

Curriculum Vitae et Studiorum

Marco Montali

July 19, 2017

SHORT BIO

I am an *Associate Professor* at the Faculty of Computer Science, Free University of Bozen-Bolzano. I received a BEng *cum laude* in Computer Science Engineering in 2003, a MEng *cum laude* in Computer Science Engineering in 2005, and a PhD in Electronics, Computer Science and Telecommunications Engineering in 2009.

I devise techniques grounded in artificial intelligence, formal methods, knowledge representation and reasoning, for the intelligent management of dynamic systems operating over data, with particular emphasis on business processes and multiagent systems.

On these topics, I authored a *Springer monograph* and *more than 140 papers*, appeared in top-tier, international journals, conferences, and workshops, such as ACM Trans. On the Web, ACM Trans. on Intelligent Systems and Technology, Journal of Artificial Intelligence REsearch, Formal Aspects of Computing, Information&Computation, Information Systems, PODS, IJCAI, AAI, KR, AAMAS, ECAI, BPM, CIKM, ICSOC, CAiSE.

I have been investigator in the EU STREP Project ACSI (Artifact-Centric Service Interoperation, FP7-257593), principal investigator and co-investigator in several local projects focused on business processes and data, and I am currently principal co-investigator in the Interregional Project Network IPN12 KAOS (Knowledge-Aware Operational Support).

My current h-index is *27*, and my current i-10 index is *57*, with *2702* overall citations (source: Google Scholar, as of July 13, 2017).

My PhD dissertation received the 2007-2009 “*Marco Cadoli*” *Distinguished Dissertation Award*, given by the Italian Association for Logic Programming to the most outstanding Italian thesis focused on computational logic.

In 2015, I received the “*Marco Somalvico*” *2015 Prize* from the Italian Association for Artificial Intelligence. The prize is given to the best under 35 Italian researcher who autonomously contributed to advance the state-of-the-art in Artificial Intelligence.

I am recipient of *five best paper awards*.

I am lecturer of *Data and Process Modelling* at the Master in Computer Science, Faculty of Computer Science, Free University of Bozen-Bolzano.

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1 Personal Information

Name: Marco Montali
Place and date of birth: Verona (Italy), 27/09/1981
Nationality: Italian
Address: Faculty of Computer Science
Free University of Bozen-Bolzano
Piazza Domenicani 3, 39100 Bolzano, Italy
Telephone numbers: Mobile +39-333 1581175
Office +39-0471 016116
Fax: +39-0471 016009
Email: montali@inf.unibz.it
Web: <http://www.inf.unibz.it/~montali/>
Marital status: Co-habiting, 2 daughters
Languages: **Italian** *Native speaker*
English *C1 level (IELTS Academic 7.5)*
German *B2 level (Patentino di bilinguismo B)*

2 Education Since Leaving School

2000 – 2003

Bachelor Degree in Computer Engineering, obtained on July 23, 2003 at the Faculty of Engineering, *University of Bologna*. BEng thesis title: *Modelling interaction in multiagent systems* (supervisor: Prof. Paola Mello). Final mark *110/110 cum laude*.

2003 – 2005

Master Degree in Computer Engineering, obtained on October 26, 2005 at the Faculty of Engineering, *University of Bologna*. MEng thesis title: *A graphical language for the specification and verification of protocols* (supervisor: Prof. Paola Mello). Final mark: *110/110 cum laude*.

2006 – 2009

PhD in Computer Science, Electronics and Telecommunications Engineering, obtained on April 8, 2009 at the *University of Bologna*. PhD thesis title: *Specification and Verification of Declarative Open Interaction Models - A Logic-Based Framework* (supervisor: Prof. Paola Mello).

03/12/2013

Italian Associate Professorship Habilitation in Computer Engineering. Scientific sector: *09/H1 (Sistemi di Elaborazione delle Informazioni)*.

19/01/2015

Italian Associate Professorship Habilitation in Computer Science. Scientific sector: *01/B1 (Informatica)*.

3 Employment and Appointments Held

3.1 Present Appointment

From 01/07/2017

Associate Professor at the Faculty of Computer Science, *Free University of Bozen-Bolzano (UNIBZ)*. Scientific Sector: *ING-INF/05 (Sistemi di Elaborazione delle Informazioni)*.

Promotion obtained with a score of 93/100.

Responsibilities: Research and teaching activity focused on *intelligent techniques for the combined management of business processes and data, to improve IT support for business and domain experts*. Coordination of and participation to European and local research projects. Active effort in establishing connections with the industry. Student supervision. Several management duties at the faculty level.

3.2 Professional Experience

Jan. 2005 – Dec. 2005

Technology transfer research on the *formalization and verification of clinical guidelines and healthcare protocols*, funded by the SPINNER consortium¹.

Responsibilities: Applied research and technology transfer on modeling, verification and compliance checking of computer-interpretable clinical guidelines (CIGs). Participants: Department of Electronics, Computer Science and Systems (University of Bologna), Department of Engineering (University of Ferrara), Dianoema s.p.a. (leading company, in Europe, on the development of healthcare information systems).

Jan. 2009 – Apr. 2009

Postdoctoral fellow working on *process mining: analysis of business process audit trails*, funded by C.I.N.I.².

Responsibilities: Foundational and applied research on the analysis of event logs and their conformance checking against business rules/constraints, in the context of the Italian project FIRB RBNE05BFRK “TOCAI.IT: Knowledge-Oriented Technologies for the Integration of Networked Enterprises”.

May 2009 – Oct. 2009

Postdoctoral fellow working on the *application of AI techniques for the analysis of foreign tourist flows*, funded by the Department of Electronics, Computer Science and Systems (DEIS), University of Bologna.

Responsibilities: Foundational and applied research on rule-based decision support systems for matching and proposing touristic packages, in the context of the Italian project MIUR PRIN 2007-7WWCR8 “Forms of correlations among italian style, tourist flows and consumer trends related to made in Italy”.

Oct. 2009 – Apr. 2011

Senior IT consultant at Image Line³, an innovative SME developing web portals and information systems for e-agriculture, with a community of more than 100 000 users.

Responsibilities: IT consultancy for the head of the company on short- and medium-term strategic objectives. Analysis, design and implementation of an integrated CRM and invoicing system. Re-engineering and extension of the company information system. Staff training on innovation and advanced topics in conceptual modeling, information systems, and software engineering.

Jul. 2010

Adjunct researcher at the Architecture for Information Systems group, Eindhoven University of Technology, to collaboratively work on *process mining and runtime operational decision support*. The research visit has been funded by the Netherlands Organization for Scientific Research (NWO).

Responsibilities: foundational and applied collaborative research together with Prof. van der Aalst and several members of the Architecture for Information Systems group, to study the emergent topic of operational decision support, with a particular focus on process monitoring and logic-based techniques for runtime verification of process instances.

Nov. 2009 – Apr. 2011

Postdoctoral researcher working on *a declarative approach for the specification and verification of clinical guidelines* at the Department of Electronics, Computer Science and Systems (DEIS), University of Bologna.

Responsibilities: Foundational and applied research on declarative models for process modeling, with particular attention to clinical guidelines and pathways. Development of techniques and

¹*Spinner* is the intermediary organization managing the global grant of the Emilia Romagna Regional Operative Program (ROP) 2007-2013, European Social Fund (ESF), Axis IV Human Capital, Objective 2 “Regional Competitiveness and Employment”.

²Consorzio Interuniversitario Nazionale per l’Informatica, www.consorzio-cini.it/

³VAT no. 01070780398, via G. Marcucci 24, 48018 Faenza (RA)

tools for reasoning on such models along their entire lifecycle, from design-time verification and runtime support/monitoring to a-posteriori conformance checking and mining.

May. 2011 – May. 2014

Researcher with a fixed-term contract (RTD Junior) at the Faculty of Computer Science, *Free University of Bozen-Bolzano* (UNIBZ). Scientific Sector: *INF/01 (Informatica)*.

Responsibilities: basic and applied research activity related to the foundations of knowledge representation and databases, with a particular focus on the formal modeling and verification of business processes and dynamic systems operating over data. Teaching and student supervision. Participation to European and local research projects.

Jun. 2014 – Jun. 2017

Senior Researcher with a fixed-term contract (*RTD Senior*) at the Faculty of Computer Science, *Free University of Bozen-Bolzano* (UNIBZ). Scientific Sector: *ING- INF/05 (Sistemi di Elaborazione delle Informazioni)*.

Responsibilities: Research and teaching activity focused on *intelligent techniques for the combined management of business processes and data*. Coordination of and participation to European and local research projects. Student supervision. Several management tasks at the faculty level, and in third mission.

4 Research

My research activity focuses on theoretical, methodological and experimental aspects of knowledge representation and automated reasoning for the formal specification, verification, synthesis, planning, monitoring, mining, and intelligent management of dynamic systems operating over data. I consider in particular (artifact- and data-centric) business processes to capture the internal behavior of companies, and multiagent systems to tackle their mutual interactions. I am particularly interested in application scenarios related to business services, interaction protocols, clinical guidelines, and construction engineering.

In this respect, I am studying the synergic integration of several different models and languages, on the one hand to capture the system dynamics, and on the other hand to account for their underlying data. To capture the system dynamics, we are currently investigating: *(i)* classical control-flow models such as variants of Petri nets and automata, as well as concrete modeling languages such as BPMN; *(ii)* interplay between process and decision models, with particular reference to the DMN standard; *(iii)* declarative, flexible and constraint-based formalisms; *(iv)* rule-based specifications; *(v)* action languages, situation calculus, and Golog; *(vi)* intelligent agents; *(vii)* declarative distributed systems with different communication modalities. To account for the underlying data, we are considering: *(i)* standard relational databases with constraints; *(ii)* conceptual models based on UML and other class-based formalisms; *(iii)* business objects and artifacts; *(iv)* knowledge bases and description-logic ontologies working under incomplete information.

To attack the challenging problem of devising intelligent techniques operating over such combined models, I advocate an interdisciplinary approach that integrates insights and techniques from artificial intelligence and knowledge representation, computational logics, conceptual modeling, intelligent data management, business process management, foundations of data management, and formal methods.

My research aims at bridging the gap between theory and practice. On the one hand, I devise formal models and rigorous techniques to understand the decidability and complexity boundaries of several key problems defined over the entire lifecycle of data-aware dynamic systems, from design-time verification to runtime monitoring and a-posteriori analysis. On the other hand, I am interested in connecting such models and techniques to concrete, end user-oriented languages and methodologies, as well as in the effective development of algorithms and research prototypes.

I mainly carry out my research with several members of the KRDB Research Centre for Knowledge and Data at the Free University of Bozen-Bolzano (first and foremost, Prof. Diego Calvanese), and in collaboration with a worldwide network of researchers (cf. Section 4.4).

In summary, my research interests are:

FORMALISMS AND FRAMEWORKS

- artificial intelligence
- knowledge representation and reasoning
- computational logics (temporal/description logics)
- formal methods, model checking, synthesis
- runtime verification and monitoring
- reasoning about actions
- conceptual modelling, ontologies, databases
- Petri nets with data and other models of concurrency

APPLICATION DOMAINS

- business process management
- artifact-/data-centric processes
- decision management
- data management
- process mining
- open multiagent systems
- organizations, services, and commitments
- declarative distributed computing

4.1 Research Impact

The high relevance of my scientific work is witnessed by the prestigious venues in which my research results have been published, by the wide recognition of my research track by the scientific community (cf. Section 5), and by the bibliometric indexes related to my publication record.

I co-authored a *Springer monograph and more than 140 peer-reviewed scientific publications*, published in world-class referred international journals such as *ACM Transactions on the Web*, *ACM Transactions on Intelligent Systems and Technology*, *Journal of Artificial Intelligence Research*, *Information & Computation*, *Journal of Autonomous Agents and Multiagent Systems*, *Information Systems*, *Formal Aspects of Computing*, as well as prestigious and highly selective conferences such as *PODS*, *IJCAI*, *KR*, *AAAI*, *AAMAS*, *CIKM*, *ECAI*, *BPM*, *ICLP*, *ICSOC*, *CAiSE*, *ICWS*.

According to *Google Scholar*, as of July 13, 2017:

- my papers have received **2702 overall citations** (*2231 since 2012*);
- I have an **h-index**⁴ of **27** (*23 since 2012*);
- I have an **i-10 index**⁵ of **57** (*47 since 2012*).

According to *Scopus*, as of July 11, 2016:

- my papers have received **1553 overall citations**;
- I have an **h-index of 21**.

4.2 Scholarships

- 2005 • *1-year technology transfer grant* on the *formalisation and verification of care flows*, awarded by the SPINNER Consortium⁶.
- 2006 • *3-year MIUR*⁷ *scholarship* for a PhD in Electronics, Computer Science and Telecommunications Engineering, University of Bologna.
- 2009 • *2-year postdoctoral research scholarship* at the Department of Electronics, Computer Science and Systems, University of Bologna.
- 2010 • *1-month visitor travel grant*, awarded by the Netherlands Organization for Scientific Research (NWO). Hosting Institution: Architecture for Information Systems group, Eindhoven University of Technology.

⁴A researcher has a value of the Hirsch-index (or h-index) equal to h if h of her/his N publications have at least h citations each, while the other $N-h$ publications have not more than h citations each. The h-index measures the cumulative impact of the scientific production of a researcher, evaluated by means of the number of citations that her/his work has obtained.

⁵The i10-index is the number of publications with at least 10 citations.

⁶*Spinner* is the intermediary organization managing the global grant of the Emilia Romagna Regional Operative Program (ROP) 2007-2013, European Social Fund (ESF), Axis IV Human Capital, Objective 2 “Regional Competitiveness and Employment”.

⁷Italian Ministry of Education, Universities and Research.

4.3 Research Grants and Projects

PRIN 2005

Investigator for the MIUR PRIN Italian Project 2005-011293 *Specification and Verification of Agents Interaction Protocols*, Coordinator Prof. Alberto Martelli.

FIRB 2005

Investigator for the FIRB Italian Project RBNE05BFRK *TOCAI.IT: Knowledge-Oriented Technologies for Enterprise Aggregation in Internet*, Coordinator Prof. Maurizio Lenzerini. In particular, he contributed to activity 9: “Discovery and Classification of Processes and Intra/Inter-Organizational Knowledge”.

PRIN 2007

Investigator for the MIUR PRIN Italian Project 2007-7WWCR8 *Forms of Correlation between Italian Style, Touristic Flows and Made in Italy’s Consumers Trends.*, Coordinator Prof. Bernardo Valli.

Feb. 2012 – Feb. 2014

Coordinator (jointly with Diego Calvanese) for the 2-year project *Automated Extraction and Verification of Clinical Guidelines*, supported with $\sim 60\,000\text{€}$ by the Foundation of the Free University of Bozen-Bolzano.

May 2011 – May 2013

Investigator for the EU FP7 IST-STREP Project *Artifact-centric Service Interoperation (ACSI)*. The goal of the project is to dramatically reduce the effort and time-to-usage of designing, deploying, and maintaining environments that support service collaborations. The project was coordinated by IBM Israel, and the additional partners were Sapienza Università di Roma, Italy, Imperial College, U.K., Technische Universiteit Eindhoven, Netherlands, Tartu Ulikool, Estonia, Indra Software Labs, Spain, and Collibra, Belgium. The project was funded with $411\,000\text{€}$ for the Free University of Bozen-Bolzano, and got an evaluation of *excellent*.

Jun. 2011 - May. 2014

Investigator for the Project *MANaGing Completeness of Data (MAGIC)*. The goal of the project is to develop approaches and techniques to manage the quality of data, considering in particular their completeness. The problem investigated by considering not only the data, but also the business processes that, in many situations, are used to manipulate such data. The project foresees the participation of the IT department of the province, as well as the Land Systems branch of the international automotive supplier GK.N Driveline, and is funded with $\sim 250\text{K€}$ by the Autonomous Province of Bozen-Bolzano.

Nov. 2013 - Oct. 2016

Investigator for the EU FP7 IST-IP Project *Scalable End-user Access to Big Data (Optique)*. The main objective of Optique is to develop an extensible platform that provides a complete and generic solution to the data access challenges posed by big data. It will bring about a paradigm shift for data access by providing a semantic end-to-end connection between users and data sources, enabling users to rapidly formulate intuitive queries, and seamlessly integrating data spread across multiple distributed data sources. The project is coordinated by the University of Oslo, Norway, and the additional partners are Oxford University, U.K., Hamburg University of Technology, Germany, Sapienza Università di Roma, Italy, National and Kapodistrian University of Athens, Greece, Fluid Operations AG, Germany, Siemens AG, Germany, Statoil, Norway, and DNV, Norway. The project is funded with $873\,000\text{€}$ for the Free University of Bozen-Bolzano.

Since Jan. 2015

Principal investigator for the UNIBZ Project *KENDO: Knowledge-driven ENterprise Distributed cOmputing*. KENDO aims at developing a formal, verifiable and executable framework for enterprise distributed systems (EDSs) empowered with knowledge. The core aspect of KENDO is to inject domain and technological knowledge encompassing both static (data-related) and dynamic (process-related) aspects into the upper layers of the internet stack (from application down to networking), and use such knowledge to drive their computation. In this

way, the system nodes become able to exploit their knowledge, together with the data they acquire from the interaction with users and other nodes, to take informed decisions and perform their computation. The project is funded with 45 475 € by the Free University of Bozen-Bolzano.

Since Jan. 2015

Principal co-investigator for the UNIBZ Project *Process-aware Reliability Checking for Information Systems (PARCIS)*. Formalisms for representing and defining the flow of activities in a business process are increasingly employed for specifying the usage of information systems. Recently both practitioners and researchers have perceived the need to enrich business process modeling languages by features to describe how processes access and modify relevant data. In research, the interplay of processes and data has been usually investigated by following a top-down approach, which aimed at decidable fragments of expressive formalisms and envisaged model checkers as the target reasoning platform. In PARCIS, we pursue a bottom-up approach, drawing upon concepts and techniques from classical database research by (i) limiting the interactions of processes and databases to well-understand types of queries, (ii) focusing on properties of processes that can be captured in terms of properties of queries and integrity constraints, and (iii) following an approach to compile away the process model into queries in expressive query languages, so that reasoning consists in performing well-known inferences on queries. The project is funded with 22 783 € by the Free University of Bozen-Bolzano.

Since Jan. 2016

Principal co-investigator for the UNIBZ Project *OnProm: Ontology-Driven Process Mining*. OnProm focuses on the fundamental, but typically neglected phase, of data preparation for process mining. Process mining techniques assume that the input data are explicitly organized in a well-defined event log. However, enterprises do not usually have such an explicit representation, while they employ information systems that reflect the domain knowledge, and where event-related information is only implicitly present. OnProm aims at bridging the gap between domain-oriented information systems and the event logs required for process mining. In particular, we want to exploit well-assessed techniques and tools coming from intelligent data management and ontology-based data access, in order to help domain experts in extracting event-related information from the legacy data present in the enterprise information systems. The project foresees the support by the Eindhoven University of Technology (Prof. van der Aalst), and is funded with ~ 50 000 € by the Free University of Bozen-Bolzano.

Since Jun. 2016

Principal co-investigator for the Euregio (Bolzano-Innsbruck-Trento) Interregional Project Network IPN12 *Knowledge-Aware Operational Support*. KAOS aims at creating a new generation of operational support techniques for business process management, by empowering them with domain knowledge. In particular, KAOS will develop a foundational framework of concepts covering organizations, processes, participants and information, providing the basis for the realization of operational support techniques that enjoy flexibility and are able to support domain experts and business analysts in the effective execution and supervision of business processes. The project is coordinated by the Free University of Bozen-Bolzano, and involves the University of Innsbruck and FBK-IRST from Trento. It is funded by Euregio with ~ 82 700 € for the Free University of Bozen-Bolzano.

Since Jan. 2017

Investigator for the ERDF Project *Collaborative Construction Process Management (COCK-PiT)*. Globally, the construction industry is one of the main fields of economy. During the research project build4future, the PRECISE methodology for managing the whole lifecycle of a construction process has been introduced. PRECISE decomposes a construction process in three main phases: the modelling of the process, the scheduling of the activities to be performed on-site, and the runtime monitoring of the construction progress. In particular, the modelling of the process was done in the context of workshops among the participating companies who defined (i) a representation of the building; (ii) the tasks to be executed, and (iii) the resources needed. Currently, there is no commercial system available to support all the three phases of

modelling, scheduling and monitoring in a satisfactory way. The objectives of our proposed project COCKPiT are to close this gap and provide: (Obj1) Full support for the collaborative definition of process models. (Obj2) Full support for short-term capacity scheduling based on the real-time construction progress. (Obj3) Full support for construction progress measurement on-site. The overall outcome of the project will be a framework for collaborative and real-time management of processes in construction, based on Industry 4.0 principles. The project is coordinated by the Faculty of Computer Science at UNIBZ, and involves the Faculty of Science and Technology at UNIBZ, Fraunhofer Italia, and a network of SMEs operating in the region. It is funded by the European Regional Development Fund with 747.700 €.

From Jun. 2017

Principal co-investigator for the UNIBZ Project *Planning for Workflow Management (PWORM)*. The need to extend business processes with the capability to handle complex data objects has led to significant practical and theoretical advances in the field of Business Process Modelling (BPM). On the practical side, there are several well established suites for control flow and data modelling; nonetheless, they lack of support for formal verification tasks taking into account data as well as control flow. On the theoretical side, there is a significant literature for data aware processes far from concrete BPM architectures, and they are difficult to apply to existing systems. As a consequence they struggle to produce an impact in the Business Process community. With this project we aim at bridging the gap between these two separate worlds by providing a concrete framework for modelling data-aware processes capturing common features of widely used BPM suites and a set of automated reasoning services to support its usage. In particular, we aim at demonstrating the advantages of using automated planners to provide reasoning services for BPM systems. The project is funded with $\sim 70\,000$ € by the Free University of Bozen-Bolzano.

4.4 Main Research Collaborations

- G. De Giacomo, F. Patrizi (Sapienza Università di Roma). Topics: *intelligent management of processes and data, knowledge representation and reasoning*.
- P. Abdullah, M. F. Atig (University of Uppsala), Aiswarya C. (Chennai Mathematical Institute). Topics: *formal verification of infinite-state database-manipulating systems*.
- A. Deutsch (University of California San Diego). Topics: *verification of data-aware processes*.
- W.M.P. van der Aalst (Eindhoven University of Technology). Topics: *process mining, operational decision support*.
- M. Dumas, F.M. Maggi (University of Tartu). Topics: *process mining and monitoring*.
- E. Teniente, M. Estanol (Universitat Politècnica de Catalunya). Topics: *artifact-centric processes and UML*.
- J. Lobo (Universitat Pompeu Fabra Barcelona). Topics: *declarative distributed computing*.
- G. Delzanno (University of Genoa). Topics: *verification of infinite-state distributed systems*.
- S. Rinderle-Ma (University of Vienna), L.T. Ly (Ulm University). Topics: *compliance verification and business process monitoring*.
- N. Guarino (ISTC-CNR Trento), C. Ghidini, C. Difrancescomarino, R. De Masellis (FBK-IRST, Trento). Topics: *enterprise modeling, AI techniques for intelligent process management*.
- P. Mello, F. Chesani (University of Bologna), M. Baldoni, C. Baroglio (University of Torino). Topics: *open multiagent systems, commitment-based interaction, compliance in open systems*. G. Plebani (Polytechnic University of Milan). Topics: *process management with IoT and cyber-physical systems*.

5 Prizes and Awards

I have received national prizes and best paper awards in recognition of the importance and impact of my research.

5.1 Career Awards

I have received **two national awards** in recognition of my career. They are described next in detail. In addition:

- In May 2010, I have been *runner-up* for the **Lions prize for scientific research and technological innovation**, awarded by the Lions Club to the best PhD thesis defended in 2009–2010, and carried out within the PhD School for Information Science and Engineering at the University of Bologna.
- I have received the **Outstanding Faculty Achievement Award of 2016**, as a member of the Faculty of Computer Science at the Free University of Bozen-Bolzano who provided outstanding scientific contributions and service to the Faculty.

5.1.1 “Marco Cadoli” GULP Distinguished Dissertation Award

On June 25, 2009, I received the **“Marco Cadoli” Distinguished Dissertation Award**, awarded by the Italian Association for Logic Programming (GULP - Gruppo ricercatori e Utenti di Logic Programming) to the *best Italian PhD thesis focused on computational logics and defended in the period 2007–2009*. The evaluation procedure has been carried out by an international panel of leading experts⁸. Two reviews are attached.

Robert A. Kowalski - *Professor Emeritus, Department of Computing, Logic and Artificial Intelligence Group, Imperial College London, UK*

I decided to read the entire thesis, because it contains so much interesting and important material. The thesis contains both wide-ranging background work and the original contributions of the thesis itself. The contributions of the thesis include not only significant contributions to theory, but also important work on practical implementation and applications.

The subject of the thesis, the Specification and Verification of Declarative Open Interaction Models, is exceptionally broad and outward-looking. The thesis bridges the gap between the methods of Computational Logic developed mainly in Artificial Intelligence and the tools and techniques developed in such otherwise unrelated domains as Business Process Management, Clinical Guidelines and Careflow Protocols, Service-Oriented and Multi-Agent Systems. Most PhD theses are restricted to a single domain and narrowly deal with only theoretical, implementation of application issues.

In addition to the original work presented in the thesis, the thesis includes a analysis of and comparison with related work, including the use of Linear Temporal Logic and Model Checking. Montali presents convincing evidence for the benefits of his approach, but is modest in his acknowledgement of its limitations and in his assessment of related work.

This is one of the best PhD theses I have seen in a long time.

Wil M.P. van der Aalst - *Full Professor, Department of Mathematics & Computer Science, Eindhoven University of Technology, Eindhoven, The Netherlands*

The thesis is truly excellent and I would like to nominate the work for the best dissertation award. The work covers a broad area and provides deep and interesting results. Moreover, the work is supported by a nice set of tools. The framework consists of ConDec, CLIMB (a subset of SCIFF), g-SCIFF, and REC. It is shown that CLIMB is more expressive than LTL and this is demonstrated using ConDec. This is supported by checks at design-time and run-time. Moreover, the approach provides all kinds of additional support. Very interesting is the ability to discover declarative models. This is challenging and highly relevant.

The thesis work has resulted in a large number of high-quality publications. Moreover, the work has been presented at top conferences.

5.1.2 Artificial Intelligence “Marco Somalvico” 2015 AI*IA Prize

On September 25, 2015, I received *Artificial Intelligence “Marco Somalvico” 2015 Prize*, awarded every two years by the Italian Association for Artificial Intelligence (AI*IA) to *best Italian researcher under 35 years of age who autonomously contributed to advance the state-of-the-art in Artificial Intelligence*.

The Committee was constituted by Maria Teresa Pazienza (Chair), Nicola Leone, and Pietro Torasso. The English translation of an excerpt of the Committee judgement follows:

⁸The *panel* is published here: <http://lia.deis.unibo.it/gulp/Burocrazia/bando-premi-tesi-2009.html>

Marco Montali has provided several significant contributions to Artificial Intelligence, especially in the areas of:

- knowledge representation,
- automated reasoning and computational logic,
- multiagent systems.

He has demonstrated interest and ability to advance the state of the art with theoretical and applied contributions.

Of particular significance and impact is his contribution to the development of innovative AI techniques in the context of Business Process Management, an area in which he is one of the top recognized persons in Europe (in spite of his young age). This stresses his ability in providing innovative contributions in research fields that are interdisciplinary and of great interest for AI researchers.

Marco Montali's contributions have appeared in top AI journals and conferences, such as JAIR, JAAMAS, ACM TIST, AAI, AAMAS, KR. Furthermore, many of his works have received a high number of citations, including the monograph derived from his PhD thesis, which anticipates many of the research lines successfully pursued during the last years. The autonomy of the candidate is confirmed by his remarkable international visibility, by his wide research network (witnessed by the long list of national and international co-authors), as well as by his active involvement in national and international research projects.

5.2 Best Paper Awards and Other Mentions

- **Best paper award** at the 7th International Symposium “From Agent Theory to Agent Implementation” (AT2AI-7), Vienna (Austria), April 6-7 2010, for the paper *Monitoring Time-Aware Social Commitments with Reactive Event Calculus*.
- In 2011, the paper *Social Commitments in Time: Satisfied or Compensated* has been selected as one of the “best of DALT” **highly influential (most cited) papers**, within the Declarative Agent Languages and Technologies workshop series.
- **Best paper award** at the 7th International Conference on Web Reasoning and Rule Systems (RR-2013), Mannheim (Germany), July 27-29 2013, for the paper *Verification and Synthesis in Description Logic Based Dynamic Systems*.
- **Best paper award** at the 13th International Conference on Business Process Management (BPM 2015), Innsbruck (Austria), August 31 - September 3 2015, for the paper *Ensuring Model Consistency and Minimality in Declarative Process Discovery*.
- **Outstanding IJCAI PC Member** at the 25th International Joint Conference on Artificial Intelligence (IJCAI 2016), New York City (USA), July 9-15 2016.
- **Best paper award** at the 14th International Conference on Business Process Management (BPM 2016), Rio de Janeiro (Brasil), September 18-22 2016, for the paper *Semantics and Analysis of DMN Decision Tables*.
- **Best paper award** at the 1st International Joint Conference on Rules and Reasoning (RuleML+RR 2017), London (UK), July 12-15 2017, for the paper *Semantic DMN: Formalizing decision models with domain knowledge*.

6 Experience in Academic Teaching

I started being a teaching assistant for University-level courses when I was only 22. Since then, I have been consistently and continuously involved in teaching, first as a teaching assistant for BEng and MEng courses at the University of Bologna, and then as a lecturer for BSc and MSc courses at the Free University of Bozen-Bolzano. In addition, I have been involved in teaching activity and scientific dissemination with a variety of audiences, from elementary and high-school students to undergraduate, graduate and PhD students, from scientists and researchers to professionals working in the industry, and even the general audience. I am passionate about teaching, and I always try to convey even very technical and difficult concepts in an understandable way, balancing rigorous and formal presentation

with concrete and effective examples. I do my best to actively involve the audience during my talks, and to establish a friendly and informal environment. I always fine-tune and adapt my slides, my speech, the drawings I do on the blackboard, and the examples I use, carefully taking into account who is listening.

6.1 Teaching Assistance

2003/2004

Operating Systems Bachelor in Computer Science Engineering, Univ. of Bologna.

2005/2006

Operating Systems Bachelor in Computer Science Engineering, Univ. of Bologna.

2005 – 2011

Seminars, class and lab lectures for the *Fundamentals of Artificial Intelligence* and *Applications of Artificial Intelligence* courses, Master in Computer Science Engineering, Univ. of Bologna.

2006/2007

Lab of Computer Science, Bachelor in Computer Science Engineering, Univ. of Bologna.

2007/2008

Lab of Computer Science, Bachelor in Computer Science Engineering, Univ. of Bologna.

2008/2009

Fundamentals and Lab of Computer Science Bachelor of Automation Engineering, Univ. of Bologna.

Fundamentals of Computer Science, Bachelor in Computer Science Engineering, Univ. of Bologna.

6.2 Lectureship of BSc and MSc Courses

A.Y. 2011/2012

Lecturer of *Distributed Systems* (4ECTS), Bachelor in Computer Science and Engineering, Free University of Bozen-Bolzano.

General lecturer evaluation: *definitely positive* 33,33%; *generally positive* 53,34%; *generally negative* 13,33%; *definitely negative* 0%; *missing value* 0%.

Lecturer of *Conceptual Modeling for Information Systems* (4ECTS), MSc in Computer Science, Free University of Bozen-Bolzano.

General lecturer evaluation: *definitely positive* 50,00%; *generally positive* 50,00%; *generally negative* 0%; *definitely negative* 0%; *missing value* 0%.

A.Y. 2012/2013

Lecturer of *Knowledge Representation and Ontologies* (8ECTS – 4 taught by him), Erasmus Munds European Master in Computational Logic, Free University of Bozen-Bolzano.

General lecturer evaluation: *definitely positive* 80,00%; *generally positive* 20,00%; *generally negative* 0%; *definitely negative* 0%; *missing value* 0%.

Lecturer of *Conceptual Modeling for Information Systems* (4ECTS), MSc in Computer Science, Free University of Bozen-Bolzano.

General lecturer evaluation: *definitely positive* 73,33%; *generally positive* 26,67%; *generally negative* 0%; *definitely negative* 0%; *missing value* 0%.

A.Y. 2013/2014

Lecturer of *Data and Process Modelling* (8ECTS), MSc in Computer Science, Free University of Bozen-Bolzano.

Excerpt from the evaluation by students attending the course:

- Does the teacher stimulate / motivate interest in the subject?

Definitely YES 40,00%; *generally YES* 60,00%; *generally NO* 0%; *definitely NO* 0%; *missing value* 0%.

- Does the teacher explain the subject clearly?
Definitely YES 40,00%; generally YES 60,00%; generally NO 0%; definitely NO 0%; missing value 0%.

A.Y. 2014/2015

Lecturer of *Data and Process Modelling* (8ECTS), MSc in Computer Science, Free University of Bozen-Bolzano.

Excerpt from the evaluation by students attending the course:

- Does the teacher stimulate / motivate interest in the subject?
Definitely YES 57,00%; generally YES 43,00%; generally NO 0%; definitely NO 0%; missing value 0%.
- Does the teacher explain the subject clearly?
Definitely YES 43,00%; generally YES 57,00%; generally NO 0%; definitely NO 0%; missing value 0%.
- Does the teacher display teaching ability?
Definitely YES 57,00%; generally YES 43,00%; generally NO 0%; definitely NO 0%; missing value 0%.

Lecturer of a 32-hour advanced course on *Data and Process Modelling*, delivered in April and May 2015 to ~30-35 IT experts working for the Province of Bozen-Bolzano.

Overall lecturer evaluation: 4.7/5.

A.Y. 2015/2016

Lecturer of *Data and Process Modelling* (8ECTS), MSc in Computer Science, Free University of Bozen-Bolzano.

Excerpt from the evaluation by students attending the course (partial, only covering students who enrolled in the first exam session):

- Does the teacher stimulate / motivate interest in the subject?
Definitely YES 71,00%; generally YES 29,00%; generally NO 0%; definitely NO 0%; missing value 0%.
- Does the teacher explain the subject clearly?
Definitely YES 57,00%; generally YES 43,00%; generally NO 0%; definitely NO 0%; missing value 0%.
- Does the teacher display teaching ability?
Definitely YES 71,00%; generally YES 29,00%; generally NO 0%; definitely NO 0%; missing value 0%.

6.3 Tutorials and Advanced Courses

A.Y. 2014/2015

Lecturer of *Research Methods* (4ECTS), module *Presenting Scientific Work*, PhD in Computer Science, Free University of Bozen-Bolzano.

A.Y. 2015/2016

Lecturer of *Research Methods* (4ECTS), module *Presenting Scientific Work*, PhD in Computer Science, Free University of Bozen-Bolzano.

A.Y. 2016/2017

Lecturer of *Research Methods* (4ECTS), module *Presenting Scientific Work*, PhD in Computer Science, Free University of Bozen-Bolzano.

Lecturer of *Verification of Data-Centric Systems* (together with Diego Calvanese), Summer School on Logic, Artificial Intelligence, and Verification (LAIve 2017), TU Wien, Austria, July 3-5, 2017.

Lecturer of *OBDA For Log Extraction in Process Mining*, 13th Reasoning Web Summer School (RW 2017), Birkbeck College London, UK, July 7-11, 2017.

Lecturer of *Verification of Data-Aware Processes* (together with Diego Calvanese), 29th European Summer School in Logic, Language, and Information (ESSLLI 2017), University of Toulouse, France, 17-28 July, 2017.

Accepted tutorial on *Integrated modeling and verification of processes and data* at the 15th International Conference on Business Process Management (BPM 2017), Barcelona, Spain, September 10-15, 2017.

Accepted tutorial on *Process mining: from zero to hero* at the 18th International Conference on Product-Focused Software Process Improvement (PROFES 2017), Innsbruck, Austria, November 30-December 1, 2017.

6.4 Supervision and Evaluation of Theses

I strongly support collaborative research, and I particularly enjoy working with students and young researchers.

6.4.1 Supervision of PhD Theses

2011 – 2015

Co-supervisor of Dmitry Solomakhin on the topic *combining process and ontological modelling*. The thesis was not concluded, since Dmitry found a job in the industry.

2012 – 2015

Supervisor of Anna Roubickova on the topic *theoretical and experimental analysis of case-based planning techniques*.

2012 – 2016

Co-supervisor of Ario Santoso on the topic *verification of data-aware business processes in the presence of ontologies*.

Since Nov. 2014

Supervisor of Andrey Rivkin on the topic *model checking data-aware processes*.

6.4.2 Evaluation of PhD Theses

2012 • **Reviewer and member of the examination panel** for the defense of the PhD Thesis *Reasoning about Actions in Transaction Logic*, by Martin Rezk, Free Univ. of Bozen-Bolzano.

2013 • **External reviewer** for the PhD Thesis *Process Mining of Artful Processes*, by Claudio di Ciccio, Sapienza Università di Roma.

• **Reviewer and member of the examination panel** for the defense of the PhD Thesis *Context-aware Music Recommendation: Recommending Music for Places of Interest*, by Marius Kaminskis, Free Univ. of Bozen-Bolzano.

2015 • **Vice-chair of the examination panel** for the PhD defense by Silvano Colombo Tosatto on *Proving Regulatory Compliance: Business Processes, Logic, Complexity*, University of Luxembourg and University of Turin.

2016 • **Member of the examination panel** for the PhD defense by Montserrat Estanol on *Artifact-centric Business Process Models in UML: Specification and Reasoning*, Universitat Politècnica de Catalunya.

6.4.3 Supervision of Master Theses

2013 • **Supervisor** of the MSc thesis by Andrey Rivkin, European Master in Computational Logic, on *Formal Verification of Data-Aware Business Processes Based on Petri Nets*.

2015 • **Supervisor** of the MSc thesis by Alina Aleksandrova, European Master in Computational Logic, on *Engineering data-aware commitment-based multiagent systems*.

• **Supervisor** of the MSc thesis by Manfred Gerstgrasser, MSc in Computer Science, Free University of Bozen-Bolzano, on *Ontology-Based Data Access and relational mapping*.

2017 • **Co-supervisor** of the MSc thesis by *Simone Tritini*, MSc in Computer Science, on *Object-centric behavioral constraints*.

Now • **Supervisor** of the MSc thesis by *Gianluca Stivan*, MSc in Computer Science, on *Kiki: weak memory models for parallel data processing*.

- **Supervisor** of the MSc thesis by *Aman Sinha*, European Master in Computational Logic, on *Database-centric colored Petri nets*.

6.4.4 Supervision of Bachelor Theses

2015 • **Supervisor** of the BSc Thesis by *Riccardo Steffan*, BSc in Computer Science, on *A Reactive Event Calculus reasoner running in JAVA*.

Now • **Supervisor** of the BSc Thesis by *Luca Sabiucciu*, BSc in Computer Science, on *A tool for the verification of data-aware business processes*.

- **Supervisor** of the BSc Thesis by *Ernestina Cudjoe Mensah*, BSc in Applied Computer Science, on *A framework for checking acyclicity conditions in tuple-generating dependencies*.

7 Other Academic Responsibilities

I am involved in the organization of top-tier international conferences and other events. I actively participate to the life of the faculty and its connection with the territory.

7.1 Institutional Responsibilities

Apr. 2011 – Today

Member of the *PhD Committee in Computer Science*, Free University of Bozen-Bolzano.

Dec. 2012 – Nov. 2015

Elected member of the *Board of Directors of the Italian Association for Logic Programming (GULP)*.

Jan. 2012 – Today

Coordinator (with Diego Calvanese), of the *research group on processes and data* within the KRDB Research Centre for Knowledge and Data, Free University of Bozen-Bolzano.

Feb. 2014 – Today

Member of the *Degree Committee of the Master in Computer Science*, Free University of Bozen-Bolzano.

Jun. 2015 – Today

Academic Erasmus contact point for the *Master in Computer Science*, Free University of Bozen-Bolzano.

2017

President of the evaluation commission for the *2017 AI*IA “Marco Cadoli” award*, given to the best Italian PhD dissertation in artificial intelligence. **Member** of the evaluation commission for the *2017 Best BPM Dissertation Award*, given to the best PhD dissertation in business process management.

7.2 Organizational Responsibilities

2011 • **Demo co-chair** of the *5th International Symposium on Rules (RuleML@BRF 2011)*, Fort Lauderdale, Florida, USA.

- **Chair of the Doctoral Program** at the *Third International Spring School on Computational Logic (ISCL 2011)*, Bertinoro, Italy.

2012 • **Organization co-chair** of the *Joint Workshop on Security in Business Processes (SPB’12)*, in conjunction with BPM 2012, Tallin, Estonia.

- **Co-organizer** of the *Workshop on Popularize Artificial Intelligence (PAI-2012)*, in conjunction with AI*IA 2012, Rome, Italy.
- 2013 • **Demo co-chair** of the *11th International Conference on Service Oriented Computing (ICSOC 2013)*, Berlin, Germany.
- **Co-chair** of the *2nd International Workshop on Knowledge-Intensive Business Processes (KiBP 2013)*, Kauai, Hawaii.
- **Co-organizer** of the *2nd Workshop on Popularize Artificial Intelligence (PAI-2013)*, in conjunction with AI*IA 2013, Turin, Italy.
- 2014 • **Co-chair** of the special session on *Action Languages: Theory & Practice*, in the context of the *8th Hellenic Conference on Artificial Intelligence (SETN 2014)*, Ioannina, Greece.
- 2015 • **Proceedings and Publicity Chair** of the *34th ACM Symposium on Principles of Database Systems (PODS)*, Melbourne, Australia.
- **Co-chair** of the *Enterprise Engineering track* at the *30th ACM Symposium On Applied Computing (SAC)*, Salamanca, Spain.
- **Chair** of the *Doctoral Consortium* at the *9th International Conference on Web Reasoning and Rule Systems (RR)*, Berlin, Germany.
- **Co-chair** of the *4th Workshop on Data- & Artifact-Centric BPM (DAB)*, Innsbruck, Austria.
- 2016 • **Publicity co-chair** of the *15th International Conference on Business Process Management (BPM)*, Barcelona, Spain.
- **Member of the organization committee** of the *28th European Summer School in Logic, Language and Information (ESSLLI)*, Bolzano, Italy.
- 2017 • **Co-chair** of the *1st International Workshop on Business Process Innovation with Artificial Intelligence (BPAI)*, co-located with BPM 2017, Barcelona, Spain.
- 2018 • **Program chair** of the *foundations track* at the *16th International Conference on Business Process Management (BPM)*, Sydney, Australia.

7.3 Additional Responsibilities and Third Mission

Since 2011

Series of third-mission talks given to the industry and the general audience. For more details, see Section 9.4.

Since 10/2012

Supporter of activities with schools in the Province of Bozen-Bolzano, from primary to high schools.

Dec. 18, 2012

Faculty representative (together with Rosella Gennari), at the opening ceremony of a *Samsung multimedia classroom* in Merano (Italy).

Feb. 6, 2013

Organizer of the *Integrated Enterprise Modelling and BPM Meeting*, hosting researchers from the Euregio area (Trento, Bozen-Bolzano, Innsbruck).

2013 – 2014

Faculty representative for the *MINT (Mathematics, Informatics, Natural Sciences, Technology) high-school initiative*⁹.

Apr.–May 2015

Lecturer of an advanced course on *data and process modelling*, delivered to *more than 30 IT experts* working within the Province of Bozen-Bolzano.

⁹<http://www.mint.bz.it>

Since June 2017

Scientific advisor and **member of the board of directors** of EBITmax¹⁰, a local company focused on business process re-engineering&continuous improvement, digital innovation, and process mining.

July 6, 2017

Faculty representative (together with Barbara Russo) at *Il Comprensorio Bolzano Città in-contra la Libera Università di Bolzano*, a meeting to foster joint innovation activities of UNIBZ and local industries.

8 Memberships and Review Activity

I am member of national and international associations, and I am constantly invited to become member of the program committee for top-tier international conferences and national events, as well as to act as a reviewer for world-class international journals.

8.1 Membership to Scientific Associations

- *Association for Computing Machinery (ACM)*.
- *Associazione Italiana per l'Intelligenza Artificiale (AI*IA)*.
- *Associazione Italiana per la Programmazione Logica (GULP)*.

8.2 Membership to Editorial Boards

Since 03/2014

Member of the Review Board for *Frontiers in Computational Intelligence*, a section of *Frontiers in Robotics and AI*.

8.3 PC Membership at International Conferences and Workshops

8.3.1 Senior PC Membership

2016 • 19th International Conference on Principles and Practice of Multiagent Systems (PRIMA 2016).

2017 • 15th International Conference on Business Process Management (BPM 2017).

8.3.2 PC Membership

2008 • AI*IA 2008 WS on Multi-Agent Systems and Bioinformatics (MAS&BIO 2008).

2011 • 22nd Int. Joint Conf. on Artificial Intelligence (IJCAI 2011).

- 10th Int. Conf. on Autonomous Agents and Multiagent Systems (AAMAS 2011).
- 26th Italian Conf. on Computational Logic (CILC 2011).

2012 • 1st Int. WS on Knowledge-intensive Business Processes (KiBP 2012).

2013 • 23rd Int. Joint Conf. on Artificial Intelligence (IJCAI 2013).

- 12th Int. Conf. on Autonomous Agents and Multiagent Systems (AAMAS 2013).
- 28th ACM Symposium on Applied Computing (SAC 2013).
- AI*IA 2013 WS on AI meets Business Processes (AIBP2013).

2014 • 23rd ACM Int. Conf. on Information and Knowledge Management (CIKM 2014).

- 21st Eu. Conf. on Artificial Intelligence (ECAI 2014).
- 12th Int. Conf. on Service Oriented Computing (ICSOC 2014).
- 8th Int. Conf. on Web Reasoning And Rule Systems (RR 2014).
- 29th ACM Symp. on Applied Computing (SAC 2014).

¹⁰<http://ebitmax.com>

- 4th Int. Symp. on Data-Driven Process Discovery and Analysis (SIMPDA 2014).
 - 11th Int. WS on Web Services and Formal Methods (WS-FM:FASOCC 2014).
- 2015
- 24th Int. Joint Conf. on Artificial Intelligence (IJCAI 2015).
 - 29th AAAI Conf. on Artificial Intelligence (AAAI-15).
 - 14th Int. Conf. on Autonomous Agents and Multiagent Systems (AAMAS 2015).
 - 13th Int. Conf. on Business Process Management (BPM 2015).
 - 24th ACM Int. Conf. on Information and Knowledge Management (CIKM 2015).
 - 9th Int. Conf. on Web Reasoning and Rule Systems (RR 2015).
 - 9th Int. Web Rule Symp. (RuleML 2015).
 - 2nd Int. Conf. on Methodologies and Intelligent Systems for Technology Enhanced Learning (MIS4TEL 2015).
 - 30th Italian Conf. on Computational Logic (CILC 2015).
- 2016
- 25th Int. Joint Conf. on Artificial Intelligence (IJCAI 2016).
 - 15th Int. Conf. on Knowledge Representation and Reasoning (KR 2016).
 - 15th Int. Conf. on Autonomous Agents and Multiagent Systems (AAMAS 2016).
 - 22nd Eu. Conf. on Artificial Intelligence (ECAI 2016).
 - 14th Int. Conf. on Business Process Management (BPM 2016).
 - 31st Italian Conf. on Computational Logic (CILC 2016).
- 2017
- 26th Int. Joint Conf. on Artificial Intelligence (IJCAI 2017).
 - 1st Int. Joint Conf. Conference on Rules and Reasoning (RuleML+RR).
 - Int. Conf. on Software and System Processes (ICSSP 2017).
 - 5th Int. WS on Strategic Reasoning (SR 2017).
 - 5th Int. WS on Declarative/Decision/Hybrid Mining and Modelling for Business Processes (DeHMiMoP'17).
 - 32nd Italian Conf. on Computational Logic (CILC 2017).
- 2018
- 37th ACM SIGMOD-SIGACT-SIGAI Symp. on Principles of Database Systems (PODS 2018).
 - 32nd AAAI Conf. on Artificial Intelligence (AAAI-18).

8.4 Review Activity

Reviewer for the following international journals:

- ACM Transactions on Database Systems (ACM TODS),
- ACM Transactions on Software Engineering and Methodology (ACM TOSEM),
- Journal of Artificial Intelligence Research (JAIR),
- Journal of Computer and System Science (JCSS),
- IEEE Transactions on Knowledge and Data Engineering (IEEE TKDE),
- IEEE Transactions on Services Computing (IEEE TSC),
- Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS),
- Theoretical Computer Science (TCS),
- Information Systems (IS),
- AI Communications,
- Journal of Intelligent Information Systems (JIIS),
- Data & Knowledge Engineering (DKE),
- SIGMOD Record,
- Springer Computing,
- Fundamenta Informaticae,
- LNCS Transactions on Petri Nets and Other Models of Concurrency (ToPNoC).

Reviewer for the following international conferences and workshops:

Int. Joint Conf. on Artificial Intelligence (IJCAI), AAAI Conf. on Artificial Intelligence (AAAI), ACM Symp. on Principles of Database Systems (PODS), Int. Conf. on Database Theory (ICDT), Int. World Wide Web Conf. (WWW), Int. Conf. on Autonomous Agents and Multiagent Systems (AAMAS),

European Conf. on Artificial Intelligence (ECAI), European Conf. on Logics in Artificial Intelligence (JELIA), Int. Conference on Business Process Management (BPM), Int. Conf. on Principles and Practice of Constraint Programming (CP), Int. Conf. on Artificial Intelligence in Medicine (AIME), Starting Artificial Intelligence Research Symp. (STAIRS), Int. Symp. on Methodologies for Intelligent Systems (ISMIS), ACM Symp. on Applied Computing (SAC), Int. Conf. on Advances in Semantic Processing (SEMANTIC), Mexican Int. Conf. on Artificial Intelligence (MICAI), Int. WS on Declarative Agent Languages and Technologies (DALT), WS on the Resurgence of Datalog in Academia and Industry (Datalog 2.0), WS on Computational Logic in Multi-Agent Systems (CLIMA), WS on Knowledge-intensive Business Processes (KiBP), WS on Data- & Artifact- centric BPM (DAB), Int. WS on Governance, Risk, and Compliance on Information Systems (GRCIS), WS on Agents, Web-Services, and Ontologies (MALLOW AWESOME), AI*IA Symp. on Artificial Intelligence, Convegno Italiano di Logica Computazionale (CILC), Conf. of the Italian Chapter of AIS Organization Change and Information Systems (ItAIS).

9 Dissemination

I enjoy presenting the results of my research activity. I often disseminate my research through invited talks, presentations at top-tier international conferences and workshops, seminars, as well as through high-level speeches tailored to the industry and to the general audience. I am also contributing to the consolidation and enhancement of contacts between the Free University of Bozen-Bolzano and world-leading scientists, as well as with stakeholders operating in the local territory.

9.1 Invited Talks and Keynotes

Dec. 12, 2007

Invited talk at the *PSW thematic day on web services verification*, LORIA – INRIA, Nancy (France). Title: *Declarative Specification and Verification of Service Choreographies*.

Nov. 30, 2010

Keynote speech at the *Annual meeting of the Interdisciplinary Laboratory on Interacting Knowledge Systems (ILIKS)*, LOA–CNR, Trento (Italy). Title: *Monitoring Time-Aware Social Commitments*.

Nov. 1, 2012

Invited talk at the Workshop on Foundations of Biomedical Knowledge Representation, Lorentz Center, Leiden (the Netherlands). Title: *Clinical Guidelines - Conformance Verification when Dealing with Computerized and Human-Enhanced Processes*.

Sep. 6, 2014

Invited talk at the 1st Workshop on Parameterized Verification (Satellite Event of Concur 2014), Rome (Italy). Title: *Verification of Parameterized, Data-Aware Dynamic Systems*.

Sep. 25, 2015

Invited talk at the 14th Conference of the Italian Association for Artificial Intelligence, related to the “Marco Somalvico 2015 award”, Ferrara, Italy. Title: *Data and Processes: a Challenging, though Necessary, Marriage*.

June 21, 2016

Keynote speech at the Workshop on Algorithms & Theories for the Analysis of Event Data (ATAED 2016), co-located with Petri Nets 2016, Torun, Poland. Title: *Marrying data and processes: from model to event data analysis*.

Nov 29, 2016

Keynote speech at the General Meeting of the SOAMED PhD School, Zeuthen (Berlin), Germany. Title: *DB-Nets: on the Marriage of Colored Petri Nets and Relational Databases*.

Feb. 22, 2017

Invited talk at the 1st International Workshop on Formal Methods and Artificial Intelligence

(FMAI 2017), University of Naples, Italy. Title: *Temporal Logics over Finite Traces for Declarative BPM: a Success Story*.

9.2 Presentations at International Conferences and Workshops

June 24, 2005

Presentation at the 18th IEEE Symposium on Computer Based Medical Systems (CBMS'05), Dublin (Ireland). Title: *Using Social Integrity Constraints for On-the-fly Compliance Verification of Medical Protocols*.

Aug. 28, 2006

Presentation at the 4th International Workshop on AI for Service Composition (AISC2006), in conjunction with ECAI2006, Riva del Garda (Italy). Title: *Abduction for Specifying and Verifying Web Service Choreographies*.

Sep. 09, 2006

Presentation at the 3rd International Workshop on Web Services and Formal Methods (WS-FM 2006), Vienna (Austria). Title: *Computational Logic for Run-Time Verification of Web Services Choreographies: Exploiting the SOCS-SI Tool*.

Sep. 01, 2008

Presentation at the 4th International Workshop on Business Process Intelligence (BPI2008), in conjunction with BPM2008, Milan (Italy). Title: *Checking Compliance of Execution Traces to Business Rules*.

Sep. 05, 2008

Presentation at the 5th International Workshop on Web Services and Formal Methods (WS-FM2008), Milano (Italy). Title: *Verification of Choreographies During Execution Using the Reactive Event Calculus*.

July 09, 2009

Demo presentation at the 10th Italian Workshop "From Objects to Agents" (WOA 2009), Parma (Italy). Title: *A REC-Based Commitment Tracking Tool*.

June 04, 2010

Presentation at the 7th International Symposium "From Agent Theory to Agent Implementation" (AT2AI-7), Vienna (Austria). Title: *Monitoring Time-Aware Social Commitments with Reactive Event Calculus*. Best Paper Award.

Aug. 29, 2011

Presentation at the 4th International Workshop on Process-Oriented Information Systems in Healthcare (ProHealth'11), Clermont-Ferrand (France). Title: *Conformance Checking of Executed Clinical Guidelines in presence of Basic Medical Knowledge*.

May 20, 2013

presentation at the Dagstuhl Seminar on Automated Reasoning on Conceptual Schemas, Schloss Dagstuhl (Germany). Title: *On the Relationship Between OBDA and Relational Mapping*.

June 23, 2013

presentation at the 32nd ACM SIGACT SIGMOD SIGART Symposium on Principles of Database Systems (PODS 2013), New York (USA). Title: *Verification of Relational Data-Centric Dynamic Systems with External Services*.

July 27, 2013

Presentation at the 7th International Conference on Web Reasoning and Rule Systems (RR-2013), Mannheim (Germany). Title: *Verification and Synthesis in Description Logic Based Dynamic Systems*. Best Paper Award.

Aug. 20, 2013

Presentation at the Dagstuhl Seminar on Verifiably Secure Process-Aware Information Systems, Schloss Dagstuhl (Germany). Title: *Data-Aware Business Processes - Formalization and Reasoning Support*.

May 21, 2014

Presentation at the 13th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2014). Title: *Verification of Data-Aware Commitment-Based Multiagent System*.

June 17, 2014

Presentation at the 29th Convegno Italiano di Logica Computazionale (CILC 2014). Title: *Specification and Verification of Commitment-Regulated Data-Aware Multiagent Systems*.

July 21, 2014

Presentation at the 14th International Conference on Principles of Knowledge Representation and Reasoning (KR 2014). Title: *State-Boundedness in Data-Aware Dynamic Systems*.

Sep. 11, 2014

Presentation at the 12th International Conference on Business Process Management (BPM 2014), Eindhoven (the Netherlands). Title: *Monitoring Business Metaconstraints Based on LTL and LDL for Finite Traces*.

Jan. 27, 2015

Presentation at the 29th AAAI Conference on Artificial Intelligence (AAAI 2015), Austin (USA). Title: *Verification of Relational Multiagent Systems with Data Types*.

June 10, 2015

Presentation at the 27th International Conference on Advanced Information Systems Engineering (CAiSE 2015). Title: *Declarative Process Modeling in BPMN*.

July 12, 2017

Presentation at the 1th International Joint Conference on Rules and Reasoning (RR-2017), London (UK). Title: *Semantic DMN: Formalizing Decision Models with Domain Knowledge*.

9.3 Seminars

Jan. 8, 2008

Invited seminar, Eindhoven University of Technology, Eindhoven (the Netherlands). Title: *Verification of Declarative Business Processes and Choreographies*.

Jan. 17, 2008

Presentation at the final meeting of the PRIN 2005 Project “Specification and Verification of Agent Interaction Protocols”, Alessandria (Italy). Title: *Verification of Declarative Business Processes and Choreographies*.

July 19, 2010

Tutorial, Eindhoven University of Technology, Eindhoven (the Netherlands). Title: *Reasoning on Execution Traces with the Event Calculus*.

July 29, 2010

Invited seminar, Eindhoven University of Technology, Eindhoven (the Netherlands). Title: *Business Constraints Monitoring and Operational Support*.

Dec. 15, 2010

Invited seminar, KRDB Research Centre for Knowledge and Data, Free Univ. of Bozen-Bolzano. Title: *Specification and Verification of Declarative Open Interaction Models*.

July 06, 2011

Group seminar, KRDB Research Centre, Free Univ. of Bozen-Bolzano, Bolzano (Italy). Title: *Runtime Reasoning with the Event Calculus: from Theory to Practice*.

May 03, 2012

Group seminar, KRDB Research Centre, Free Univ. of Bozen-Bolzano, Bolzano (Italy). Title: *Verification of Relational Data-Centric Dynamic Systems*.

Dec. 20, 2012

Invited seminar, FBK-IRST, Trento (Italy). Title: *Towards Convergence of Data and Processes: the Artifact-Centric Approach*.

Jan. 16, 2015

Invited seminar, University of Luxembourg. Title: *Monitoring Business Constraints and Meta-constraints with LTL and LDL on Finite Traces*.

May 31, 2016

Invited seminar, University of Verona, Verona (Italy). Title: *Data-Aware Business Processes: balancing between expressiveness and verifiability*.

Dec 12, 2016

Invited seminar, University of Seville, Seville (Italy). Title: *Declarative, Constraint-Based Business Process Management*.

9.4 Industry Talks and Talks to the General Audience

Oct. 11, 2012

Invited presentation at the industrial day on “Cloud Computing and Mobile”, jointly organized by the local company Horizon¹¹, together with Samsung. Title of the presentation: *Sharing Knowledge - Towards the Convergence of Data, Processes, and Humans*¹².

Dec. 18, 2012

Faculty representative, at the opening ceremony of a Samsung multimedia classroom in Merano (Italy). Co-presenter of a talk on *Technology at School: Why, How, for Whom*¹³.

Oct. 24, 2013

Presentation at the first Euregio Research Cooperation Day (ERCD), jointly organized by the Free Univ. of Bozen-Bolzano, Univ. of Innsbruck, Univ. of Trento. Title of the presentation: *Management and Verification of Data and Business Processes*.

Nov. 24, 2015

Invited presentation at the industrial day on “Collavoriamo”, organized by Info Easy SRL (Imola). Title of the presentation: *Towards an IT support to organizations based on reality*¹⁴.

Nov. 26, 2015

Invited presentation at the 5th Workshop “Computer Science Research Meets Business”, focused on CRM Systems. Title of the presentation: *Towards a business process management founded on reality*¹⁵.

May 26, 2016

Invited presentation at the senior high school “Cantore” in Bruneck-Brunico (BZ, Italy). Title of the presentation: *From Leibniz to Turing: the birth of computers and the discovery of the limitations of mathematics*¹⁶.

9.5 Invitations at international events and research visits

01/2008 Visiting researcher at the *Architecture for Information Systems Group*, TU/e Eindhoven.

10/2008 Lorentz Center WS *Computer-based Clinical Guidelines and Protocols*.

07/2019 Visiting researcher at the *Architecture for Information Systems Group*, TU/e Eindhoven.

10/2012 Lorentz Center WS *Foundations of Biomedical Knowledge Representation*.

05/2013 Dagstuhl Seminar *Automated Reasoning on Conceptual Schemas*.

08/2013 Dagstuhl Seminar *Verifiably Secure Process-Aware Information Systems*.

02/2015 Visiting researcher at the *Department of Information Technology*, University of Uppsala.

¹¹<http://www.horizon.bz.it>

¹²Conoscenza condivisa - verso la convergenza di dati, processi e persone.

¹³Tecnologie a scuola: perché, come, per chi.

¹⁴Verso un supporto IT alle organizzazioni fondato sulla realtà.

¹⁵Verso una gestione dei processi aziendali basata sulla realtà.

¹⁶Da Leibniz a Turing: la nascita dei computer e la scoperta dei limiti della matematica.

06/2015 Visiting researcher at the *Department of Information Technology*, University of Uppsala.

11/2016 Visiting researcher at the *IDEA Research Group*, University of Seville.

10 Publications About Me

In the press:

- *Automatisierung im Krankenhaus* (Dolomiten, Dec. 19, 2012).
- *Informatica, Montali premiato* (Corriere dell'Alto Adige, Sep. 27, 2015).
- *Intelligenza artificiale made in Südtirol - Montali: "Gruppo di ricerca eccellente"* (Corriere dell'Alto Adige, Sep. 30, 2015).
- *Preis für "Künstliche Intelligenz" errungen* (Dolomiten, Sep. 30, 2015).
- *La ricerca come stile di vita* (QuiMerano, March 2017).
- *La ricerca come stile di vita* (QuiBolzano, April 2017).
- *Der Computer als Unternehmensberater* (academia.bz.it, July 3, 2017).

In other media:

- After having being awarded with the Artificial Intelligence "Marco Somalvico" 2015 National Prize, I have been contacted by many local media channels, and had the possibility of disseminating my research to the general audience on the web, television, and radio, In particular:
 - The regional branch of the national TV channel *RAI3* interviewed me. A long version of the interview appeared in the *regional RAI3 show "Bongiorno Regione"*. A short version of the interview appeared in the *regional RAI3 news "TGR3"*.
 - Carmela Marsibilio interviewed me live during "Greenwich", a radio show of the regional radio station *Radiodue*, focused on interesting facts and persons from the region.
 - The regional TV channel *RTTR* interviewed me. The interview appeared on the *RTTR social media page*, as well as in the *RTTR TV news*.
 - My interviews and other news related to the prize appeared in a plethora of *social media*.

11 Publications

Authored Books

- [BA-1] M. Montali. *Specification and Verification of Declarative Open Interaction Models: a Logic-Based Approach*, volume 56 of *Lecture Notes in Business Information Processing*. Springer, 2010. ISBN: 978-3-642-14537-7.

Edited Books

- [BE-2] S. Bragaglia, C. V. Damasio, M. Montali, A. Preece, C. Petrie, M. Proctor, and U. Straccia, editors. *Proceedings of the 5th International RuleML2011@BRF Challenge*, volume 799. CEUR Electronic Workshop Proceedings, 2011.
- [BE-3] M. Baldoni, F. Chesani, B. Magnini, P. Mello, and M. Montali, editors. *Proceedings of the AI*IA Workshop and Prize for Celebrating 100th Anniversary of Alan Turing's Birth*, volume 860. CEUR Electronic Workshop Proceedings, 2012.
- [BE-4] M. Baldoni, F. Chesani, P. Mello, and M. Montali, editors. *Proceedings of the Workshop Popularize Artificial Intelligence, co-located with the 13th Conference of the Italian Association for Artificial Intelligence (AI*IA 2013)*, volume 1107. CEUR Electronic Workshop Proceedings, 2013.

Papers in Refereed International Journals

- [JI-5] M. Alberti, F. Chesani, M. Gavanelli, E. Lamma, P. Mello, M. Montali, and P. Torroni. Expressing and verifying contracts with abductive logic programming. *International Journal of Electronic Commerce*, 12(4), 2008. DOI: 10.2753/JEC1086-4415120401.
- [JI-6] F. Chesani, E. Lamma, P. Mello, M. Montali, F. Riguzzi, and S. Storari. Exploiting inductive logic programming techniques for declarative process mining. *Transactions on Petri Nets and Other Models of Concurrency*, 5460:278–295, 2009. DOI: 10.1007/978-3-642-00899-3_16.
- [JI-7] F. Chesani, P. Mello, M. Montali, S. Storari, and P. Torroni. On the integration of declarative choreographies and commitment-based agent societies into the SCIFF logic programming framework. *Multiagent and Grid Systems*, 6(10):165–190, 2010. DOI: 10.3233/MGS-2010-0147.
- [JI-8] F. Chesani, P. Mello, M. Montali, and P. Torroni. A logic-based, reactive calculus of events. *Fundamenta Informaticae*, 105(1-2):135–161, 2010. DOI: 10.3233/FI-2010-361.
- [JI-9] L. Luccarini, G. L. Bragadin, G. Colombini, M. Mancini, P. Mello, M. Montali, and D. Sotara. Formal verification of wastewater treatment processes using events detected from continuous signals by means of artificial neural networks. case study: SBR plant. *Environmental Modelling and Software*, 25(5):648–660, 2010. DOI: 10.1016/j.envsoft.2009.05.013.
- [JI-10] M. Montali, M. Pesic, W. M. P. van der Aalst, F. Chesani, P. Mello, and S. Storari. Declarative specification and verification of service choreographies. *ACM Transactions on the Web*, 4(1), 2010. DOI: 10.1145/1658373.1658376.
- [JI-11] M. Montali, P. Torroni, F. Chesani, P. Mello, M. Alberti, and E. Lamma. Abductive logic programming as an effective technology for the static verification of declarative business processes. *Fundamenta Informaticae*, 102(3-4):325–361, 2010. DOI: 10.3233/FI-2010-310.
- [JI-12] M. Alberti, M. Cattafi, F. Chesani, M. Gavanelli, E. Lamma, P. Mello, M. Montali, and P. Torroni. A computational logic application framework for service discovery and contracting. *International Journal of Web Service Research*, 8(3):1–25, 2011. DOI: 10.4018/JWSR.2011070101.

- [JI-13] F. Chesani, P. Mello, M. Montali, and P. Torroni. Modeling and verifying business processes and choreographies through the abductive proof procedure SCIFF and its extensions. *Intelligenza Artificiale*, 5(1):101–105, 2011. DOI: 10.3233/IA-2011-0011.
- [JI-14] F. Chesani, P. Mello, M. Montali, and P. Torroni. Monitoring time-aware commitments within agent-based simulation environments. *Cybernetics and Systems*, 42(7):546–566, 2011. DOI: 10.1080/01969722.2011.610711.
- [JI-15] M. Montali, P. Torroni, N. Zannone, P. Mello, and V. Bryl. Engineering and verifying agent-oriented requirements augmented by business constraints with b-tropos. *Autonomous Agents and Multi-Agent Systems*, 23(2):193–223, 2011. DOI: 10.1007/s10458-010-9135-4.
- [JI-16] B. Bagheri Hariri, D. Calvanese, G. De Giacomo, R. De Masellis, P. Felli, and M. Montali. Description logic knowledge and action bases. *Journal of Artificial Intelligence Research*, 46:651–686, 2013. DOI: 10.1613/jair.3826.
- [JI-17] F. Chesani, P. Mello, M. Montali, and P. Torroni. Representing and monitoring social commitments using the event calculus. *Autonomous Agents and Multi-Agent Systems*, 27(1):85–130, 2013. DOI: 10.1007/s10458-012-9202-0.
- [JI-18] M. Montali, F. M. Maggi, F. Chesani, P. Mello, and W. M. P. van der Aalst. Monitoring business constraints with the event calculus. *ACM Transactions on Intelligent Systems and Technology*, 5(1), 2013. DOI: 10.1145/2542182.2542199.
- [JI-19] R. De Masellis, D. Lembo, M. Montali, and D. Solomakhin. Semantic enrichment of GSM-based artifact-centric models. *Journal on Data Semantics*, 4(1):3–27, 2015. DOI: 10.1007/s13740-014-0036-6.
- [JI-20] L. T. Ly, F. M. Maggi, M. Montali, S. Rinderle-Ma, and W. M. P. Aalst. Compliance monitoring in business processes: Functionalities, application, and tool-support. *Information Systems*, 54:209–234, 2015. DOI: 10.1016/j.is.2015.02.007.
- [JI-21] M. Montali and D. Calvanese. Soundness of data-aware, case-centric processes. *International Journal on Software Tools for Technology Transfer*, pages 1–24, 2016. DOI: 10.1007/s10009-016-0417-2.
- [JI-22] M. Montali and A. Rivkin. Model checking petri nets with names using data-centric dynamic systems. *Formal Aspects of Computing*, pages 1–27, 2016. DOI: 10.1007/s00165-016-0370-6.
- [JI-23] D. Calvanese, G. De Giacomo, M. Montali, and F. Patrizi. First-order mu-calculus over generic transition systems and applications to the situation calculus. *Information and Computation*, 2017.
- [JI-24] C. Di Ciccio, F. M. Maggi, M. Montali, and J. Mendling. Resolving inconsistencies and redundancies in declarative process models. *Information Systems*, 64:425–446, 2017. DOI: 10.1016/j.is.2016.09.005.
- [JI-25] M. Montali and A. Rivkin. DB-nets: on the marriage of colored petri nets and relational databases. *Transactions on Petri Nets and Other Models of Concurrency*, 2017.

Book Chapters

- [BC-26] F. Chesani, E. Lamma, P. Mello, M. Montali, S. Storari, P. Baldazzi, and M. Manfredi. *Computer-Based Medical Guidelines and Protocols: a Primer and Current Trends*, volume 139 of *Studies in Health Technology and Informatics*, chapter Compliance Checking of Cancer-Screening Careflows: an Approach Based on Computational Logic, pages 183–192. IOS Press, 2008. ISBN: 978-1-58603-873-1.

- [BC-27] S. Bragaglia, F. Chesani, P. Mello, M. Montali, and P. Torroni. *Logic Programs, Norms and Action*, volume 7360 of *Lecture Notes in Computer Science*, chapter Reactive Event Calculus for Monitoring Global Computing Applications, pages 123–146. Springer, 2012. ISBN: 978-3-642-29413-6.
- [BC-28] S. Bragaglia, F. Chesani, P. Mello, and M. Montali. *Foundations of Biomedical Knowledge Representation*, volume 9521 of *Lecture Notes in Computer Science*, chapter Conformance Verification of Clinical Guidelines in Presence of Computerized and Human-Enhanced Processes, pages 81–106. Springer, 2015. ISBN: 978-3-319-28006-6.
- [BC-29] F. Chesani, C. G. Enright, M. Montali, and M. G. Madden. *Foundations of Biomedical Knowledge Representation*, volume 9521 of *Lecture Notes in Computer Science*, chapter Monitoring in the Healthcare Setting, pages 71–80. Springer, 2015. ISBN: 978-3-319-28006-6.
- [BC-30] E. Marengo, P. Dallasega, M. Montali, W. Nutt, and M. Reifer. *Business Process Management Cases*, chapter Process Management in Construction - The Expansion of the Bolzano Hospital. Springer, 2017.

Papers in Refereed International Conferences

- [CI-31] A. Ciampolini, P. Mello, M. Montali, and S. Storari. Using social integrity constraints for on-the-fly compliance verification of medical protocols. In A. Tsymbal and P. Cunningham, editors, *Proceedings of the 18th IEEE Symposium on Computer Based Medical Systems (CBMS'05)*, pages 503–505. IEEE Computer Society Press, 2005. ISBN: 0-7695-2355-2. DOI: 10.1109/CBMS.2005.102.
- [CI-32] M. Alberti, F. Chesani, M. Gavanelli, E. Lamma, P. Mello, and M. Montali. An abductive framework for a-priori verification of web services. In A. Bossi and M. J. Maher, editors, *Proceedings of the 8th International ACM SIGPLAN Conference on Principles and Practice of Declarative Programming (PPDP)*, pages 39–50. ACM Press and Addison Wesley, 2006. ISBN: 1-59593-388-3. DOI: 10.1145/1140335.1140342.
- [CI-33] F. Chesani, P. De Matteis, P. Mello, M. Montali, and S. Storari. A framework for defining and verifying clinical guidelines: A case study on cancer screening (short paper). In F. Esposito, Z. W. Ras, D. Malerba, and G. Semeraro, editors, *Proceedings of the 16th International Symposium on Foundations of Intelligent Systems (ISMIS)*, volume 4203 of *Lecture Notes in Computer Science*, pages 338–343. Springer, 2006. ISBN: 978-3-540-45764-0. DOI: 10.1007/11875604_39.
- [CI-34] M. Alberti, F. Chesani, M. Gavanelli, E. Lamma, P. Mello, M. Montali, S. Storari, and P. Torroni. A computational logic-based approach to verification of IT systems. In H. G. Hegering, editor, *Proceedings of the 14th Annual Workshop of HP Software University Association (HP-SUA)*, pages 338–343. Infonomics-Consulting, 2007. ISBN: 978-3-000-21690-9.
- [CI-35] M. Alberti, F. Chesani, M. Gavanelli, E. Lamma, P. Mello, M. Montali, and P. Torroni. A rule-based approach for reasoning about collaboration between smart web services. In M. Marchiori, J. Z. Pan, and C. de Sainte Marie, editors, *Proceedings of the 1st International Conference on Web Reasoning and Rule Systems (RR)*, volume 4524 of *Lecture Notes in Computer Science*, pages 279–288. Springer, 2007. ISBN: 978-3-540-72981-5. DOI: 10.1007/978-3-540-72982-2_22.
- [CI-36] M. Alberti, F. Chesani, M. Gavanelli, E. Lamma, P. Mello, M. Montali, and P. Torroni. Web service contracting: Specification and reasoning with SCIFF. In E. Franconi, M. Kifer, and W. May, editors, *The Semantic Web: Research and Applications, Proceedings of the 4th European Semantic Web Conference (ESWC)*, volume 4519 of *Lecture Notes in Computer Science*, pages 68–83. Springer, 2007. ISBN: 978-3-540-72666-1. DOI: 10.1007/978-3-540-72667-8_7.

- [CI-37] F. Chesani, P. Mello, M. Montali, and S. Storari. Testing careflow process execution conformance by translating a graphical language to computational logic. In R. Bellazzi, A. Abu-Hanna, and J. Hunter, editors, *Proceedings of the 11th International Conference on Artificial Intelligence in Medicine (AIME)*, volume 4594 of *Lecture Notes in Computer Science*, pages 479–488. Springer, 2007. ISBN: 978-3-540-73598-4. DOI: 10.1007/978-3-540-73599-1_64.
- [CI-38] E. Lamma, P. Mello, M. Montali, F. Riguzzi, and S. Storari. Inducing declarative logic-based models from labeled traces. In G. Alonso, P. Dadam, and M. Rosemann, editors, *Proceedings of the 5th International Conference on Business Process Management (BPM)*, volume 4714 of *Lecture Notes in Computer Science*, pages 344–359. Springer, 2007. ISBN: 978-3-540-75182-3. DOI: 10.1007/978-3-540-75183-0_25.
- [CI-39] M. Montali, P. Torroni, M. Alberti, F. Chesani, M. Gavanelli, E. Lamma, and P. Mello. Verification from declarative specifications using logic programming. In M. G. de la Banda and E. Pontelli, editors, *24th International Conference on Logic Programming (ICLP)*, volume 5366 of *Lecture Notes in Computer Science*, pages 440–454. Springer, 2008. ISBN: 978-3-540-89981-5. DOI: 10.1007/978-3-540-89982-2_39.
- [CI-40] M. Alberti, M. Cattafi, F. Chesani, M. Gavanelli, E. Lamma, M. Montali, P. Mello, and P. Torroni. Integrating abductive logic programming and description logics in a dynamic contracting architecture. In *Proceedings of the 7th IEEE International Conference on Web Services (ICWS)*, pages 254–261. IEEE Computer Society Press, 2009. ISBN: 978-0-7695-3709-2. DOI: 10.1109/ICWS.2009.78.
- [CI-41] A. Bottrighi, F. Chesani, P. Mello, G. Molino, M. Montali, S. Montani, S. Storari, P. Terenziani, and M. Torchio. A hybrid approach to clinical guideline and to basic medical knowledge conformance. In C. Combi, Y. Shahar, and A. Abu-Hanna, editors, *Proceedings of the 13th International Conference on Artificial Intelligence in Medicine (AIME)*, volume 5651 of *Lecture Notes in Computer Science*, pages 91–95. Springer, 2009. ISBN: 978-3-642-02975-2. DOI: 10.1007/978-3-642-02976-9_12.
- [CI-42] F. Chesani, P. Mello, M. Montali, and P. Torroni. Commitment tracking via the reactive event calculus. In C. Boutilier, editor, *Proceedings of the 21st International Joint Conference on Artificial Intelligence (IJCAI)*, pages 91–96. AAAI Press/The MIT Press, 2009. ISBN: 978-1-57735-426-0.
- [CI-43] S. Bragaglia, F. Chesani, A. Ciampolini, P. Mello, M. Montali, and D. Sottara. An hybrid architecture integrating forward rules with fuzzy ontological reasoning. In M. G. Romay, E. Corchado, and M. T. García-Sebastián, editors, *Proceedings of the 5th International Conference on Hybrid Artificial Intelligence Systems (HAIS)*, volume 6076 of *Lecture Notes in Computer Science*, pages 438–445. Springer, 2010. ISBN: 978-3-642-13768-6. DOI: 10.1007/978-3-642-13769-3_53.
- [CI-44] F. Chesani, P. Mello, M. Montali, and P. Torroni. Declarative technologies for open agent systems and beyond. In P. Jędrzejowicz, N. T. Nguyen, R. J. Howlett, and L. C. Jain, editors, *Proceedings of the 4th International Symposium on Agent and Multi-Agent Systems: Technologies and Applications (KES-AMSTA)*, volume 6070 of *Lecture Notes in Computer Science*, pages 1–5. Springer, 2010. ISBN: 978-3-642-13479-1. DOI: 10.1007/978-3-642-13480-7_1.
- [CI-45] F. Chesani, P. Mello, M. Montali, and P. Torroni. Monitoring time-aware social commitments with reactive event calculus. In *Proceedings of the 20th European Meeting on Cybernetics and Systems Research, 7th International Symposium 'From Agent Theory to Agent Implementation' (AT2AI-7)*, pages 447–452. Austrian Society for Cybernetics Studies, 2010. Best Paper Award.

- [CI-46] F. Chesani, P. Mello, M. Montali, and P. Torroni. Role monitoring in open agent societies. In P. Jędrzejowicz, N. T. Nguyen, R. J. Howlett, and L. C. Jain, editors, *Proceedings of the 4th International Symposium on Agent and Multi-Agent Systems: Technologies and Applications (KES-AMSTA)*, volume 6070 of *Lecture Notes in Computer Science*, pages 112–121. Springer, 2010. ISBN: 978-3-642-13479-1. DOI: 10.1007/978-3-642-13480-7_13.
- [CI-47] S. Bragaglia, F. Chesani, E. Fry, P. Mello, M. Montali, and D. Sottara. Event condition expectation (ECE-) rules for monitoring observable systems. In F. Olken, M. Palmirani, and D. Sottara, editors, *Proceedings of the 5th International Symposium Rule-Based Modeling and Computing on the Semantic Web (RuleML)*, volume 7018 of *Lecture Notes in Computer Science*, pages 267–281. Springer, 2011. ISBN: 978-3-642-24907-5. DOI: 10.1007/978-3-642-24908-2_28.
- [CI-48] S. Bragaglia, F. Chesani, P. Mello, M. Montali, and D. Sottara. Fuzzy conformance checking of observed behaviour with expectations. In R. Pirrone and F. Sorbello, editors, *Proceedings of the XIIth Conference of the Italian Association for Artificial Intelligence (AI*IA)*, volume 6934 of *Lecture Notes in Computer Science*, pages 80–91. Springer, 2011. ISBN: 978-3-642-23953-3. DOI: 10.1007/978-3-642-23954-0_10.
- [CI-49] F. M. Maggi, M. Montali, M. Westergaard, and W. M. P. van der Aalst. Monitoring business constraints with linear temporal logic: An approach based on colored automata. In S. Rinderle-Ma, F. Toumani, and K. Wolf, editors, *Proceedings of the 9th International Conference on Business Process Management (BPM)*, volume 6896 of *Lecture Notes in Computer Science*, pages 132–147. Springer, 2011. ISBN: 978-3-642-23058-5. DOI: 10.1007/978-3-642-23059-2_13.
- [CI-50] B. Bagheri Hariri, D. Calvanese, G. De Giacomo, R. De Masellis, P. Felli, and M. Montali. Verification of description logic knowledge and action bases. In L. De Raedt, C. Bessière, D. Dubois, P. Doherty, P. Frasconi, F. Heintz, and P. J. F. Lucas, editors, *Proceedings of the 20th European Conference on Artificial Intelligence (ECAI)*, volume 242 of *Frontiers in Artificial Intelligence and Applications*, pages 103–108. IOS Press, 2012. ISBN: 978-1-61499-097-0. DOI: 10.3233/978-1-61499-098-7-103.
- [CI-51] D. Calvanese, G. De Giacomo, D. Lembo, M. Montali, and A. Santoso. Ontology-based governance of data-aware processes. In M. Krötzsch and U. Straccia, editors, *Proceedings of the 6th International Conference on Web Reasoning and Rule Systems (RR)*, volume 7497 of *Lecture Notes in Computer Science*, pages 25–41. Springer, 2012. ISBN: 978-3-642-33202-9. DOI: 10.1007/978-3-642-33203-6.
- [CI-52] F. M. Maggi, M. Montali, and W. M. P. van der Aalst. An operational decision support framework for monitoring business constraints. In J. de Lara and A. Zisman, editors, *15th International Conference on Fundamental Approaches to Software Engineering (FASE)*, volume 7212 of *Lecture Notes in Computer Science*, pages 146–162. Springer, 2012. ISBN: 978-3-642-28871-5. DOI: 10.1007/978-3-642-28872-2_11.
- [CI-53] F. M. Maggi, M. Westergaard, M. Montali, and W. M. P. van der Aalst. Runtime verification of LTL-based declarative process models. In S. Khurshid and K. Sen, editors, *Proceedings of the 2nd International Conference on Runtime Verification (RV)*, volume 7186 of *Lecture Notes in Computer Science*, pages 131–146. Springer, 2012. ISBN: 978-3-642-29859-2. DOI: 10.1007/978-3-642-29860-8.
- [CI-54] B. Bagheri Hariri, D. Calvanese, G. De Giacomo, A. Deutsch, and M. Montali. Verification of relational data-centric dynamic systems with external services. In R. Hull and W. Fan, editors, *Proceedings of the 32nd ACM SIGACT SIGMOD SIGART Symposium on Principles of Database Systems (PODS)*, pages 163–174. ACM Press and Addison Wesley, 2013. ISBN: 978-1-4503-2066-5. DOI: 10.1145/2463664.2465221.

- [CI-55] B. Bagheri Hariri, D. Calvanese, M. Montali, A. Santoso, and D. Solomakhin. Verification of semantically-enhanced artifact systems (short paper). In S. Basu, C. Pautasso, L. Zhang, and X. Fu, editors, *Proceedings of the 11th International Conference on Service Oriented Computing (ICSOC)*, volume 8274 of *Lecture Notes in Computer Science*, pages 600–607. Springer, 2013. ISBN: 978-3-642-45004-4. DOI: 10.1007/978-3-642-45005-1_51.
- [CI-56] D. Calvanese, G. De Giacomo, and M. Montali. Foundations of data-aware process analysis: A database theory perspective. In R. Hull and W. Fan, editors, *Proceedings of the 32nd ACM SIGACT SIGMOD SIGART Symposium on Principles of Database Systems (PODS)*, pages 1–12. ACM Press and Addison Wesley, 2013. ISBN: 978-1-4503-2066-5. DOI: 10.1145/2463664.2467796.
- [CI-57] D. Calvanese, G. De Giacomo, M. Montali, and F. Patrizi. Description logic based dynamic systems: Modeling, verification, and synthesis. In Q. Yang and M. Wooldridge, editors, *Proceedings of the 24th International Joint Conference on Artificial Intelligence (IJCAI)*, pages 4247–4253. AAAI Press/The MIT Press, 2013. ISBN: 978-1-57735-738-4.
- [CI-58] D. Calvanese, G. De Giacomo, M. Montali, and F. Patrizi. Verification and synthesis in description logic based dynamic systems. In W. Faber and D. Lembo, editors, *Proceedings of the 7th International Conference on Web Reasoning and Rule Systems (RR)*, volume 7994 of *Lecture Notes in Computer Science*, pages 50–64. Springer, 2013. ISBN: 978-3-642-39665-6. DOI: 10.1007/978-3-642-39666-3_5. Best Paper Award.
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