with DBoxes is hard. *Electronic Notes in Theoretical Computer Science, Elsevier*, 278(1):71–84, November 2011.
- [41] Enrico Franconi and Paolo Guagliardo. A constructive framework for view updating. In *Proc. of the 19th Italian Symposium on Advanced Database Systems (SEBD-2011)*, June 2011.
- [42] Balder ten Cate, Enrico Franconi, and Inanç Seylan. Beth definability in expressive description logics. In *IJCAI 2011, Proceedings of the 22nd International Joint Conference on Artificial Intelligence*, pages 1099–1106, 2011.
- [43] Pablo R. Fillottrani, Enrico Franconi, and Sergio Tessaris. Ontology design and integration with icom 3.0 - tool description and methodology. In *Proceedings of the 24th International Workshop on Description Logics (DL 2011)*, 2011.
- [44] E. Franconi, P. Guagliardo, S. Tessaris, and M. Trevisan. A natural language ontology-driven query interface. In *9th International Conference on Terminology and Artificial Intelligence*, 2011.

- [45] Enrico Franconi, Paolo Guagliardo, Marco Trevisan, and Sergio Tessaris. Quello: an ontology-driven query interface. In *Proceedings of the 24th International Workshop on Description Logics (DL 2011)*, 2011.
- [46] Enrico Franconi and David Toman. Fixpoints in temporal description logics. In *IJCAI 2011, Proceedings of the 22nd International Joint Conference on Artificial Intelligence*, pages 875–880, 2011.
- [47] Dmitry Solomakhin, Enrico Franconi, and Alessandro Mosca. Logic-based reasoning support for sbvr. In *Proceedings of the 26th Italian Conference on Computational Logic (CILC2011), Pescara, Italy, 31 August 31-2 September, 2011*, number 810 in CEUR Workshop Proceedings, Aachen, Germany, 2011. Sun SITE Central Europe.
- [48] Enrico Franconi, Thomas Meyer, and Ivan Varzinczak. Semantic diff as the basis for knowledge base versioning. In *Proc. of the 13th International Workshop on Non-Monotonic Reasoning (NMR-2010)*, May 2010.
- [49] Enrico Franconi, Paolo Guagliardo, and Marco Trevisan. An intelligent query interface based on ontology navigation. In *Proc. of the Workshop on Visual Interfaces to the Social and Semantic Web (VISSW 2010)*, February 2010.
- [50] Alexander Borgida, Jos de Bruijn, Enrico Franconi, Inanç Seylan, Umberto Straccia, David Toman, and Grant E. Weddell. On finding query rewritings under expressive constraints. In *Proceedings of the Eighteenth Italian Symposium on Advanced Database Systems (SEBD 2010)*, pages 426–437, 2010.
- [51] Enrico Franconi, Paolo Guagliardo, and Marco Trevisan. Quello: a NL-based intelligent query interface. In *Proc. of the 2nd Workshop on Controlled Natural Languages (CNL-2010)*, 2010.
- [52] Inanç Seylan, Enrico Franconi, and Jos de Bruijn. Optimal rewritings in definitorially complete description logics. In *Proceedings of the 23rd International Workshop on Description Logics (DL 2010)*, 2010.
- [53] Dmitry Solomakhin, Alessandro Mosca, Enrico Franconi, and Alberto Siena. On the logical foundations of business rules. In *Proceedings of 1st Workshop on Law Compliancy Issues in Organisational Systems and Strategies*, 2010.

- [54] İnanç Seylan, Enrico Franconi, and Jos de Bruijn. Effective query rewriting with ontologies over dboxes. In *Proceedings of the 21st International Joint Conference on Artificial Intelligence (IJCAI2009)*, pages 923–929, Pasadena, CA, USA, July 11–17 2009.
- [55] Alessandro Artale and Enrico Franconi. Foundations of temporal conceptual data models. In Alex Borgida, Vinay Chaudhri, Paolo Giorgini, and Eric Yu, editors, *Conceptual Modeling: Foundations and Applications*, volume 5600 of *Lecture Notes in Computer Science*, pages 10–35. Springer, 2009.
- [56] İnanç Seylan, Enrico Franconi, and Jos de Bruijn. Effective query rewriting with ontologies over dboxes (extended abstract). In *Proceedings of the 22nd International Workshop on Description Logics (DL 2009)*, 2009.
- [57] Sergio Tessaris, Enrico Franconi, Thomas Eiter, Claudio Gutierrez, Siegfried Handschuh, Marie-Christine Rousset, and Renate A. Schmidt, editors. *Reasoning Web. Semantic Technologies for Information Systems*, volume 5689 of *Lecture Notes in Computer Science*. Springer, 2009.
- [58] L. Bertossi, L. Bravo, E. Franconi, and A. Lopatenko. The complexity and approximation of fixing numerical attributes in databases under integrity constraints. *Information Systems*, 33(4-5):407–434, 2008.
- [59] Enrico Franconi. Ontologies and databases: myths and challenges. *Proceedings of the VLDB Endowment*, 1(2):1518–1519, 2008.
- [60] T. Eiter, E. Franconi, and M. Kifer, editors. *Rules and Rule Markup Languages for the Semantic Web*, *Fundamenta informaticae*. IOS Press, 2008.
- [61] Enrico Franconi. Conceptual schemas and ontologies for database access: Myths and challenges. In *Proc. of the 26th International Conference on Conceptual Modeling ER-2007*, volume 4801 of *Lecture Notes in Computer Science*. Springer, 2007.
- [62] Diego Calvanese, Enrico Franconi, Volker Haarslev, Domenico Lembo, Boris Motik, Anni-Yasmin Turhan, and Sergio Tessaris, editors. *Proceedings of the 2007 International Workshop on Description Logics (DL2007), Brixen-Bressanone, near Bozen-Bolzano, Italy, 8-10 June, 2007*, volume 250 of *CEUR Workshop Proceedings*. CEUR-WS.org, 2007.

- [63] Enrico Franconi, Michael Kifer, and Wolfgang May, editors. *The Semantic Web: Research and Applications, 4th European Semantic Web Conference, ESWC 2007, Innsbruck, Austria, June 3-7, 2007, Proceedings*, volume 4519 of *Lecture Notes in Computer Science*. Springer, 2007.
- [64] Paolo Dongilli and Enrico Franconi. An Intelligent Query Interface with Natural Language Support. In *Proc. of the 19th Int. Florida Artificial Intelligence Research Society Conference (FLAIRS 2006)*, Melbourne Beach, Florida, USA, May 2006.
- [65] Pablo Fillottrani, Enrico Franconi, and Sergio Tessaris. The new ICOM ontology editor. In *Proceedings of the 2006 International Workshop on Description Logics (DL2006)*, 2006.
- [66] E. Franconi, F. Grandi, and F. Mandreoli. Schema evolution and versioning: A logical and computational characterisation. *Database Schema Evolution and Meta-Modeling*, pages 85–99, 2006.
- [67] Enrico Franconi. The logic of rdf and sparql: a tutorial. In *Proceedings of the 25th ACM SIGACT-SIGMOD-SIGART Symposium on Principles of Database Systems (PODS-06)*, 2006.
- [68] C. Lutz, F. Baader, E. Franconi, D. Lembo, R. Möller, R. Rosati, U. Sattler, B. Suntisrivaraporn, and S. Tessaris. Reasoning support for ontology design. *OWL: Experiences and Directions*, 2006, 2006.
- [69] Pedro Barahona, François Bry, Enrico Franconi, Nicola Henze, and Ulrike Sattler, editors. *Reasoning Web*. Springer-Verlag, 2006.
- [70] Thomas Eiter, Enrico Franconi, Ralph Hodgson, and Susie Stephens, editors. *Rules and Rule Markup Languages for the Semantic Web, Second International Conference, RuleML 2006, Athens, Georgia, USA, November 10-11, 2006, Proceedings*. IEEE Computer Society, 2006.
- [71] Jos de Bruijn, Enrico Franconi, and Sergio Tessaris. Logical reconstruction of normative RDF. In *Proc. of the Workshop on OWL Experiences and Directions (OWLED 2005)*, number 188 in CEUR Workshop Proceedings, Galway, Ireland, November 2005.

- [72] Jos de Bruijn, Enrico Franconi, and Sergio Tessaris. Logical reconstruction of rdf and ontology languages. In *2nd Workshop on Principles and Practice of Semantic Web Reasoning (PPSWR 2005)*, volume 3703 of *Lecture Notes in Computer Science*, pages 65–71, Dagstuhl, Germany, September 2005. Springer-Verlag.
- [73] Tiziana Catarci, Tania Di Mascio, Paolo Dongilli, Enrico Franconi, Giuseppe Santucci, and Sergio Tessaris. SEWASIE (semantic web and agents in integrated economies) project: Usability evaluation tests. In *Proceedings of the 4th Italian Symposium on Human-Computer Interaction (HCITALY 2005)*, Rome, Italy, September 2005.
- [74] Leopoldo Bertossi, Loreto Bravo, Enrico Franconi, and Andrei Lopatenko. Complexity and approximation of fixing numerical attributes in databases under integrity constraints. In *Proc. of the Databases Programming Languages Conference (DBPL-05)*, volume 3774 of *Lecture Notes in Computer Science*, pages 262–278, Trondheim, Norway, August 2005.
- [75] Leopoldo Bertossi, Loreto Bravo, Enrico Franconi, and Andrei Lopatenko. Fixing inconsistent databases by updating numerical attributes. In *Proc. First International Workshop on Logical Aspects and Applications of Integrity Constraints (LAAIC 2005)*, Copenhagen, Denmark, August 2005.
- [76] Paolo Dongilli, Pablo Fillottrani, Enrico Franconi, and Sergio Tessaris. A multi-agent system for querying heterogeneous data sources with ontologies. In *Proceedings of Thirteenth Italian Symposium on Advanced Database Systems (SEBD-2005)*, Brixen-Bressanone, Italy, June 2005.
- [77] Enrico Franconi. Editing as a data repair problem: a logical formalisation. In *55th Session of the International Statistical Institute (ISI-2005)*, April 2005.
- [78] Grigoris Antoniou, Enrico Franconi, and Frank van Harmelen. Introduction to semantic web ontology languages. In N. Eisinger and J. Maluszynski, editors, *REVERSE 2005*, volume 3564 of *Lecture Notes in Computer Science*, pages 1–21. Springer-Verlag, 2005.
- [79] Alessandro Artale and Enrico Franconi. Temporal description logics. *Foundations of Artificial Intelligence*, 1(C):375–388, 2005.

- [80] L. Bertossi, L. Bravo, E. Franconi, and A. Lopatenko. Fixing inconsistent databases by updating numerical attributes. In *Database and Expert Systems Applications, 2005. Proceedings. Sixteenth International Workshop on*, pages 854–858. IEEE, 2005.
- [81] Leopoldo Bertossi, Loreto Bravo, Enrico Franconi, and Andrei Lopatenko. Data cleansing for numerical data sets. In *Proceedings of the Thirteenth Italian Symposium on Advanced Database Systems, SEBD 2005*, 2005.
- [82] T. Catarci, T. Di Mascio, P. Dongilli, E. Franconi, G. Santucci, and S. Tessaris. An ontology-based query manager: Usability evaluation. *HCIItaly2005 [16]*, pages 95–100, 2005.
- [83] Tiziana Catarci, Paolo Dongilli, Tania Di Mascio, Enrico Franconi, Giuseppe Santucci, and Sergio Tessaris. Usability evaluation tests in the SeWAsIE (SEmantic Webs and AgentS in Integrated Economies) project. In *Proceedings of the 11th International Conference on Human-Computer Interaction (HCI 2005)*, 2005.
- [84] E. Franconi. The knowledge web network of excellence. *Interoperability of Enterprise Software and Applications*, page 447, 2005.
- [85] Enrico Franconi and Andrei Lopatenko. The codbz information integration system for autonomous data sources. In *Proceedings of the Open Interop Workshop on Enterprise Modelling and Ontologies for Interoperability*, 2005.
- [86] Sergio Tessaris and Enrico Franconi. Rules and queries with ontologies: a unifying logical framework. In *Proc. of the 2005 Description Logic Workshop (DL 2005)*, 2005.
- [87] Andrea Cali, Diego Calvanese, Enrico Franconi, Maurizio Lenzerini, and Letizia Tanca, editors. *Proceedings of the Thirteenth Italian Symposium on Advanced Database Systems (SEBD 2005)*, Brixen-Bressanone, Italy, 2005.
- [88] Alessandro Artale, Claire Dixon, Michael Fisher, and Enrico Franconi. Temporal representation and reasoning. *Journal of Logic and Computation*, 14(1–4), 2004.

- [89] L. Bertossi, L. Bravo, E. Franconi, and A. Lopatenko. Fixing numerical attributes under integrity constraints. In *Proc. Tenth International Symposium on Database Programming Languages (DBPL 05)*, Springer LNCS 3774, 2005, 2004.
- [90] Tiziana Catarci, Paolo Dongilli, Tania Di Mascio, Enrico Franconi, Giuseppe Santucci, and Sergio Tessaris. An ontology based visual tool for query formulation support. In Lorenza Saitta Ramon López de Mántaras, editor, *Proc. of the 16th Eur. Conf. on Artificial Intelligence (ECAI 2004)*, pages 308–312. IOS Press, 2004.
- [91] S. David and E. Franconi. Semantic web query tools evaluation. *Proceedings of Semantic Web Application and Perspective, 1st Italian Semantic Web Workshop*, 2004.
- [92] Paolo Dongilli, Enrico Franconi, and Sergio Tessaris. Semantics driven support for query formulation. In *Proc. of the 2004 Description Logic Workshop (DL 2004)*, 2004.
- [93] E. Franconi. Description logics for interoperability. *CAiSE Workshops (3)*, pages 307–310, 2004.
- [94] E. Franconi and A. Kamble. The GMD data model and algebra for multidimensional information. *Advanced Information Systems Engineering*, pages 97–116, 2004.
- [95] Enrico Franconi. Using ontologies. *IEEE Intelligent Systems*, 19(1), 2004.
- [96] Enrico Franconi. Description logics for conceptual design, information access, and ontology integration: Research trends. In *Proc. of the CAiSE workshop on Enterprise Modelling and Ontologies for Interoperability (EMOI - INTEROP 2004)*, 2004.
- [97] Enrico Franconi and A. Kamble. A data warehouse conceptual data model. In *Proc. of the 16th Conf. on Scientific and Statistical Database Management (SSDBM'04)*, pages 435–436, 2004.
- [98] Enrico Franconi and A. Kamble. The GMD data model and algebra for multidimensional information. In *Proc. of the 16th Int. Conf. on Advanced Information Systems Engineering (CAiSE 2004)*, 2004.

- [99] Enrico Franconi, Gabriel Kuper, Andrei Lopatenko, and Ilya Zaihrayeu. The coDB robust peer to peer database system. In *Schreiber (Eds.): Proceedings of the Twelfth Italian Symposium on Advanced Database Systems, SEBD 2004*, pages 382–393, 2004.
- [100] Enrico Franconi, Gabriel Kuper, Andrei Lopatenko, and Ilya Zaihrayeu. Queries and updates in the coDB peer to peer database system. In *Proc. of the 30th Int. Conf. on Very Large Data Bases (VLDB 2004)*, pages 1277–1280. Morgan Kaufmann, 2004.
- [101] Enrico Franconi, Gabriel Kuper, Andrei Lopatenko, and Ilya Zaihrayeu. A distributed algorithm for robust data sharing and updates in P2P database networks. In *Proc. of the Int. Workshop on Peer-to-Peer Computing and Databases, collocated with Advances in Database Technology (EDBT 2004)*, 2004.
- [102] Enrico Franconi, Gabriel Kuper, Andrei Lopatenko, and Ilya Zaihrayeu. The coDB robust peer to peer database system. In *Proc. of the 2nd Workshop on Semantics in Peer-to-Peer and Grid Computing, collocated with the 13th Int. World Wide Web Conf.*, 2004.
- [103] Enrico Franconi and Sergio Tessaris. Rules and queries with ontologies: a unified logical framework. In *Proc. of the Workshop on Principles and Practice of Semantic Web Reasoning (PPSWR'04)*, 2004.
- [104] M. Peim, Enrico Franconi, and N. Paton. Applying functional languages in knowledge-based information integration systems. In *Functional Approaches to Computing with Data*, pages 239–261. Springer, 2004.
- [105] Alessandro Artale, Enrico Franconi, and F. Mandreoli. Description logics for modeling dynamic information. In *Logics for Emerging Applications of Databases*, pages 239–275. Springer-Verlag, 2003.
- [106] Tiziana Catarci, Tania Di Mascio, Enrico Franconi, Giuseppe Santucci, and Sergio Tessaris. An ontology based visual tool for query formulation support. In Tari Z. Meersman R., editor, *On The Move to Meaningful Internet Systems 2003: OTM 2003 Workshops*, volume 2889 of *Lecture Notes in Computer Science*, pages 32–33. Springer, 2003.
- [107] Enrico Franconi. Description logics for natural language processing. In Franz Baader, Diego Calvanese, Deborah McGuinness, Daniele Nardi, and

Peter F. Patel-Schneider, editors, *The Description Logic Handbook: Theory, Implementation and Applications*, chapter 15. Cambridge University Press, 2003.

- [108] Enrico Franconi. Description logics for conceptual design, information access, and ontology integration: Research trends. *"Networks" journal of the philosophy of Artificial Intelligence and Cognitive Science, special issue on the Semantic Web*, 2, 2003.
- [109] Enrico Franconi and A. Kamble. The GMD data model for multidimensional information: a brief introduction. In *Proc. of the 5th Int. Conf. on Data Warehousing and Knowledge Discovery (DaWaK'03)*, 2003.
- [110] Enrico Franconi, Gabriel Kuper, Andrei Lopatenko, and Luciano Serafini. A robust logical and computational characterisation of peer-to-peer database systems. In *Proc. of the Int. Workshop On Databases, Information Systems and Peer-to-Peer Computing, collocated with VLDB*, volume 2944 of *Lecture Notes in Computer Science*, pages 64–77, 2003.
- [111] Enrico Franconi and David Toman. Fixpoint extensions of temporal description logics. In *Proc. of the 2003 Description Logic Workshop (DL 2003)*. CEUR Electronic Workshop Proceedings, 2003.
- [112] M. Peim, Enrico Franconi, and N. Paton. Estimating the quality of answers when querying over description logic ontologies. *Data and Knowledge Engineering*, 47(1):105–129, 2003.
- [113] Diego Calvanese, Giuseppe De Giacomo, and Enrico Franconi, editors. *Proc. of the 2003 Description Logic Workshop (DL 2003)*. CEUR Electronic Workshop Proceedings, 2003.
- [114] Alessandro Artale, Enrico Franconi, Frank Wolter, and Michael Zakharyashev. A temporal description logic for reasoning over conceptual schemas and queries. In *Proc. of the 8th Eur. Workshop on Logics in Artificial Intelligence (JELIA-02)*, volume 2424 of *LNAI*, pages 98–110. Springer, 2002.
- [115] B. Bennett, Claire Dixon, Michael Fisher, Enrico Franconi, Ian Horrocks, Ulrich Hustadt, and Marteen de Rijke. Combinations of modal logics. *Artificial Intelligence Rev.*, 17(1–4):1–20, 2002.

- [116] Diego Calvanese, Giuseppe De Giacomo, and Enrico Franconi. Development of ontologies for the semantic web: An overview. In *Proc. of the 40th Annual Conference of the Italian Computing Association (AICA 2002)*, 2002.
- [117] M. Peim, E. Franconi, N.W. Paton, and C.A. Goble. Querying objects with description logics. *Proc. of the Int. Workshop on Knowledge Representation Meets Databases (KRDB)*, 2002.
- [118] M. Peim, Enrico Franconi, and N. Paton. Estimating soundness and completeness of queries over description logic ontologies. In *Proc. of the 9th Int. Workshop on Knowledge Representation meets Databases (KRDB 2002)*, 2002.
- [119] M. Peim, Enrico Franconi, N. Paton, and C. Goble. Query processing with description logic ontologies over object-wrapped databases. In *Proc. of the 14th Int. Conf. on Scientific and Statistical Database Management (SSDBM 2002)*, pages 27–36. IEEE Computer Society, 2002.
- [120] Alessandro Artale and Enrico Franconi. Temporal ER modeling with description logics: A preliminary report. *Special Issue on Management of Temporal Information, Bullettin of the Italian Association for Artificial Intelligence, AI*IA Notizie*, Anno XIV(1), 2001.
- [121] Alessandro Artale, Enrico Franconi, M. Mosurovic, Frank Wolter, and Michael Zakharyashev. The DLRUS temporal description logic. In *Proc. of the 2001 Description Logic Workshop (DL 2001)*, 2001.
- [122] Alessandro Artale, Enrico Franconi, M. Mosurovic, Frank Wolter, and Michael Zakharyashev. Reasoning over conceptual schemas and queries in temporal databases. In *Proc. of the 9th Ital. Conf. on Database Systems (SEBD 2001)*, 2001.
- [123] Enrico Franconi, A. Laureti Palma, Nicola Leone, S. Perri, and F. Scarcello. Census data repair: A challenging application of disjunctive logic programming. In *Proc. of the 8th Int. Conf. on Logic for Programming, Artificial Intelligence and Reasoning (LPAR 2001)*, 2001.
- [124] Enrico Franconi, Ken Barker, and Diego Calvanese, editors. *Proceedings of the International Workshop on Foundations of Models for Information Integration (FMII-2001)*. Springer-Verlag, 2001.

- [125] M. Jarke, C. Quix, D. Calvanese, M. Lenzerini, E. Franconi, S. Ligoudistianos, P. Vassiliadis, and Y. Vassiliou. Concept based design of data warehouses: the DWQ demonstrators. *SIGMOD Rec.*, 29(2):591–, May 2000.
- [126] Carlos Areces, Enrico Franconi, Rajeev Goré, Maarten de Rijke, and Bernd-Holger Schlingloff. Use your logic. *Logic Journal of the IGPL*, 8(3), 2000.
- [127] Alessandro Artale and Enrico Franconi. A survey of temporal extensions of description logics. *Annals of Mathematics and Artificial Intelligence*, 30(1-4):171–210, 2000.
- [128] Alexander Borgida, Enrico Franconi, and Ian Horrocks. Explaining alc subsumption. In Werner Horn, editor, *Proc. of the 14th Eur. Conf. on Artificial Intelligence (ECAI-2000)*, pages 209–213. IOS Press, 2000.
- [129] Enrico Franconi. Knowledge representation meets digital libraries. In *DELOS Workshop: Information Seeking, Searching and Querying in Digital Libraries*, 2000.
- [130] Enrico Franconi, Fabio Grandi, and Federica Mandreoli. A general framework for evolving schemata support. In *Proc. of the 8th Ital. Conf. on Database Systems (SEBD-2000)*, pages 371–384, 2000.
- [131] Enrico Franconi, Fabio Grandi, and Federica Mandreoli. Schema evolution and versioning: A logical and computational characterisation. In *9th International Workshop on Foundations of Models and Languages for Data and Objects, FoMLaDO/DEMM 2000*, pages 85–99, Dagstuhl, Germany, 2000.
- [132] Enrico Franconi, Fabio Grandi, and Federica Mandreoli. A semantic approach for schema evolution and versioning in object-oriented databases. In *Computational Logic - CL 2000, First International Conference*, volume 1861 of *Lecture Notes in Computer Science*, pages 1048–1062. Springer-Verlag, 2000.
- [133] Enrico Franconi, Fabio Grandi, and Federica Mandreoli. A semantic approach for schema evolution and versioning in object-oriented databases. In *Proceedings of the 2000 International Workshop on Description Logics (DL2000)*, pages 99–112, 2000.

- [134] Enrico Franconi and Gary Ng. The i.com tool for intelligent conceptual modeling. In Mokrane Bouzeghoub, Matthias Klusch, Werner Nutt, and Ulrike Sattler, editors, *Proceedings of the 7th International Workshop on Knowledge Representation meets Databases (KRDB 2000), Berlin, Germany, August 21, 2000*, volume 29 of *CEUR Workshop Proceedings*, pages 45–53. CEUR-WS.org, 2000.
- [135] Alessandro Artale and Enrico Franconi. Representing a robotic domain using temporal description logics. *Artificial Intelligence for Engineering Design, Analysis and Manufacturing (AIEDAM)*, Cambridge Univ Press, 13(2):105–117, 1999.
- [136] Alessandro Artale and Enrico Franconi. Temporal e-r modelling with description logics. In *Proc. of the 7th Ital. Conf. on Database Systems (SEBD-1999)*, pages 357–369, 1999.
- [137] Alessandro Artale and Enrico Franconi. Temporal ER modeling with description logics. In *Conceptual Modeling - ER '99, 18th International Conference on Conceptual Modeling*, number 1728 in *Lecture Notes in Computer Science*, pages 81–95. Springer-Verlag, 1999.
- [138] Alessandro Artale and Enrico Franconi. Introducing temporal description logics. In *6th International Workshop on Temporal Representation and Reasoning, TIME '99*, pages 2–5, 1999.
- [139] Alessandro Artale and Enrico Franconi. Reasoning with enhanced temporal entity-relationship models. In *Proceedings of the 6th International Workshop on Knowledge Representation meets Databases (KRDB'99)*, volume 21 of *CEUR Workshop Proceedings*, pages 1–5, 1999.
- [140] Alessandro Artale and Enrico Franconi. Reasoning with enhanced temporal entity-relationship models. In *10th International Workshop on Database & Expert Systems Applications*, pages 482–486, 1999.
- [141] Alexander Borgida, Enrico Franconi, Ian Horrocks, Deborah L. McGuinness, and Peter F. Patel-Schneider. Explaining alc subsumption. In *Proceedings of the 1999 International Workshop on Description Logics (DL '99)*, 1999.
- [142] Enrico Franconi, Franz Baader, Ulrike Sattler, and Panos Vassiliadis. Multidimensional data models and aggregation. In M. Jarke, M. Lenzerini,

- Y. Vassilious, and P. Vassiliadis, editors, *Fundamentals of Data Warehousing*, chapter 5, pages 87–106. Springer-Verlag, 1999.
- [143] Enrico Franconi, Giuseppe De Giacomo, Ian Horrocks, Deborah L. McGuinness, Werner Nutt, Peter F. Patel-Schneider, and Christopher A. Welty. Report on the 1998 international workshop on description logics (dl'98). *Journal of Logic and Computation*, 9(3):449–456, 1999.
- [144] Enrico Franconi and Ulrike Sattler. A data warehouse conceptual data model for multidimensional aggregation: a preliminary report. *Italian Association for Artificial Intelligence AI*IA Notizie*, 1:9–21, 1999.
- [145] Enrico Franconi and Ulrike Sattler. A data warehouse conceptual data model for multidimensional aggregation. In *Proceedings of the Intl. Workshop on Design and Management of Data Warehouses, DMDW'99*, page 13, 1999.
- [146] Enrico Franconi and Michael Kifer, editors. *Proceedings of the 6th International Workshop on Knowledge Representation meets Databases (KRDB'99), Linköping, Sweden, July 29-30, 1999*, volume 21 of *CEUR Workshop Proceedings*. CEUR-WS.org, 1999.
- [147] Alessandro Artale and Enrico Franconi. A temporal description logic for reasoning about actions and plans. *Journal of Artificial Intelligence Research (JAIR)*, 9:463–506, 1998.
- [148] Enrico Franconi. Crack. In *Proceedings of the 1998 International Workshop on Description Logics (DL'98)*, volume 11. CEUR Electronic Workshop Proceedings, 1998.
- [149] Enrico Franconi, Giuseppe De Giacomo, Robert M. MacGregor, Werner Nutt, and Christopher A. Welty, editors. *Proceedings of the 1998 International Workshop on Description Logics (DL'98), IRST, Povo - Trento, Italy, June 6-8, 1998*, volume 11 of *CEUR Workshop Proceedings*. CEUR-WS.org, 1998.
- [150] Enrico Franconi. Software asset classification and retrieval with dl: the intelligent reuse assistant. In *Proceedings of the 1997 International Workshop on Description Logics*, Université Paris-Sud, 1997.

- [151] Ronald J. Brachman, Francesco M. Donini, Enrico Franconi, Ian Horrocks, Alon Y. Levy, and Marie-Christine Rousset, editors. *Proceedings of the 1997 International Workshop on Description Logics, Université Paris-Sud, Centre d'Orsay, Laboratoire de Recherche en Informatique LRI*, volume 410 of *URA-CNRS*, 1997.
- [152] Enrico Franconi. Logical form and knowledge representation: towards a reconciliation. In *Working Notes of the AAAI Fall Symposium on "Knowledge Representation Systems based on Natural Language"*, pages 20–24, Cambridge MA, November 1996.
- [153] Lin Padgham, Enrico Franconi, Manfred Gehrke, Deborah L. McGuinness, and Peter F. Patel-Schneider, editors. *Proceedings of the 1996 International Workshop on Description Logics (DL'96)*, number TR-WS-96-05, Cambridge, MA, November 1996. AAAI Press.
- [154] Paolo Bresciani and Enrico Franconi. Description logics for information access. In *Proc. of AI*IA Workshop on "Access, Extraction and Integration of Knowledge"*, Napoli, September 1996.
- [155] Daniele Nardi, Enrico Franconi, and Nicola Guarino, editors. *Proceedings of the AI*IA Italian Association for Artificial Intelligence workshop on "Knowledge Access, Extraction, and Integration"*, Napoli, Italy, September 1996.
- [156] Alessandro Artale, Enrico Franconi, and Nicola Guarino. Open problems with part-whole relations. In *Proceedings of the 1996 International Workshop on Description Logics*, pages 70–73, 1996.
- [157] Alessandro Artale, Enrico Franconi, Nicola Guarino, and Luca Pazzi. Part-whole relations in object-centered systems: An overview. *Data & Knowledge Engineering*, 20(3):347–383, 1996.
- [158] Paolo Bresciani, Enrico Franconi, and Sergio Tessaris. Implementing and testing expressive description logics: a preliminary report. In *Proceedings of the International KRUSE Symposium*, Santa Cruz CA, August 1995.
- [159] Alessandro Artale and Enrico Franconi. Hierarchical plans in a description logic of time and action. In *Proceedings of the 1995 International Workshop on Description Logics*, pages 1–5, Rome, Italy, June 1995. Also in the

Working Notes of the IJCAI-95 workshop "The Next Generation Of Plan Recognition Systems"; August 1995.

- [160] Alessandro Artale and Enrico Franconi. Hierarchical Plans in a Description Logic of Time and Action. In M. Bauer, editor, *IJCAI 95 Workshop on The Next Generation of Plan Recognition Systems: Challenges for and Insight from Related Areas of AI (Working Notes)*, pages 13–17, Montréal, Canada, 1995.
- [161] Paolo Bresciani, Enrico Franconi, and Sergio Tessaris. Implementing and testing expressive description logics: Preliminary report. In Alexander Borgida, Maurizio Lenzerini, Daniele Nardi, and Bernhard Nebel, editors, *Proc. of the 1995 Description Logic Workshop (DL'95)*, volume 07.95, pages 131–139. Università degli Studi di Roma "La Sapienza", Dipartimento di Informatica e Sistemistica, 1995.
- [162] Enrico Franconi. Description logics for natural language processing. In *Working Notes of the 1994 AAAI Fall Symposium on "Knowledge Representation for Natural Language Processing in Implemented Systems"*, pages 37–44, New Orleans, Louisiana, November 1994. Also presented at the European Research Conference on "Logic, Language and Information", organized by the European Science Foundation (ESF); Espinho, Portugal, December 1994.
- [163] Alessandro Artale and Enrico Franconi. Persistent properties in a description logic of time and action. In *Working Notes of the AI*IA Temporal Reasoning Workshop 1994*, pages 9–12, Parma, Italy, September 1994.
- [164] E. Franconi and J. Allgayer. Collective entities and relations in concept languages. In Gerhard Lakemeyer and Bernhard Nebel, editors, *Foundations of Knowledge Representation and Reasoning*, volume 810 of *Lecture Notes in Artificial Intelligence Series*, pages 13–29. Springer-Verlag, June 1994.
- [165] Alessandro Artale, Claudio Bettini, and Enrico Franconi. Homogeneous concepts in a temporal description logic. In *Proceedings of the International Workshop on Description Logics*, pages 36–41. DFKI, Saarbrücken, Bonn, Germany, May 1994.
- [166] Enrico Franconi and Vania Rabito. A relation-based description logic. In *Proceedings of the International Workshop on Description Logics*, pages 62–66. Bonn, Germany, May 1994.

- [167] Enrico Franconi, Alessandra Giorgi, and Fabio Pianesi. A mereological characterization of temporal and aspectual phenomena. In Carlos Martin-Vide, editor, *Current Issues in Mathematical Linguistics*, North-Holland Linguistic Series, pages 269–278. Elsevier, April 1994.
- [168] Alessandro Artale and Enrico Franconi. A computational account for a description logic of time and action. In Pietro Torasso Jon Doyle, Erik Sandewall, editor, *Proceedings of the 4th International Conference on Principles of Knowledge Representation and Reasoning (KR'94)*, pages 3–14. Morgan Kaufmann, 1994.
- [169] Franz Baader, Bernhard Hollunder, Bernhard Nebel, Hans-Jürgen Proflich, and Enrico Franconi. An empirical analysis of optimization techniques for terminological representation systems. *Applied Intelligence*, Kluwer, 4(2):109–132, 1994.
- [170] Alessandro Artale and Enrico Franconi. A unified framework for representing time, actions and plans. In F. D. Anger, H. W. Guesgen, and J. van Benthem, editors, *Workshop Notes of the IJCAI-93 Workshop on Temporal and Spatial Reasoning*, pages 193–217, August 1993. Also in the Workshop Notes of the IJCAI-93 Workshop on Object-Based Representation System, pages 32–44; a shorter version appears in the Proceedings of the Italian Planning Workshop 1993 (IPW'93), pages 167–172, Roma Italy, September 1993.
- [171] Enrico Franconi, Alessandra Giorgi, and Fabio Pianesi. A mereological approach to tense and aspect. In *Proc. of the International Conference on Mathematical Linguistics (ICML-93)*, Barcelona, Spain, April 1993. (Abstract).
- [172] E. Franconi. A treatment of plurals and plural quantifications based on a theory of collections. *Minds and Machines*, 3(4):453–474, 1993.
- [173] Enrico Franconi, Alessandra Giorgi, and Fabio Pianesi. Tense and aspect: A mereological approach. In *Proceedings of the 13th International Joint Conference on Artificial Intelligence (IJCAI-93)*, pages 1222–1229, 1993.
- [174] Oliviero Stock, Giuseppe Carenini, Federico Cecconi, Enrico Franconi, Alberto Lavelli, Bernardo Magnini, Fabio Pianesi, Marco Ponzi, Vieri Samek-Lodovici, and Carlo Strapparava. ALFRESCO: Enjoying the combination

of natural language processing and hypermedia for information exploration. In Mark T. Maybury, editor, *Intelligent Multimedia Interfaces*, pages 197–224. AAAI Press / The MIT Press, 1993.

- [175] J. Allgayer and E. Franconi. Collective entities and relations in concept languages. In *Working Notes of the AAAI Fall Symposium "Issues in Description Logics: Users Meet Developers"*, pages 31–35, Cambridge, MA, October 1992.
- [176] J. Allgayer and E. Franconi. A semantic account of plural entities within a hybrid representation system. In *Proc. of the 5th International Symposium on Knowledge Engineering*, pages 305–312, October 1992.
- [177] Enrico Franconi. Collective entities and relations in concept languages. In *Issues in Description Logics: Users Meet Developers*, pages 31–35, Boston, MA, USA, October 1992.
- [178] E. Franconi. Extending hybridity within the YAK knowledge representation system. *AI*IA notizie, the Italian Association for Artificial Intelligence Journal*, 5(2):55–58, June 1992.
- [179] Jürgen Allgayer and Enrico Franconi. Collective entities and relations in concept languages. In *ECAI Workshop on Knowledge Representation and Reasoning*, pages 13–29, 1992.
- [180] Franz Baader, Bernhard Hollunder, Bernhard Nebel, Hans-Jürgen Profittlich, and Enrico Franconi. An empirical analysis of optimization techniques for terminological representation systems, or making kris get a move on. In *Proceedings of the 3rd International Conference on Principles of Knowledge Representation and Reasoning (KR'92)*, pages 270–281, 1992.
- [181] E. Franconi, B. Magnini, and O. Stock. Prototypes in a hybrid language with primitive descriptions. *Computers and Mathematics with Applications*, 23(6-9):543–555, 1992.
- [182] E. Franconi. A short presentation of YAK, a hybrid knowledge representation system. pages 174–177. Department of Computer Science, Technische Universität Berlin, October 1991.

- [183] Enrico Franconi. Extending hybridity within the yak knowledge representation system. In *Proceedings of the 1991 International Description Logics Workshop*, pages 43–46, 1991.
- [184] Manfred Gehrke, Gerrit Burkert, Peter Forster, and Enrico Franconi. Natural language processing and description logics. pages 162–164. Department of Computer Science, Technische Universität Berlin, 1991.
- [185] Roldano Cattoni and Enrico Franconi. Walking through the semantics of frame-based description languages: a case study. In *5th International Symposium on Methodologies for Intelligent Systems (ISMIS'90)*, pages 234–241, Knoxville, TN, 1990.