

# CURRICULUM VITAE

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**Nicola GUARINO**

Born April 6<sup>th</sup>, 1954, Messina, Italy

Affiliation:

National Research Council, Institute for Cognitive Sciences and Technologies (ISTC-CNR)

Address:

Laboratory for Applied Ontology, ISTC-CNR,  
Via alla Cascata 56/C, 38123 Povo, Trento, Italy

Email: [nicola.guarino@cnr.it](mailto:nicola.guarino@cnr.it)

Homepage: [www.loa.istc.cnr.it](http://www.loa.istc.cnr.it)

## Employment

*Research Director*, Institute for Cognitive Sciences and Technologies (ISTC-CNR), 2007-present

*Senior Researcher*, Institute for Cognitive Sciences and Technologies (ISTC-CNR), 2003-2006

*Senior Researcher*, Institute for Systems Science and Biomedical Engineering (ISIB-CNR), 1999-2002

*Researcher*, Institute for Systems Science and Biomedical Engineering (ISIB-CNR), 1984-1999

*Researcher*, Institute for Ionized Gases (IGI-CNR), 1982-1984

## Educational Background

Laurea degree in electronics engineering (5-years university degree), 1978, University of Padua.

## Research topics

- Ontological foundations of knowledge representation and conceptual modelling
- Ontological analysis and knowledge engineering
- Relationships between ontology, cognition, and natural language
- Semantic interoperability and enterprise integration
- Ontology of services and organizations, service science
- Ontology of socio-technical systems

## Scientific bio

I graduated in Electronic Engineering at the University of Padua in 1978, with a thesis on biomedical engineering. Soon I got the opportunity to collaborate with the Institute of Ionised Gases (IGI-CNR) in Padua, where I have been in charge of the data acquisition and monitoring system of a nuclear fusion experiment (1979–1984). Then I moved back to biomedical engineering, joining the Institute of Systems Theory and Biomedical Engineering (now ISIB-CNR), where dr. Rosanna Degani, expert in ECG recognition, asked me to explore the emerging field of medical expert systems, with a focus on arrhythmia management. I immediately realised the huge representation problems of medical knowledge. After a couple of months spent at the MIT Clinical Decision Making Lab struggling with capturing anatomical and physiological knowledge in Prolog (and building my own representation language – ITL), I decided I needed a stronger background in logic and the foundations of KR, and discovered that philosophical logic was much more useful for my purposes than mathematical logic. Around 1988 I started frequenting the local circle of analytic philosophy at Padua University, and a whole new world opened to me, thanks to the discovery of the seminal works by Peter Simons and Barry Smith. In the States, people had just started talking of ontologies for knowledge sharing and reuse, and I realised that formal ontology was the right way to approach those problems, helping people (not just computers) to make explicit their conceptualisations. In the same period I also discovered the importance of linguistic analysis in KR, thanks to the work of Reind van der Riet. In 1993 I organised in Padua (with Roberto Poli) the first International Workshop on Formal Ontology in Conceptual Analysis and Knowledge Representation, which had a strong impact on a large interdisciplinary community. Starting to work together with philosophers, I presented my first ideas on the ontological level at the 16th Wittgenstein Symposium, where I met Achille Varzi, who introduced me to the beauties of ontological analysis and the elegance of mereotopology. After some passionate years spent discussing the role of ontologies mainly with the knowledge acquisition and KR communities, I organised the first Int. Conf. on Formal Ontology in Information Systems (FOIS) in 1998, which marked the beginning of a new research area. The sabbatical spent by Chris Welty in my lab in Padua allowed me to “popularise” the first technical results of my theory through the OntoClean methodology, and the move to Trento in 2003, to found the new Lab for Applied Ontology, allowed me to set up the small, beautiful group of people which produced the DOLCE foundational ontology, one of our best known results. Since then, balancing my time with increasing management and community service commitments (such as the Applied Ontology journal and the International Association for Ontology and its Applications, IAOA), I focused my interests on social ontology, working in particular on eGovernment applications, on the ontology of technical artefacts, socio-technical systems and service science. More recently, together with Giancarlo Guizzardi, I have been working on strategic enterprise modeling and the ontological foundations of economics on the applications side, and on relationships reification, truthmaking and the ontology of events on the theoretical side.

## Teaching and academic duties

Lecturer in various PhD, master and undergraduate courses at the Universities of Trento and Padua, and in various international summer schools and conference tutorials. Member of Trento Doctoral School in Information and Communication Technology. PhD committee member at Universities of Trento, Torino, Salento, Leipzig, Zurich, Melbourne, Free University of Amsterdam, Tilburg, UMIT University (Austria). Member of habilitation committees at the Universities of Toulouse 3 and Grenoble. Guest professor at the Universities of Osaka, Japan, Institute for Scientific and Industrial Research (April-May 2010), and Addis Ababa, Dept. of Computer Science (October 2011).

## Responsibilities

- Founder and director of the *ISTC-CNR Laboratory for Applied Ontology* in Trento (2003-\_)
- Founder and co-editor in chief (with Mark Musen, Stanford University) of the ISI-indexed journal *Applied Ontology* (IOS Press) (2005-\_)
- Founder and co-director (with Laure Vieu) of *ILIKS – Interdisciplinary Laboratory for Interacting Knowledge Systems*, a French-Italian joint initiative with 90+ researchers involved ([www.loa.istc.cnr.it/iliks](http://www.loa.istc.cnr.it/iliks)) (2005-2011)
- General chair of the international conference series *Formal Ontology in Information Systems* (1998-2010)
- Editorial board member of *Journal of Data Semantics*, *International Journal of Semantic Web and Information Systems*, *Frontiers of Computer Science in China*, and editor of the IOS Press Book series *Frontiers in AI and Applications*
- Member of the *European AI Alliance* (2018-\_)
- Founder and first president of the *International Association for Ontology and its Applications (IAOA)* (2009-2013)
- Scientific consultant of BPE srl - small company in Rovereto focusing on business process engineering and enterprise modelling
- Scientific consultant of IBM Italy on eGovernment services interoperability
- Project reviewer for *EU (FP5)*, *Swiss National Fund on Scientific Research*, *Estonian Science Foundation*, *Council of Physical Sciences of the Netherlands Organization for Scientific Research*, *UK Engineering and Physical Sciences Research Council*, *France Ministry for Education, Research and Technology*.
- Member of scientific committee of the *FuturICT Italian Hub* ([www.futurict.it](http://www.futurict.it))
- Member of scientific committee of the *Semantic Valley* consortium, Trento ([www.semanticvalley.org](http://www.semanticvalley.org))
- Scientific coordinator of the *Data and Knowledge Engineering* group of the Trento RISE consortium ([www.trentorise.eu](http://www.trentorise.eu)), involving 80+ researchers and students (2010-2013)
- General co-chair of *Ontology Summit 2011* and *Ontology Summit 2012* at NIST, Baltimore, USA (an international event supported by NIST, IAOA and other ontology organizations)

## Awards and honors

- *IAOA fellow*, in recognition of pioneering work in the field of Applied Ontology and outstanding service for the International Association for Ontology and its Applications (2014-)
- *EurAI fellow*, in recognition of pioneering work in the field of Artificial Intelligence and outstanding service for the European Artificial Intelligence community (2012-)
- *Best paper* award (with Julio Cesar Nardi, Ricardo de Almeida Falbo, Joao Paulo A. Almeida, Giancarlo Guizzardi, Luis Ferreira Pires, Marten J. van Sinderen) at 17th IEEE International Enterprise Computing Conference (EDOC 2013)
- *Best paper* award (with Giancarlo Guizzardi, Gerd Wagner, and Marten van Sinderen) at CaiSE 2004, 16<sup>th</sup> International Conference on Advanced Information Systems Engineering, Riga, Latvia, June 7-11 2004
- *Thomson-ISI recognition of an “Emerging Research Front” in Computer Science*, acknowledging CACM work on OntoClean with Chris Welty among the most cited papers in June 2004

## Current and recent research grants (funds amount concerns my lab only)

1. Europa Region (EUREGIO) Tirolo-Südtirol-Trentino - Interregional Project Network (IPN) - KAOS: *Knowledge-Aware Operational Support* (19.5 K€, 2016-2018)
2. Consultancy to PricewaterhouseCoopers (PwC) in the framework of the European Program ISA2 (Interoperability Solutions for Public Administrations, Businesses, and Citizens) for a pilot project concerning the adoption and extension of Core Vocabularies in the Trentino province, in cooperation with the Consortium of Trentino Municipalities and the Autonomous Province of Trento (20 K€, 2016-2017)
3. EC/FP7 “Cloud for Europe” - PCP project *Federated Certified Service Brokerage* (Lot 1 - phase 1) (10 K€, 2016)
4. Brazilian Government, Special Visiting Researcher Fellowship hosted by the Federal University of Espirito Santo at Vitória on Ontological Foundations of Service Science (80 K€, 2013-2016)
5. EC/FP7-People Marie Curie Intra-European Fellowship – ODASP, *Ontology driven analysis of nominal systematic polysemy in WordNet* (180 K€, 2013-2015)

6. Autonomous Province of Trento - Grant to Roberta Ferrario for a new research unit on *Detection of crises in socio-material systems via visual-cognitive-social processes* (600 K€, 2012-2015)
7. Autonomous Province of Trento - Post-doc grant to Emanuele Bottazzi *The Civil Status of Contradiction* (147 K€, 2012-2015)
8. EC/FP7 Marie Curie Action COFUND. *Logical Analysis of Socio-Technical Systems* (LASTS). Total funds: 191,290 €
9. EC/FP7 Marie Curie Action *European-Japanese Ontology Interaction* (EUJOINT). Total funds: 10,800 €
10. SOGEI (company owned by the Italian Ministry for Economy and Finance) – *Ontological restructuring of integrated fiscal dictionary* (2012). Total funds: 80,000 €
11. BPE - Business Process Engineering srl, Rovereto – *System for Interactive Ontology-Driven Conceptual Modelling* (2012-2014). Total funds: 90,000 €
12. Ministry of Research and University – *TOCAI – Knowledge Oriented Technologies for Enterprise Integration on Internet* (2006-2010). Total funds: 223,500 €
13. Piedmont Region – *ICT4LAW – ICT Converging on Law: Next Generation Services for Citizens, Enterprises, Public Administration and Policymakers* (2009-2011). Total funds: 100,000 €
14. Autonomous Province of Trento – *CSS, integration of clinical and social records* (2009-2010). Total funds: 31,600 €
15. Autonomous Province of Trento, post-doc research grant. *A Foundational Ontology for Semantic Interoperability in eGovernment*. Total funds 150,000 €
16. SAP Research – *OFSS – Ontological Foundations of Service Science* (2010). Total funds: 30,000 €

### Invited presentations (selection)

1. Cognitive Structures 2018: Linguistic and Psychological Perspectives (University of Düsseldorf, 12-14 September). Keynote on *Events and their Context*.
2. PFIA 2018, annual joint conference of the French associations on artificial intelligence, 2-6 July 2018, Nancy. Keynote on *25 Years of Applied Ontology and Ontological Analysis: an Interdisciplinary Endeavour*.
3. WOA 2018, 19th Workshop “From Objects to Agents”, Palermo, 28-29 June 2018. Keynote on *Promises, favours, and services: an ontological analysis of the notion of service in multi-agent environments*.
4. Kickoff conference for the 2nd phase of the IMOLA project (Interoperability Model for Land Registers). European Land Registry Association, Brussels, 28 February 2018. Keynote on *Ontologies and Ontological Analysis: Basic Tools and Application Perspectives in the Land Registers Domain*.
5. Semantics and Philosophy in Europe (SPE9), 4-6 September 2017, University of Padova. Keynote on *Relationships and Events*.
6. Colloquium in Honor of Prof. Dr. Heinrich Herre on the occasion of his 75th birthday, February 3, 2017, University of Leipzig. Keynote on *Ontological Foundations of Conceptual Modeling* (with Giancarlo Guizzardi).
7. From Computational Creativity to Creativity in Science. 19-22 September 2016, Bielefeld, Germany. Keynote on *Figure-Ground Image Schemes and Events*.
8. ER 2015, 34th International Conference on Conceptual Modeling, 19-22 October 2015, Stockholm, Sweden. Invited tutorial on *Relationships Reification: Modeling Experiences and Novel Ontology-Based Techniques* (with Giancarlo Guizzardi).
9. WFCS 2015 - 11th IEEE World Conference on Factory Communication Systems, May 27-29 2015, Palma de Mallorca, Spain. Keynote on *Helping People (besides Machines) Understand Each Other in Integrated Manufacturing*
10. ECTQG 2015, 19th European Colloquium on Theoretical and Quantitative Geography, Bari, Italy, 3-7 September 2015. Keynote on *Ontology-driven Participatory Governance for Resilient Socio-Technical Systems*.
11. IC3K 2014, 6th. Int. Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management, Rome, Italy, 21-24 October 2014. Keynote on *Towards an Ontology of Software*.
12. FOIS 2014, 8th Int. Conference on Formal Ontology in Information Systems, Rio de Janeiro, Brazil, 22-25 September 2014. Keynote on *Ontological Analysis and Conceptual Modeling: Achievements and Perspectives*.
13. 9th International Tbilisi Symposium on Language, Logic, and Computation, Kutaisi, Georgia, September 27, 2011. *On the Semantics of Functional Roles*.
14. AI\*IA 2011 XIIth Conference on the Italian Association for Artificial Intelligence, Workshop on Corporate Experiences using Semantic Technology, September 16th, 2011. *Modeling Services and Organizations as Sociotechnical Systems: Some Concrete Examples*
15. OntoCom 2011, International Workshop on Ontologies and Conceptual Modeling, 30th Int. Conf. on Conceptual Modeling (ER 2011), Brussels, Belgium, November 2, 2011. *Modeling Services as Sociotechnical Systems*.
16. Copenhagen Symposium on Approaches to the Lexicon, 2010. *On the Semantics of Role Terms*.
17. Semantic Days 2010, Stavanger, Norway, 2010. *The Challenge of Semantic Integration*
18. Service Summer 2010, Karlsruhe. *Ontological Foundations of Services Science*
19. Trends in eCommerce 2010, Wien. *Ontological Foundations of Services as Socio-Technical Systems*
20. Engineering Artefact Kinds, Delft University of Technology, 2009. *Functional Parts and Functional Roles*

21. Dagstuhl Seminar on The Evolution of Conceptual Modelling, 2008. *Ontology-Driven Conceptual Modelling: the First Fifteen Years*.
22. InterOntology08, Interdisciplinary Ontology Conference, Tokyo 2008. *Conceptualizations, Ontologies, and Possible Worlds*
23. CTF07 - *Concepts Types and Frames in Language, Cognition, and Science*, Düsseldorf, Germany, 2007. *Concepts, Attributes, and Binary Relations: Representational and Ontological Issues*

### Selected Publications

- Guarino, N. and Poli, R. (guest eds.), *International Journal of Human and Machines Studies (special issue on The Role of Formal Ontology in the Information Technology)*. **43**(5/6), 1995.
- Guarino, N. and Giaretta, P. 1995. Ontologies and Knowledge Bases: Towards a Terminological Clarification. In N. Mars (ed.) *Towards Very Large Knowledge Bases: Knowledge Building and Knowledge Sharing 1995*. IOS Press, Amsterdam: 25-32.
- Guarino, N., Pribbenow, S., and Vieu, L. (guest eds.), *Data and Knowledge Engineering (special issue on Modelling Parts and Wholes)*, **30**(3), 1996.
- Artale, A., Franconi, E., Guarino, N., and Pazzi, L. 1996. Part-Whole Relations in Object-Centered Systems: an Overview. *Data and Knowledge Engineering*, **20**(3): 347-383.
- Borgo, S., Guarino, N., and Masolo, C. 1996. A Pointless Theory of Space based on Strong Connection and Congruence. In *Proceedings of Principles of Knowledge Representation and Reasoning (KR96)*. Boston, MA, Morgan Kaufmann: 220-229.
- Guarino N. Semantic matching: formal ontological distinctions for information organization, extraction, and integration. In *Information Extraction: A Multidisciplinary Approach to an Emerging Information Technology*. Lecture Notes in Artificial Intelligence 1299, M.T. Pazienza (Ed.) Springer Verlag, Berlin, 1997, p.139-170.
- Guarino N. Understanding, building, and using ontologies. *International Journal of Human and Computer Studies* **46**: 293-310, 1997.
- Guarino, N. 1997. Ontologia Formale, Modellazione Concettuale e Ingegneria della Conoscenza. *Paradigmi*, **15**(44): 285-299.
- Guarino N. Some ontological principles for designing upper level lexical resources. In *Language Resources and Evaluation*, A. Rubio, N. Gallardo, R. Castro, A. Tejada (Eds.), European Language Resources Association (ELRA), Granada, Spain, 1998, vol.1, p.527-534.
- Guarino N. Formal ontology in information systems. In *Formal Ontology in Information Systems*, N. Guarino (Ed.), IOS Press, Amsterdam, 1998, p.3-15.
- Guarino, N. (guest ed.), *Data and Knowledge Engineering (special issue on Formal Ontology and Conceptual Modelling)*, **31**(2), 1999
- Guarino, N. The Role of Identity Conditions in Ontology Design. In C. Freksa and D. M. Mark (eds.), *Spatial Information Theory - Cognitive and Computational Foundations of Geographic Information Science*. Proceedings of International Conference COSIT '99. Springer Verlag, Berlin, 1999, p. 221-234.
- Guarino, N., Masolo, C., and Vetere, G. OntoSeek: Content-Based Access to the Web. *IEEE Intelligent Systems*, **14**(3), 1999, p. 70-80.
- Guarino N., Welty, C. Towards a methodology for ontology-based model engineering. In Bezivin, J. and Ernst, J., eds, *Proceedings of the ECOOP-2000 Workshop on Model Engineering*, June, 2000.
- Guarino N., Welty, C. Identity, Unity, and Individuation: Towards a Formal Toolkit for Ontological Analysis. In W. Horn, ed., *Proceedings of ECAI-2000: The European Conference on Artificial Intelligence*. IOS Press, Amsterdam. August, 2000.
- Guarino N., Welty, C. Ontological analysis of taxonomic relationships. In *Proceedings of 19th International Conference on Conceptual Modeling (ER2000)*. October 9-12, 2000, Salt Lake City, USA
- Gangemi, A., Guarino, N., and Oltramari, A. 2001. Conceptual Analysis of Lexical Taxonomies: The Case of WordNet Top-Level. In C. Welty and S. Barry (eds.), *Formal Ontology in Information Systems. Proceedings of FOIS2001*. ACM Press: 285-296.
- Guarino, N. 2001. Review of John Sowa's "Knowledge Representation: Logical, Philosophical, and Computational Foundations". *AI Magazine*, **22**(3): 123-125.
- Schulten, E., Akkermans, H., Guarino, N., and Doerr, M. 2001. The eCommerce Product Classification Challenge. *IEEE Intelligent Systems*(August): 86-89.
- Welty, C. and Guarino, N. 2001. Supporting Ontological Analysis of Taxonomic Relationships. *Data and Knowledge Engineering*, **39**(1): 51-74.
- Guarino, N. and Welty, C. 2001. Evaluating Ontological Decisions with OntoClean. *Communications of the ACM* **45**(2): 61-65
- Guarino, N. and Welty, C. 2002. Identity and subsumption. In R. Green, C. Bean and S. Myaeng (eds.), *The Semantics of Relationships: an Interdisciplinary Perspective*. Kluwer:111-126.
- Gangemi, A., Guarino, N., Masolo, C., Oltramari, A., & Schneider, L. 2002. Sweetening Ontologies with DOLCE. In A. Gomez Perez & V. R. Benjamins (Eds.), *Knowledge Engineering and Knowledge Management. Ontologies and the Semantic Web*. Proceedings of 13th International Conference, EKAW 2002. Berlin: Springer Verlag:166-181.

- Gangemi, A., Guarino, N., Masolo, C., and Oltramari, A. 2003. Sweetening Wordnet with DOLCE. *AI Magazine*, 24(3): 13-24
- Guarino, N., and Welty, C. 2003. An overview of OntoClean. In R. Studer and S. Staab (eds.), *Handbook of Ontologies in Information Systems*, Springer Verlag: 151-172.
- Masolo, C., Oltramari, A., Gangemi, A., Guarino, N., Vieu, L. 2003. La prospettiva dell'ontologia applicata. *Rivista di Estetica* (22): 170-183.
- Oltramari, A., Borgo, S., Catenacci, C., Ferrario, R., Gangemi, A., Guarino, N., Masolo, C., Pisanelli, D. 2003. Negoziati di significato. *Sistemi Intelligenti* 15(3): 419-428
- Guizzardi, G., Wagner, G., Guarino, N., van Sinderen, M. An Ontologically Well-Founded Profile for UML Conceptual Models. *Proc. of 16th Conf. on Advanced Information Systems Engineering (CAISE'04)*, Latvia
- Masolo, C., Vieu, L., Bottazzi, E., Catenacci, C., Ferrario, R., Gangemi, A., Guarino, N. 2004. Social Roles and their Descriptions. To appear on *Proc. of 9th Int. Conf. On Principles of Knowledge Representation and Reasoning (KR2004)*, Whistler, Canada, June 2004, June 2004.
- Guarino, N., *Toward a Formal Evaluation of Ontology Quality*. IEEE intelligent Systems, 2004. **19**(4): 78-79.
- Guarino, N., and Musen, M. Focusing on Content. *Applied Ontology*, 1 (2005):1-6.
- Guarino, N. and Guizzardi, G. 2006. In Defense of Ontological Foundations for Conceptual Modeling. *Scandinavian Journal of Information Systems*, **18**(1): 115-126.
- Calvanese, D. and Guarino, N. 2006. Ontologies and description logics. *Intelligenza Artificiale*, **3**(1/2): 19-25.
- Artale, A., Guarino, N., & Keet, M. C. 2008. Formalizing Temporal Constraints on Part-Whole relations. In G. Brewka, J. Lang (eds.): *KR 2008: Eleventh International Conference on Principles of Knowledge Representation and Reasoning*, Sydney, Australia.
- Ferrario R., Guarino N. 2008. A New Ontological Perspective for Social Services. In Corradini, F., and Polzonetti, A. (eds.), *MeTTeG08, Proceedings of the 2nd International Conference on Methodologies, Technologies and Tools Enabling e-Government*, Halley, pp.41-51.
- Ferrario R., Guarino N. 2009. Towards an Ontological Foundation for Services Science. In Domingue, J., Fensel, D., and Traverso, P.: *First Future Internet Symposium, Vienna, Austria, September 28-30, 2008: Revised Selected Papers*. Springer Verlag, Lecture Notes in Computer Science, Vol. 5468, pp. 152-169.
- Guarino, N., Oberle, D., and Staab, S. 2009. What is an Ontology? In S. Staab and R. Studer (eds.), *Handbook on Ontologies*, Second Edition. International handbooks on information systems. Springer Verlag: 1-17.
- Guarino, N. and Welty, C. 2009. An introduction to Ontoclean (revised version). In S. Staab and R. Studer (eds.), *Handbook on Ontologies*, Second Edition. International handbooks on information systems. Springer Verlag: 201-221.
- Guarino, N. 2009. The Ontological Level: Revisiting 30 Years of Knowledge Representation. To appear in Alex Borgida, Vinay Chaudhri, Paolo Giorgini, Eric Yu (eds.), *Conceptual Modelling: Foundations and Applications*, Springer Verlag 2009, pp. 52-67.
- Oltramari, A., Vetere, G., Lenzerini, M., Gangemi, A., Guarino, N. 2010. Senso Comune. In LREC 2010, 7th International Conference on Language Resources and Evaluation, May 17-23, Valletta, Malta.
- Oltramari, A., Gangemi A., Guarino N., Masolo C. 2010. Restructuring WordNet's Top-Level: the OntoClean Approach. In C.-R. Huang, N. Calzolari, A. Gangemi, A. Lenci, A. Oltramari, L. Prevot (eds.), *Ontologies and Lexical Resources for Natural Language Processing*, Cambridge University Press 2010: 36-52
- Ferrario, R., Guarino, N., Fernandez Barrera, M. 2011. Ontological Foundations for Services Science: the Legal Perspective. In Sartor, G., Casanovas, P., Biasiotti, M., Fernandez Barrera, M. (eds.), *Approaches to Legal Ontologies. Theories, Domains, Methodologies*. Springer Verlag, pp. 235-258
- Ferrario, R., Guarino, N., Janiesch, C., Kiemes, T., Oberle, D., and Probst, D. 2011. Towards an Ontological Foundation of Services Science: The General Service Model. In Proceedings of the 10. Internationale Tagung Wirtschaftsinformatik (WI), Zürich, pp. 675-684.
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- Ferrario, R., Guarino, N. 2012. Commitment-Based Modeling of Service Systems. In M. Snene (Ed.), *IESS 2012, International Conference on Exploring Services Science*, Springer Verlag, Lecture Notes in Business Information Processing, vol. 103, Berlin Heidelberg 2012, pp. 170-185.
- Guarino, N., Bottazzi, E., Ferrario, R., Sartor, G. 2012. Open Ontology-Driven Sociotechnical Systems: Transparency as a Key for Business Resiliency. In M. De Marco, Dov Te'eni, V. Albano, S. Za (eds.), *Information Systems: Crossroads for Organization, Management, Accounting and Engineering*. Springer, Physica Verlag
- Nardi, J. C., de Almeida Falbo, R., Almeida, J. P. A., Guizzardi, G., Pires, L. F., van Sinderen, M. J., & Guarino, N. (2013). Towards a Commitment-based Reference Ontology for Services (pp. 175–184). In Proceedings of the 17th IEEE International Enterprise Distributed Object Computing Conference (EDOC)
- Guarino, N. 2014. Artefactual Kinds, Missing Components, and Replaceability. In M. Franssen, P. Kroes, T.A.C. Reydond and P. Vermaas (eds.), *Artefact Kinds: Ontology and the Human-Made World*. Springer Synthese Library.
- Wang, X., Guarino, N., Guizzardi, G., Mylopoulos, J. (2014). Towards an Ontology of Software: A Requirements Engineering Perspective. In P. Garbacz and O. Kutz (eds.), *Formal Ontology in Information Systems - Proceedings of the Eighth International Conference (FOIS 2014)*, pp.

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- Nardi, J. C., de Almeida Falbo, R., Almeida, J. P. A., Guizzardi, G., Pires, L. F., van Sinderen, M. J., Guarino, N., Fonseca, C. M. (2015). A Commitment-based Reference Ontology for Services. *Information Systems*, vol 54 (C), pp. 263-288
- Guarino, N., & Guizzardi, G. (2015). “We Need to Discuss the Relationship”: Revisiting Relationships as Modeling Constructs. In *Advanced Information Systems Engineering (Vol. 9097, pp. 279–294)*. Cham: Springer International Publishing.
- Guarino, N., and Musen, M. (2015). Applied Ontology: The Next Decade Begins. *Applied Ontology* 10(1), pp. 1-4.
- Guarino, N., and Musen, M. (2015). Ten Years of Applied Ontology. *Applied Ontology* 10(3-4), pp. 169-170.
- Quirino, G., Nardi, J., Barcelos, M., Falbo, R., Guizzardi, G., Longo, A., Guarino, N., Bochicchio, M., Zappatore, M., Livieri, B., Towards a Service Ontology Pattern Language, 35th International Conference on Conceptual Modeling (ER 2015) Stockholm, 2015.
- Livieri, B., Guarino, N., Zappatore, M., Bochicchio, M., Longo, A., Nardi, J., Quirino, G., Barcelos, M., Falbo, R. (2015). Ontology-based Modeling of Cloud Services: Challenges and Perspectives, 8th IFIP WG 8.1 working conference on the Practice of Enterprise Modelling (PoEM 2015), Valencia.
- Wang, X., Guarino, N., Guizzardi, G., & Mylopoulos, J. (2016). How Software Changes the World: The Role of Assumptions (pp. 1–12). *IEEE Tenth International Conference on Research Challenges in Information Science (RCIS 2016)*
- Andersson, B., Guarino, N., Johannesson, P., & Livieri, B. (2016). Towards an Ontology of Value Ascription. In R. Ferrario & W. Kuhn (Eds.), *Formal Ontology in Information Systems. Proceedings of the 9th International Conference (FOIS 2016)*, July 6-9, Annecy, France. IOS Press, pp. 331-344
- Guizzardi, G., Guarino, N., & Almeida, J. P. A. (2016). Ontological Considerations About the Representation of Events and Endurants in Business Models. In *Business Process Management (Lecture Notes in Computer Science, Vol. 9850, pp. 20–36)*. Cham: Springer International Publishing.
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### **Citations analysis**

1 paper with 5400+ citations, 14 papers with 500+ citations, 34 papers with 100+ citations each, among **22,691** citations according to Google Scholar; **H-index=47** (according to Google Scholar).