#### Alessandro Provetti

Associate Professor of Computer Science,

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Long-term academic visitor, since 2010, to Oxford-Man Institute of Quantitative Finance

University of Oxford.

Eagle House, Walton Well Rd. Oxford OX2 6ED, UK.

 $\label{eq:affiliated Professor} Affiliated\ Professor,\ \text{since 2008},\ \text{to the Computer Science Graduate School}$ 

Virginia Commonwealth University, School of Engineering

401 West Main St., Richmond, VA 23284-3019 USA

Adjunct Professor, since 2000, to the Computer Science Dept.

The University of Texas at El Paso.

500 West University Ave., El Paso, TX 79968, USA.

## **Current Research Interests**

#### Extraction and analysis of data from Online Social Networks:

- Web data extraction and manipulation;
- community detection, and
- recommender systems.

#### Default reasoning in the Web/internet domain:

- Web data extraction and manipulation;
- modeling and validation of database design (Entity-Relationship schemata);
- specification and formal properties of routing policies in firewalls, and
- rule-based spam annotation and filtering.

#### Knowledge Representation and automated reasoning:

- answer set programming and its applications;
- reasoning about actions, reasoning with incomplete information;
- planning in dynamic systems, e.g. in autonomous robots and software agents, and
- knowledge representation in the legal domain.

## Teaching Experience/Interests

#### General Computer Science topics:

- Algorithms, data structures and complexity;
- Formal languages, Automata and computability;
- Databases (basic and advanced), and
- Introduction to Computer science.

#### Research-related topics:

- Artificial Intelligence;
- Logic Programming;
- Planning and Scheduling, and
- Intelligent Systems/Agents.

#### **Patents**

Holder of patent application ME2013A000005: Method and system for the interactive management of the browsing and booking of pharmaceutical, with or without prescription. Approved in Italy, under registration by the European Patent Office.

## Supervision and mentoring

#### Post-doc fellows

• Massimo Marchi, 2007-08 working on the National project DLP\* in innovative application settings

#### PhDs I mentored

• Massimo Marchi, Univ. of Milan, 2006.

Dissertation: Back and forth between Grid/Web Services and declarative specification.

Marchi is now Postdoctoral researcher at the Agriculture Dept., Univ. of Milan, Italy.

• Alessandra Mileo, Univ. of Milan, 2006.

Dissertation: Preference specification and enforcement in declarative policies.

Mileo is now Postdoctoral Researcher and unit leader at the Digital Enterprise Research institute (DERI) and Adjunct Lecturer at the National University of Ireland. Galway, EIRE.

#### PhDs I mentored in their graduation project

- Maria Amalfi (MSc, Messina, 2008), now doctoral candidate in Informatics at Free Univ. of Bolzano-Bozen; Bolzano-Bozen, Italy.
- Franco Salvetti (MSc, Milan, 2002), now PhD (Boulder, 2011) and Principal Development Lead at Bing; S. Francisco, USA.
- Linda Pareschi (MSc, Milan, 2005), now PhD (Milan, 2010) and Post-doc researcher at Univ. of Svizzera Italiana; Lugano, Switzerland.
- Isabella Cattinelli (BSc, Milan, 2004), now PhD (Milan, 2010) and Computational Intelligence Specialist at Fresenius Medical Care; Crema, Italy.
- L. Ng Tari (BSc, UTEP, 2001), now PhD (Arizona State U., 2009) and Lead Engineer at General Elettric Global Research, Schenectady, NY.

#### Partecipation to PhD Committees

- 1. Markus Aschinger, University of Oxford, UK, 2014.
- 2. Ruslan Fayzrakhmanov, TU Wien, Austria, 2014.
- 3. Juan-Luis Olmo Ortiz, Universidad de Córdoba, Spain, 2013.
- 4. Joint Graduation Committee, class of 2011, Univ. of L'Aquila, Italy.
- 5. Joint Graduation Committee, class of 2005, Univ. of Milan, Italy.

- 6. Pedro Cabalar Fernandez, Univ. de La Coruna, 2002, Spain.
- 7. David Lorenzo, Univ. de La Coruña, 2001, Spain.
- 8. Son Tran Cao, Univ. of Texas El Paso, 1999, USA.

#### Service to the Scientific Community

#### Invited speaker:

- —9th Workshop on Multimedia, Distributed and Pervasive Systems (MDPS); Messina, 2013.
- —6th Symp. of the Argentinian Society for Artificial Intelligence (ASAI); Córdoba, Argentina, 2004.

Coordinator (Principal Investigator): WASP: Working Group on Answer Sets Programming, a Europe-wide project funded by the Fifth Framework Programme under contract IST-2001-37004. Member of the Steering committee of the Italian Logic Programming Association (GULP) 2010–2013.

Guest Editor: Theory and Practice of Logic Programming, special issue on Answer Sets Programming, Vol. 3(4-5) 2005. Oxford University Press.

Member of the Editorial Review Board: International Journal of Information Technology and Web Engineering (IJITWE)<sup>1</sup>, IGI-Global Press.

**Evaluator:** (rapporteur) for the Forward Emerging Technologies research initiative of the European Commission on the FP5, FP6 and FP7 initiatives.

#### Program Committee Chair and Organizing Chair:

- BOF07 Between Ontologies and Folksonomies 2007. A Workshop of the 3rd Communities and Technologies Conference, Michigan State University 2007. Volume 312 of Ceur-WS Series.
- CILC07 the XXVII the Italian Conference on Computational Logic; Messina, 2007. Attendance above 50.
- ASP05 The 3rd Int'l Workshop on Answer Set Programming; Bath (UK), July 2005. Proceedings in Vol. 142 of Ceur-WS Series.
- LA-NMR04 The 1st Latin-American Workshop Nonmonotonic Reasoning. Mexico City, April 2004. Proc. in Vol. 92 of Ceur-WS Series.
  - ASP2003 the 2nd Int'l Workshop on Answer Set Programming. Messina, September 2003. Proceedings in Vol. 78 of Ceur-WS Series.
  - ASP2001 Answer Sets Programming: Towards Efficient and Scalable Knowledge Representation and Reasoning. AAAI Spring Symposium. Stanford, March 2001. Vol. SSS-01-01 of AAAI Press.
  - NMR2000 Special Track on *Representing Actions and Planning* at NMR'2000 Workshop, Breckenridge, CO, April 2000.

## Program committee member:

- AMW 2015: 9th Alberto Mendelzon Workshop on Foundations of Data Management;
- SUM 2014: 7th Int'l Conference on Scalable Uncertainty management;

 $<sup>^1</sup>$ www.igi-global.com/ijitwe

- #COOL2014: a WWW'14 workshop on Connecting Online & Offline life;
- WIMS 2011-2015: the Int'l Conference on Web Intelligence, Mining and Semantics;
- ICSC 2012-2015 the IEEE Int'l Conference on Semantic Computing;
- LPNMR 2013: the 12th Int'l Conference on Logic Programming and Nonmonotonic Reasoning;
- SoMNet 2012 Int'l Symp. on Collaboration, Social Computing, New Media and Networks;
- SocMed2011, Int'l Symposium on Social Media, New Media and Collaboration;
- ASPCOMP2011, the 3rd Answer Set Programming Competition;
- AAAI2010, the American Association for Artificial Intelligence;
- ICWSM2007, the International Conference on Weblogs and Social Media;
- CILC 2007-08 and 2010-14; the Italian Conf. on Computational Logic;
- CAAW2006, the AAAI Spring Symposium on Computational Approaches to Analyzing Weblogs;
- POLICY 2006 the 7th IEEE Workshop on Policies for Distributed Systems and Networks;
- LANMR 2004, 2006, 2009 and 2011; the Latin-American Workshop on Nonmonotonic Reasoning;
- LPNMR2005, the 8th Int'l Conference on Logic Programming and Non Monotonic Reasoning;
- COIN 2006 and 2007, the Coordination, Organization, Institutions and Norms in agent systems workshop of AAMAS;
- CoopIS 2003, 2004 and 2005: the Int'l Conference on Cooperative Information Systems;
- NMR2004, the 10th International Workshop on Non-Monotonic Reasoning NMR2004;
- CAEPIA 2001 and 2003: the 9th and 10th Conference of the Spanish Association for AI;
- MICAI 2000, 2002 and 2004, the Mexican International Conferences on Artificial Intelligence;
- IBERAMIA 2002, Conference of La Sociedad Iberoamericana de Inteligencia Artificial;
- DRT2004, the non-monotonic reasoning workshop attached to IBERAMIA, and
- THAI-ETIS1999, the 1st European Symp. on Telematics, Hypermedia and AI in Education

#### Referee

Journals: Artificial Intelligence, Theory and Practice of Logic Programming, J. of Logic and Computation, Fundamenta Informaticae, IEICE Trans. on Inf. and Syst., Computational Models of Organization Theory, Engineering Applications of Artificial Intelligence, Annals of Mathematics and AI, Computational Intelligence, Software Engineering and Knowledge Eng., and the IGLP Bulletin.

Conferences: WWW (2014), IJCAI (2011, 2003), VLDB (2011), EDBT (2002), JELIA, ICLP, PADL, LoPrSTr (2004), ICTCS (2001), APPIA-GULP-ProDe and several workshops in the fields of Web data, Logic Programming and AI.

Membership in professional societies: AAAI (past), ALP, GULP and EATCS.

## Service to the University

I am director of studies (coordinatore del corso di laurea) for the Informatics studies at University of Messina:

- -undergraduate Informatics (enrollment of about 100/year) from 2010 to 2014;
- -graduate Informatics (enrollment of about 20/year) from 2010 on.

#### Selection committees for academic positions

- Member of the Selection Committee for a non-tenure track position as Assistant Professor in Informatics at Messina Univ., College of Political Sciences, 2011.
- Chair of the Selection Committee for two non-tenure track positions as Assistant Professor in Informatics at Messina Univ, Colleges of Sciences and Education, 2010.
- Chair of the Selection Committee for a tenure track position as Assistant Professor in Informatics at Univ. of L'Aquila, College of Medicine, 2006.

## Hiring committees for Technical/Administrative Positions

- hiring committe for a Senior position of ICT Technician at the College of Humanities of the Univ. of Messina, November 2008.
- central promotion committee for all Senior technical positions at the Univ. of Messina, September 2008.
- hiring committe for a Senior position of Biologist and the Institute of Genetics of the Univ. of Messina, 2005.

# Research Projects

2013: Participant for the U. of Messina unit of the *Teseo* national project (PON) on the on-board integration of new energy technologies with high efficiency and low environmental impact. Budget: €15.088.936.

2013: Responsible for the U. of Messina unit of the project proposal Svoolaz: a platform for collecting, categorizing, annotating, visualizing, correlating and sharing data from cross-platform digital interactions. Submitted to the National Big Data Analytics call. Budget:  $\leq 1.173.000$ .

2008: Participant to the Project Genetic Algorithms in Satisfiability Problems: Formal Study and Application to Answer Set Programming funded by the Xunta de Galicia (Spain) under contract INCITE08-PXIB105159PR, October 2008 - October 2011. Funding: €29.555.

2006: Responsible for the Messina unit of the National (PRIN) Project  $DLP^*$  in innovative application settings. Funding:  $\leq$ 36.100 for my unit.

2002: Coordinator of the European project WASP: Working Group on Answer Sets Programming, totally financed by the European Commission with IST-2001-37004 contract. Duration time: 30 months. Funded amount: €300.000.

2001: Participant to the Project *Un lenguaje declarativo basado en causalidad: aplicacion a diferentes problemas de razonamiento* funded by the Spanish *Ministerio de Educación y Ciencia* under contract TIC2001-0393, December 2001 - December 2004. Funding: €112.936.

## **Intramural Projects**

2006+2007: "Programmazione logica ed applicazioni in ambiti Web e di rete" funded by the Univ. of Messina with €3.007.

2005: "Web e Grid services con capacità inferenziali" submitted to the Univ. of Messina with budget of €14.254.

2004: "Ragionamento con informazione semi-strutturata da sorgenti Web: oltre Lixto" submitted to the Univ. of Messina with budget of  $\in 14.254$ .

2002: (with G. Grasso) "Laboratorio di robotica cognitiva e visione" funded by the Univ. of Messina with €4.456.

2001: (with L. Ripamonti) the *Legolog* project for setting up a robot building and programming workshop for Artificial Intelligence students; funded by the Univ. of Milan.

## Previous appointments

Assistant professor: (October 2000 - September 2001) Computer Science Dept., University of Milan.

Visiting professor: (September 1999 - May 2000)

Computer Science Dept., The University of Texas at El Paso, teaching Computer Science Classes both at graduate and undergraduate level.

Post-doctoral researcher: (December 1997 - August 1999)

University of Milan, Information Sciences Dept., basic research on applying graph theory to Logic programming.

Visiting researcher: (October - December 1997)

University of Corunna, Spain, integrating theory of actions into expert systems.

Consultant: (October - December 1996)

Designing and overseeing the development an Oracle-based RDBMS for automatizing registrar operations at the University of Bologna, faculty of Law.

Visiting Researcher: (June - October 1995 and 1996)

Computer Science Dept, The University of Texas at El Paso, basic research in Knowledge Representation.

Exchange PhD Student: (May-September 1993, April-October 1994)

Computer Science Dept., The U. of Texas at El Paso. Research towards my dissertation.

# Teaching experience

#### **Current Teaching Activity**

For the Academic Year 2013-14 I have been responsible for 24 ECTS credits, corresponding to 196 hours of teaching, mostly recited lectures.

- 1. Automata, Languages and Computability, graduate class in CS, 12 ECTS credits/96 hours;
- 2. Artificial Intelligence, graduate class in CS, 9 ECTS credits/72 hours;
- $3.\ \mathit{Informatics}, \ a \ \mathrm{short} \ \mathrm{graduate} \ \mathrm{class} \ \mathrm{for} \ \mathrm{the} \ \mathrm{School} \ \mathrm{of} \ \mathrm{Medicine}, \ 1 \ \mathrm{ECTS} \ \mathrm{credit}/12 \ \mathrm{hours}, \ \mathrm{and}$
- 4. Informatics and Imaging databases, short graduate classes for the Medical Physics School, 1 ECTS credit/8 hours each.

Associate Professor: University of Messina, Italy.

Since 2001, I have been responsible for several core Computer Science classes, for all years of study: Artificial Intelligence, Algorithms I and II, Databases I and II and Automatata and Formal Languages.

Moreover, I have been designing and teaching several Introduction to Computer Science classes for non-CS majors, e.g. Chemistry.

During my tenure at U. of Messina I helped to make up for the shortage of CS instructors by teaching on average more than 30 ECTS credits and about 240 hours of class per year.

With my colleague Alessio Plebe from the Faculty of Education, I have successfully proposed the Masters program *Informatics for humanities graduates* that has been fully-funded by the regional government of Sicily in the academic year 2008-09. I taught 2 classes of the master program for a total of 6 ECTS credits /48 hours.

• Artificial Intelligence. A graduate class of 9 ECTS credits/72 hours (6 ECTS/48 hours until 2010) which I have been teaching from 2001-2002 to 2013-14 (with the exception of 2009-2010 for a Sabbatical year). Thanks to a multidisciplinary approach, is attended by students from both Informatics, Computer Engineering and Cognitive Sciences.

In total, 84 ECTS credits for 672 hours.

- Automata, Languages and Computability. A graduate class of 12 ECTS credits/96 hours
  which I teach from 2011-2012 on. Roughly equivalent to CS3350 Formal languages, Automata
  and Computability, it is attended by Graduate students in Computer Science.
  - In total, 36 ECTS credits for 288 hours.
- Theory and Methods of Optimization. A graduate class of 8 ECTS credits/64 hours (6ECTS/48 hours until 2008) which I taught from 2001-2002 to 2010-11 (with the exception of the 2009-2010 Sabbatical year). Roughly equivalent to CS5350 Advanced Algorithms, it was is attended by Graduate students in Computer Science.

In total, 58 ECTS credits for 464 hours.

• Databases II. An undergraduate class of 6 ECTS credits/48 hours which I taught from 2001-2002 to 2011-12 (with the exception of the 2009-2010 Sabbatical year). Roughly equivalent to CS5350 Advanced Algorithms, it was is attended by Graduate students in Computer Science.

In total, 60 ECTS credits for 480 hours.

- Databases I. An undergraduate class of 6 ECTS credits/48 hours which I taught from 2001-2002 to 2005-06. Roughly equivalent to CS4342 Database management, it was is attended by about 100 undergraduate students in Computer Science and Computer Engineering. In total, 30 ECTS credits for 240 hours.
- Advanced Algorithms and Programming. A graduate class of 6 ECTS credits/48 hours which
  I taught from 2006-2007 to 2010-11 (with the exception of the 2009-2010 Sabbatical year),
  CS3350 Formal languages, Automata and Computability. It was is attended by graduate
  students in Computer Science.

In total, 24 ECTS credits for 192 hours.

• Programming III. A graduate class in CS I taught in 2012-13. In total, 9 ECTS credits for 72 hours.

- Laboratory for Algorithms. A post-graduate training for teachers. In total, 2 ECTS credits/18 h.
- Algorithms I. An undergraduate class of 6 ECTS credits/48 hours which I taught from 2004-2005 to 2008-09, it was is attended by about 100 undergraduate students in Computer Science.

In total, 30 ECTS credits for 240 hours.

• Informatics. An ungraduate class of 6 ECTS credits/72 hours for Industrial Chemistry Majors which which I taught in 2006-2007 and 2007-08 in the Branch campus of Augusta (near Siracusa), enrollment about 30. Roughly equivalent to CS101 Introduction to Computer Science.

In total, 12 ECTS credits for 96 hours.

• Informatics. An ungraduate class of 3 ECTS credits/24 hours for Journalism majors from the College of Humanities. which I taught from 2006-2007 to 2008-09, enrollment about 30. Roughly equivalent to CS101 Introduction to Computer Science.

In total, 9 ECTS credits for 72 hours.

• Informatics. An graduate (MD Specialization in Epidemiology) short class of 1 ECTS credit/12 hours for the School of Medicine which I teach from 2012-2013 on.

In total, 2 ECTS credits for 24 hours.

• Elements of Informatics. An graduate short class of 1 ECTS credit/12 hours for the Medical Physics School which I teach from 2013-2014 on.

In total, 1 ECTS credits for 12 hours.

• Diagnostic imaging processing. An graduate short class of 1 ECTS credit/12 hours for the Medical Physics School which I teach from 2013-2014 on.

#### Assistant Professor: University of Milan, Italy,

As an assistant professor in Milan I taught several classes, both in my research area (AI in Milan, Automated planning in Varese) and in general Computer Science: Algorithms I for CS majors, and Introduction to Computer Science for the new study programme in Biotechnologies. Spring 2001:

- —Intelligenza Artificiale (equivalent to CS5314 Artificial Intelligence)
- Pianificazione Automatica (undergraduate, at Università dell'Insubria a Varese) Fall 2000:
- -Laboratorio di Algoritmi e Strutture dati (equivalent to CS5350 Data Structures) and
- —Informatica di base per Biotecnologie (equivalent to CS1401 Introduction to Computer Science).

Visiting professor: University of Texas at El Paso, Fall 1999 and Spring 2000.

- —CS3350 Formal languages, Automata and Computability, required third-year course for CS Majors
- —CS5314 Graduate Artificial Intelligence, for CS/CSE students at Master/PhD level
- —CS4342 Database management, required in third year course for CS Majors, and
- —CS5350 Advanced Algorithms, for CS/CSE students at Master/PhD level.

Co-instructor: University of Milan, Italy, Spring 1998 and 1999, taught seminar sections of

- $-Informatica\ per\ Economia$  (equivalent to CS1401 Introduction to Computer Science) for Economics majors and
- $-Intelligenza\ artificiale\ (equivalent\ to\ CS4320\ undergraduate\ Artificial\ Intelligence).$

Instructor: University of Parma, Italy, 1997.

I was hired to teach undergraduate classes in Computer Science to Physics majors.

Teaching Assistant: University of Bologna, Italy, 1997.

During my PhD studies, I helped both the teaching and the lab part of *Informatica giuridica*, equivalent to Computer Science for Law majors.

## Education

PhD in Informatics for Law, University of Bologna, Italy, January 1996.

Dissertation: Towards the Formalization of Causal Aspects of Legal Reasoning<sup>2</sup>.

Supervisors: Prof. M. Matteuzzi and Prof. G. A. Lanzarone; external mentor: Prof. Michael Gelfond of University of Texas at El Paso.

MSc/Diploma of Imperial College in Foundations of Advanced Information Technology Imperial College of Science, Technology and Medicine, London (UK), February 1992.

Dissertation: On the Temporal Aspects of Representing Legislation in Logic.

Supervisor: Prof. M. J. Sergot.

Degree (with thesis) in *Science dell'Informazione* (Computer Science) Univ. of Milan, Italy, July 1990.

Dissertation: The Visualization of Completion Procedures and of their Applications<sup>3</sup>.

Supervisor: Prof. G. Degli Antoni.

<sup>&</sup>lt;sup>2</sup>In Italian, English version also available.

 $<sup>^3{\</sup>rm In}$  Italian.

## Journal Articles

- [J.18] P. De Meo, E. Ferrara, G. Fiumara, and A. Provetti, 2014. On Facebook, most ties are weak. Communications of the ACM, November 2014 issue. DOI: http://dx.doi.org/10. 1145/2629438
- [J.17] S. Agreste, P. De Meo, E. Ferrara, S. Piccolo, and A. Provetti, 2014. Analysis of a heterogeneous social network of humans and cultural objects. *IEEE Trans. on Systems*, Man and Cybernetics: Systems, forthcoming.
- [J.16] P. De Meo, E. Ferrara, G. Fiumara, and A. Provetti, 2014. Mixing local and global information for community detection in large networks. *J. of Computer and System Sciences*, Vol. 80:1, pp. 72–87. DOI: 10.1016/j.jcss.2013.03.012.
- [J.15] B. Bonasera, E. Ferrara, G. Fiumara, F. Pagano and A. Provetti, 2014. Adaptive search over sorted sets. *Journal of Discrete Algorithms*, in press.
- [J.14] M. Bernava, G. Fiumara, D. Maggiorini, L. Ripamonti and A. Provetti, 2014. RDF annotation of Second Life objects: Knowledge Representation meets Social Virtual reality. Computational & Mathematical Organization Theory, Vol. 20:1, pp. 20–35. DOI: 10.1007/s10588-012-9148-4
- [J.13] P. De Meo, E. Ferrara, G. Fiumara, and A. Provetti, 2013. Enhancing community detection using a network weighting strategy. *Information Sciences*, Vol. 222, pp. 648–668.
- [J.12] S. Costantini, G. De Gasperis, A. Provetti and P. Tsintza, 2013. A Heuristic Approach to Proposal-Based Negotiation: With Applications in Fashion Supply Chain Management. *Mathematical Problems in Engineering*, article no. 896312.
- [J.11] S. Costantini and A. Provetti, 2010. A Lower bound for Answer Set Computation. *Inteligencia artificial*; Vol. 14:48, pp. 41-52. http://journal.iberamia.org/
- [J.10] G. Grossi, M. Marchi, E. Pontelli and A. Provetti, 2009. Experimental Analysis of Graph-based Answer Set Computation over Parallel and Distributed Architectures Journal of Logic and Computation, Vol. 19:4, pp. 697–715.
- [J.9] G. Fiumara, M. Marchi and A. Provetti, 2008. Adaptive Web Data Extraction Policies. AAPP Physical, Mathematical, and Natural Sciences 86(2):1–17. http://www.actapeloritana.it/
- [J.8] S. Costantini and A. Provetti, 2005. Normal Forms for Answer Set Programming. Theory and Practice of Logic Programming, 5(6):747–760. Available on CoRR repository cs.AI/0410014. http://arxiv.org/abs/cs.AI/0410014
- [J.7] S. Costantini, O. D'Antona and A. Provetti, 2002. On the equivalence and range of applicability of graph-based representations of logic programs. *Information Processing Letters*, 84(5):241-249.
- [J.6] C. Baral, A. Gabaldon and A. Provetti, 1998. Formalizing Narratives Using Nested Circumscription. *Artificial Intelligence*, 104(1-2):107-164.
- [J.5] C. Baral, A. Gabaldon and A. Provetti, 1998. Value minimization in Circumscription. Artificial Intelligence, 102(2):163-186.

- [J.4] C. Baral, M. Gelfond and A. Provetti, 1997. Representing Actions: Laws, Observations and Hypothesis. *Journal of Logic Programming*, 31(1-3):201–244.
- [J.3] A. Provetti, 1996. Ordering Events: Intervals Are Sufficient, More General Sets Are Usually Not Necessary. *Reliable Computing (formerly Interval Computations)*, 2(3):321–327.
- [J.2] A. Provetti, 1996. Hypothetical Reasoning: From Situation Calculus to Event Calculus. Computational Intelligence Journal, 12(3):478–498.
- [J.1] I. Cervesato, A. Montanari and A. Provetti, 1993. On The Nonmonotonic Behavior of Event Calculi for Deriving Maximal Time Intervals. *Interval Computations*, 2:83–119.

# Book chapters (peer reviewed)

[B.1] S. Catanese, P. De Meo, E. Ferrara, G. Fiumara and A. Provetti, 2012. Extraction and Analysis of Facebook Friendship Relations In A. Abraham and A. E. Hassanien (eds.) Computational Social Networks: Mining and Visualization, Vol. 3., pp. 291–324. Springer Computer and Communication Networks series.

# Int'l Conference and Workshop Papers (peer reviewed)

- [C.48] N. Osman, A. Provetti, V. Riggi, C. Sierra, 2014. MORE: Merged Opinions Reputation Model. 12th European Conference on Multi-Agent Systems (EUMAS 2014). Selected papers on Annals of Mathematics & AI.
- [C.47] P. De Meo, E. Ferrara, G. Fiumara and A. Provetti, 2014. Edge Weighting for Finding Communities in Networks. 5th Int'l Conf. on Applied Human Factors and Ergonomics (AHFE 2014). Post-proceedings by CRC Press/Taylor & Francis.
- [C.46] J. Lobo, M. Marchi and A. Provetti, 2012. Firewall Configuration Policies for the Specification and Implementation of Private Zones, Proc. of IEEE International Symposium on Policies for Distributed Systems and Networks (POLICY 2012) IEEE Conference Publishing Services, pp 78–85.
- [C.45] S. Costantini and A. Provetti, 2012. Conflict, Consistency and Truth-Dependencies in Graph Representations of Answer Set Logic Programs, In M. Croitoru, N. Rudolph and J.Wilson, S. Howse, O. Corby (eds.) Graph Structures for Knowledge Representation and Reasoning., 2nd Int'l Workshop (GKR 2011). Springer LNCS, Vol. 7205, pp. 68–90. Post-proceedings of GKR2011, an extended version of [PP.5].
- [C.44] P. De Meo, E. Ferrara, G. Fiumara and A. Provetti, 2011. Generalized Louvain Method for Community Detection in Large Networks, Proc. of the 11th Int'l Conf. on Intelligent Systems Design and Applications (ISDA 2011) IEEE Conference Publishing Services, pp. 88–93.
- [C.43] P. De Meo, E. Ferrara, G. Fiumara and A. Provetti, 2011. Improving Recommendation Quality by Merging Collaborative Filtering and Social Relationships, Proc. of the 11th Int'l Conf. on Intelligent Systems Design and Applications (ISDA 2011) IEEE Conference Publishing Services, pp. 587–592.

- [C.42] G. Fiumara, M. Marchi, R. Pagano, A. Provetti and N. Spada, 2011. A rule-based system for end-user e-mail annotations, Proc. of the 8th Annual Collaboration, Electronic messaging, Anti-Abuse and Spam Conference (CEAS '11) ACM Int'l Conference Proceedings Series, pp. 102–108.
- [C.41] S.A. Catanese, P. De Meo, E. Ferrara, G. Fiumara and A. Provetti, 2011. Crawling Facebook for social network analysis purposes, Proc. of the Int'l Conf. on Web Intelligence, Mining and Semantics (WIMS '11) ACM Press, pp 52:1–52:8.
- [C.40] M. Amalfi, A. Artale, A. Calì and A. Provetti, 2011. Generating preview instances for the Face validation of Entity-Relationship schemata: the acyclic case. Proc. of the Database Systems for Advanced Applications (DASFAA 2011) Conference, Vol. 2. Springer LNCS 6588, pp. 225–234.
- [C.39] A. Basile, M. R. Felice and A. Provetti, 2011. Formalization and Automated reasoning about a Complex Signalling Network. Proc. of the 26-th Italian Conference on Computational Logic. Vol. 810 of CEUR Workshop series, pp. 407–414.
- [C.38] S. Costantini and A. Provetti, 2010. Graph representations of logic programs: properties and comparison. Proc. of the 5th Latin-American Workshop on New forms of Reasoning (LANMR10). CEUR-WS series, Vol. 677, pp. 1-14.
- [C.37] G. Fiumara, D. Maggiorini, L.A. Ripamonti and A. Provetti, 2010 Knowledge Representation in Virtual Teams: a perspective approach for synthetic worlds. Proc. of 11th IFIP Wg 5.5 Working Conf. on Virtual Enterprises (PRO-VE'10). IFIP Advances in Information and Communication Technology 336, pp. 691-625, Springer.
- [C.36] G. Fiumara, M. Marchi, R. Pagano and A. Provetti, 2010. Rule-Based Spam E-mail Annotation. Proc. of Web Reasoning and Rule Systems - 4th Int'l Conference, (RR 2010). Springer LNCS 6333, pp. 231–234.
- [C.35] S. Costantini and A. Provetti, 2009. A Lower bound for Answer Set Computation. Proc. of LANMR09, the 4th Latin-American Workshop on Nonmonotonic Reasoning. CEUR-WS series, Vol. 533, pp. 183-198 (a preliminary version of [J.11]).
- [C.34] G. Grossi, M. Marchi and A. Provetti, 2007 Improving the AdjSolver Algorithm for ASP Kernel Programs. Preprints of The 4rd Int'l Workshop on Answer Set Programming (ASP07), pp.21–31.
- [C.33] G. Grossi, M. Marchi, E. Pontelli and A. Provetti, 2007. Experiments with Answer Set Computation over Parallel and Distributed Architectures. Preprints of *The 4rd Int'l Workshop on Answer Set Programming*, pp.7–20. A preliminary version of [J.10].
- [C.32] M. Amalfi, K. Lo Presti, A. Provetti, F. Salvetti, 2006. Finding Instances of Deduction and Abduction in Clinical Experimental Transcripts. Proc. of European conference on Artificial Intelligence (ECAI2006): 737-738.
- [C.31] F. de Cindio, G. Fiumara, M. Marchi, A. Provetti, L. A. Ripamonti, L. Sonnante, 2006. Aggregating Information and Enforcing Awareness Across Communities with the Dynamo RSS Feeds Creation Engine: Preliminary Report. Proc. of On The Move (OTM) Workshops (1): 227-236.

- [C.30] C. Bernardoni, G. Fiumara, M. Marchi and A. Provetti, 2006. Declarative Web data extraction and annotation. Proc. of 20th Workshop on Logic Programming (WLP 2006): 137-144
- [C.29] S. Bossa, G. Fiumara and A. Provetti, 2006. A Lightweight Architecture for RSS Polling of Arbitrary Web sources. Proc. of Workshop on Objects and Agents (WOA 2006).
- [C.28] C. Bernardoni, M. Marchi and A. Provetti, 2005. Declarative Web data extraction and annotation. Submitted to the Semantic Web Policies Workshop (SWPW05). Part of the 4th Int'l Semantic Web Conference. Available from http://mag.dsi.unimi.it/
- [C.27] M. Marchi, A. Mileo and A. Provetti, 2005. Declarative Policies for Web Service Selection. Poster in Proc. of 6th IEEE International Workshop on Policies for Distributed Systems and Networks (POLICY 2005). IEEE press, pp. 239–242.
- [C.26] E. Bertino, A. Mileo and A. Provetti, 2005. PDL with Preferences. Proc. of IEEE 6th Int'l Workshop on Policies for Distributed Systems and Networks (POLICY05). IEEE Press, pp. 213–222.
- [C.25] L. Padovani and A. Provetti, 2004. Qsmodels: ASP Planning in Interactive Gaming Environment. Proc. of Logic in Artificial Intelligence, 9th European Conference, (JELIA 2004). Springer LNCS 3229, pp. 689–692.
- [C.24] M. Marchi, A. Mileo and A. Provetti, 2004. Specification and execution of Policies for Grid Service Selection. In Proc. of European Conference on Web Services (ECOWS'04). Springer LNCS 3250, pp 102–115. Available from http://mag.dsi.unimi.it/PPDL/
- [C.23] E. Bertino, A. Mileo and A. Provetti, 2003. PDL with Maximum Consistency Monitors. Proc. of Int'l Symposium on Methodologies for Intelligent Systems (ISMIS 2003). Springer LNCS 2871, pp. 65–74. Available from http://maq.dsi.unimi.it/PPDL/
- [C.22] E. Bertino, A. Mileo and A. Provetti, 2003. Policy Monitoring with User-Preferences in PDL. In F. Buccafurri (editor) Proc. of Joint Conference On Declarative Programming. Univ. of Reggio Calabria Press, pp. 110–122. This article is a revised version of [C.19]
- [C.21] E. Bertino, A. Provetti and F. Salvetti, 2003. Answer Set Programming for the Semantic Web In F. Buccafurri (editor) Proc. of Joint Conference On Declarative Programming. Univ. of Reggio Calabria Press, pp. 314–323.
- [C.20] S. Costantini, B. Intrigila and A. Provetti, 2003. Coherence of Updates in Answer Set Programming. Proc. of Nonmonotonic Reasoning, Action and Change (NRAC 2003) Workshop. IJCAI Press, KRR-4 report, pp. 66–72.
- [C.19] E. Bertino, A. Mileo and A. Provetti, 2003. Policy Monitoring with User-Preferences in PDL. Proc. of Nonmonotonic Reasoning, Action and Change (NRAC 2003) Workshop. IJCAI Press, KRR-4 report, pp. 37–44.
- [C.18] S. Costantini, R. P. Otero, A. Provetti and S. Tran Cao, 2002. Disjunctive Logic Programs with Inheritance Revisited. Proc. of ISMIS 2003 Conference. Springer LNCS 2366, pp. 294–302.
- [C.17] A. Bertoni, G. Grossi, A. Provetti, V. Kreinovich and L. Tari, 2001. Answer Sets Computation by Genetic Algorithms, Preliminary Report. Proc. of AAAI Spring Symposium ASP2001, pp. 1–5, AAAI press Technical report SSS-01-01.

- [C.16] A. Provetti and L. Tari, 2000. Answer Sets Computation by Genetic Algorithms, Preliminary Report. Proc. of Genetic and Evolutionary Computation (GECCO 2000), "Late breaking papers" track. pp. 303–308.
- [C.15] M. Balduccini, G. Brignoli, G. Lanzarone, F. Magni and A. Provetti, 2000. Experiments in Answer Sets Planning. Proc. of Mexican International Conference on Artificial Intelligence (MICAI 2000) Springer LNAI 1793, pp. 197–201.
- [C.14] G. Brignoli, S. Costantini, O. D'Antona and A. Provetti, 1999. Characterizing and computing stable models of logic programs: the non-stratified case. Proc. of Conference on Information Technology (CIT'99), pp. 197-201. http://arxiv.org/abs/1402.5436
- [C.13] G. A. Lanzarone and A. Provetti, 1998. Processing temporal and atemporal declarative knowledge in metalogic programming. *Joint Conference on Declarative Programming* (APPIA-GULP-PRODE'98), pp. 201–214.
- [C.12] A. Provetti and G. Rossi, 1997. Actions in {log}. In Proc. of Joint Conference on Declarative Programming (APPIA-GULP-PRODE'97), pp. 381-391.
- [C.11] C. Baral, A. Gabaldon and A. Provetti, 1996. Value minimization in Circumscription. In Proc. of Principles of Knowledge representation and Reasoning (KR'96), Morgan Kauffman, pp. 474–481.
  - This paper also appears in the Working notes of Int'l Workshop on Nonmonotonic Reasoning (NMR'96), pp. 24–29.
- [C.9] C. Baral, A. Gabaldon and A. Provetti, 1996. Formalizing Narratives using Nested Circumscription. In Proc. of the 13th AAAI National Conference on Artificial Intelligence, AAAI press pp. 652–657.
  - This paper also appears in the Working notes of the third symposium *Logical Formalizations* of Commonsense Reasoning, pp. 15–24.
  - An abstract appears in the ADMI'97 Symposium on Computing at Minority Institutions, p. 276.
- [C.7] A. Provetti, 1995. Formalizing Causal Reasoning in Law with an Action-based Language: a Preliminary Report. In A. de Santis (editor), Proc. of Fifth Italian Conference on Theoretical Computer Science, WP Press, pp. 512–530.
  - This paper also appears in the Working notes of the third symposium *Logical Formalizations* of Commonsense Reasoning, pp. 215–225.
- [C.5] C. Baral, M. Gelfond and A. Provetti, 1995. Representing Actions -I: Laws, Observations and Hypothesis. In the Working Notes of AAAI Spring Symposium Extending Theories of Actions: Formal Theories and Practical Applications, pp. 17–22 (an earlier version of [J.4]).
- [C.4] A. Provetti, 1994. Hypothetical Reasoning: From Situation Calculus to Event Calculus. In Proc. of 2nd Int'l Workshop on temporal Representation and Reasoning (TIME'94), Univ. of Regina Press, pp. 42–47 (an earlier version of [J.2]).
- [C.3] L. Chittaro, A. Montanari and A. Provetti, 1994. Skeptical and Credulous Event Calculi for Supporting Modal Queries. In A. Cohen, editor, Proc. of European Conference on Artificial Intelligence (ECAI'94), J. Wiley & Sons, pp. 361–365.

- [C.2] S. Costantini, G.A. Lanzarone and A. Provetti, 1993. Reification, Reflection and Ontological Promiscuity in Temporal Reasoning. In Int'l Workshop on Ontologies in Knowledge Representation and Conceptual Analysis, LADSEB-CNR.
- [C.1] A. Provetti, 1992. The Law of Contracts in Event Calculus. In S. Costantini (editor) Proc. of 7th Italian Conference on Logic Programming (GULP'92), Città Studi, pp. 427–498.

# Editorials/Prefaces

- [E.7] D. Maggiorini, A. Provetti and L. Ripamonti, editors, 2007. Between Ontologies and Folksonomies 2007. Proceedings of the Between Ontologies and Folksonomies Workshop (BOF-2007), Michigan State University, East Lansing, Michigan, USA, June 28, 2007. Proceedings are published as Volume 312 of CEUR-WS.
- [E.6] C. Baral, S. Tran Cao and A. Provetti, 2003. Editorial: Programming With Answer Sets. Theory and Practice of Logic Programming, 3(4-5):387–391.
- [E.5] M. De Vos and A. Provetti, editors, 2005. Proc. of Answer Set Programming 2005 (ASP05), Volume 142 of CEUR-WS Proceedings.
- [E.4] M. Osorio and A. Provetti, editors, 2004. Proc. of Latin American Workshop on Non-Monotonic Reasoning 2004 (LA-NMR04), Volume 92 of CEUR-WS Proceedings.
- [E.3] M. De Vos and A. Provetti, editors, 2003. Proc. of Answer Set Programming 2003 (ASP03), Volume 78 of CEUR-WS Proceedings.
- [E.2] A. Provetti and S. Tran Cao, editors, 2001. Answer Set Programming Representation and Reasoning (ASP01). AAAI Spring Symposium Proceedings, AAAI Press SSS-01-01 report.
- [E.1] V. Lifschitz and A. Provetti, editors, 2000. Track on "Representing Actions and Planning" Proc. of NMR'2000, Nonmonotonic Reasoning Conference. Breckenridge, April 2000.

# Posters in International conferences (peer reviewed)

- [P.4] M. Marchi, Romeo Penzo, A. Provetti, 2007 Policy-Based Parametric Firewall Configuration: A Real-Case Application. Poster in Proc. of 8th IEEE Int'l Workshop on Policies for Distributed Systems and Networks (POLICY 2007). IEEE press, p. 276.
- [P.3] G. Fiumara, M. Marchi, A. Provetti, 2007. Adaptive Web Data Extraction Policies. Poster in Proc. of 8th IEEE Int'l Workshop on Policies for Distributed Systems and Networks (POLICY 2007). IEEE press, p. 281.
- [P.2] M. Marchi, A. Mileo and A. Provetti, 2004. Poster Presentation: Grid Service Selection with PPDL. Proc. of the 20th Int'l Conference on Logic Programming (ICLP'04). Springer LNCS 3132, pp. 464–466. Available from http://mag.dsi.unimi.it/PPDL/
- [P.1] M. Marchi, A. Mileo and A. Provetti, 2004. Specification and Execution of Declarative Policies for Grid Service Selection. Posters of the IEEE Int'l Conference on Web Services 2004 (ICWS'04). IEEE Computer Society, pp.828–829. Available from http://mag.dsi.unimi.it/PPDL/

# Abstracts and Position papers in pre-proceedings (peer reviewed)

- [PP.6] P. De Meo, E. Ferrara, G. Fiumara and A. Provetti, 2012. The role of strong and weak ties in Facebook: a community structure perspective. Pre-proceedings of *Computational Approaches to Social Modeling (ChASM 2012)*. Available from http://chasm.ws/
- [PP.5] S. Costantini and A. Provetti, 2011. Graph Representations of Consistency and Truth-Dependencies in Logic Programs With Answer Set semantics. pre-proceedings of the IJCAI Workshop on Graph Structures for Knowledge Representation and Reasoning (GKR 2011), pp. 16–23.
- [PP.4] B. Bonasera, F. Pagano and A. Provetti, 2009 Flexible Interpolated-Binary Search over Sorted Sets. Preprints of the Italian Conference on Theoretical Computer Science (ICTCS09).
- [PP.3] M. Amalfi and A. Provetti, 2008. From Extended Entity-Relationship schemata to illustrative instances Pre-prints of *Logic in Databases Workshop (LID08)*. Web Proceedings: http://conferenze.dei.polimi.it/lid2008/
- [PP.2] E. Bertino, A. Provetti and F. Salvetti, 2005. Position paper: Reasoning about RDF statements with default rules In S. Hawke (editor) Proc. of W3C Workshop on Rule Languages for Interoperability. Web Proceedings: http://www.w3.org/2004/12/rules-ws/
- [PP.1] M. Balduccini, G. Brignoli, G. Lanzarone, F. Magni and A. Provetti, 1999. Experiments in Answer Sets Planning. Notes of the AI\*IA Working group on Knowledge Representation and Artificial Intelligence. An excerpt appears in AI\*IA Notizie XIII:1, pp. 51–54.

# Introductory/Classroom material

[1] A. Provetti, 2005. A primer on Answer Set Programming. CoRR repository cs.AI/0508100. http://arxiv.org/abs/cs.AI/0508100

# Other Publications and Position papers

- [O.9] A. Provetti, 2010. Recollections on Michael Gelfond's 65th Birthday. In Logic Programming, Knowledge Representation and Nonmonotonic Reasoning: Essays in honor of Michael Gelfond. Springer LNAI 6565, pp. 191-192.
- [O.8] A. Gates, O. Mondragon, S. Roach, and A. Provetti, 2001. Towards Object-level Constraint Instrumentation: From Control Flowgraphs to Path Expressions. *Technical Report, Dept. of Computer Science*, The University of Texas at El Paso.
- [O.7] P. Cattabriga and A. Provetti, 1998. Actions and Stable Semantics for the Analysis of Legal Norms. In European Journal of Law, Philosophy and Computer Science, 1-2:257-272. This journal is not peer-reviewed. An earlier version appeared in the Preprints of IVR'95 Conference, workgroup on Legal Computer Science.
- [O.6] C. Baral and A. Provetti, 1996. From Action Specification Towards Robot Control Specification. Working Notes of AI\*IA 1996 Conference, workgroup on Planning Robotic Actions in Complex Environments, 257–261.

- [O.5] P. Cattabriga and A. Provetti, 1995. Actions and Stable Semantics for the Analysis of Legal Norms. Preprints di IVR'95 Conference, workgroup on Legal Computer Science. European Journal of Law, Philosophy and Computer Science, 5:266-275. A preliminary version of [O.7].
- [O.4] L. Chittaro, A. Montanari and A. Provetti, 1994. Reasoning about Partially Ordered Events in the Event Calculus. In 2nd Benelux Workshop on Logic Programming (Benelog '94).
- [O.3] L. Chittaro, A. Montanari and A. Provetti, 1994. Two Variants of the Event Calculus for Reasoning about Partially Ordered Sequences of Events. In Workshop on Nonmonotonic Reasoning and Terminological Logics.
- [O.2] I. Cervesato, L. Chittaro, A. Montanari and A. Provetti, 1994. Chached Event Calculus for Deriving Maximal Time Intervals and Plans. In *Annual Meeting of the Italian SIG in Database*.
- [O.1] I. Cervesato, A. Montanari and A. Provetti, 1993. On The Nonmonotonic Behavior of Event Calculi for Deriving Maximal Time Intervals. An abstract of [J.1] that appeared in Int'l Workshop on Interval Methods in Artificial Intelligence, p. 28.

## Reviews

- [2] Review, with G. Lotti, of E. Hanson and T. Johnson, 1996, "Selection Predicate Indexing for Active Databases Using Interval Skip Lists." Int. J. of Uncertainty, Fuzziness and Knowledge-based Systems, 5(4):509–512, 1997.
- [1] Review of J. Allen and G. Ferguson, 1994, "Actions and Events in Interval Temporal Logic." *Reliable Computing*, 2(2):198, 1996.

# Submitted Journals/Conferences

- [J.22] A. Provetti, 2014. Causation in Narratives. Artificial Intelligence; in preparation.
- [J.21] A. Provetti, A. Zucchellini, 2014. Notes on Flagg and Friedmans embedding of Epistemic into Intuitionistic formal systems. *Journal of Symbolic Logic*, submitted.
- [J.20] S. Agreste, P. De Meo, E. Ferrara, N. Z. Osman, A. Provetti, C. Sierra and V. Riggi, 2014. From Simple Sport Scoring to Accurate Grouprankings. Artificial intelligence, in preparation.
- [J.19] M. Marchi, A. Mileo and A. Provetti, 2014. Declarative Policies for Web Service Selection. International Journal of Web Services Research; an extended and updated version of [C.27].

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