

Aldo Gangemi - CV

A. Positions and Roles

Positions

1990-1994: Academic CNR grants (Borse di Studio) at Institute for Biomedical Technology, Italian National Research Council.

Research on medical knowledge representation and conceptual modelling in the European Union GALEN Project, the first large project on ontology engineering

1995-2000: Junior researcher at Institute of Biomedical Technology, Italian National Research Council.

Research on knowledge representation in medicine, clinical guidelines, ontology engineering, conceptual modelling in Italian academic projects.

2004-2006: Professor (“professore a contratto”) at Università per Stranieri di Perugia.

Teaching *Knowledge Engineering* courses at the faculty.

2009 (July-August): invited professor at Stanford University, Biomedical Informatics Dept.

Research on *Ontology Design*.

2001-2009: Senior researcher at Institute of Cognitive Sciences and Technology, Italian National Research Council.

Research on ontology engineering, semantic web, natural language processing, cognitive and formal semantics in European Union projects WonderWeb, OntoWeb, METOKIS (local coordinator); NeOn (local coordinator and workpackage leader),

Co-founder of the *Laboratory for Applied Ontology*, co-founder and scientific director of the *Semantic Technology Lab*.

2010-2017: Research Director at Institute of Cognitive Sciences and Technology, Italian National Research Council.

European EUREKA project IKF; PRISMA (PiattafoRme cloud Interoperabili per SMARt-government), PON-RC project, local PI for STLab.

Coordinator for the CNR programme *Semantic Technologies*

2012-2017: Full Professor (“professeur première classe”) at the Department of Computer Science at Sorbonne Paris Nord University (LIPN, Sorbonne Paris Nord/CNRS)

Research on knowledge engineering and semantic technologies. Leadership in the projects: Cartographie de la diaspora des savoirs (PI), ECOS-Nord project; Golfred (PI), AUF-PIRAT project; Computational semantic analysis - Axis 5 of LabEx (Laboratoire d'Excellence) EFL (Empirical Foundations of Linguistics)

2017-2019: Associate Researcher at Institute of Cognitive Sciences and Technology, Italian National Research Council.

Research on ontology engineering, semantic web, cognitive computing, social robotics. Leadership in the projects: MARE / MARE2 / MARE3 (PI), tenders of the Department for

Maritime Affairs of European Union; MARIO (PI for the ISTC research unit), EU H2020, ArCo (co-PI), funded by ICCD (Ministry of Culture); OntoPiA, contract with Team Digitale, agency of the Italian Presidency of the Council of Ministers, for the design of ontologies for the Italian Public Administration, and implementation of data refactoring and cleaning in the DAF framework.

2017-: Full professor of Computer Science at University of Bologna (Philosophy Department), Italy

Research on artificial intelligence, knowledge representation and extraction, and semantic technologies. Team leader in the projects: SPICE (Scientific Coordinator), EU H2020; ArCo4Science, project funded by ICCD (Italian Ministry of Culture), COKE (PI), FISR project, SACR-eD, PRIN project,

2019-2023: Member of the Board of Directors at IMT School for Advanced Studies Lucca

2019-2023: Director of the Institute of Cognitive Sciences and Technology, Italian National Research Council (ISTC-CNR)

Scientific and administrative management of a strongly interdisciplinary institute of the Italian National Research Council with 150 researchers and 7 sites throughout Italy (total research funding of 62 projects from EU, Italy, and international foundations about 15M€). Coordination of research on artificial intelligence and semantic technologies. Leadership in the projects: SPICE (Scientific Coordinator), EU H2020; ArCo4Science, project funded by ICCD (Italian Ministry of Culture); ReAD project (PI), funded by Regione Lazio, consortium with ICCD and University Rome 3; Portale delle Fonti della Repubblica Italiana (ISTC-CNR coordinator); FAIR (spoke co-PI, PNRR partnership), L4ALL PON project; A4ALL PON project (ISTC-CNR coordinator); KnowledgeX (ISTC-CNR coordinator).

2022-: Member of the Management Board of the National Laboratory of Artificial Intelligence and Intelligent Systems of CINI (the Italian Consortium of Italian computer science researchers)

2024-: Associate Researcher at Institute of Cognitive Sciences and Technology, Italian National Research Council.

Consultancy

2001-: Consultant/expert for:

- *Italian Ministry of Research: project reviewer for ICT*
- *Italian Ministry of Industry: project reviewer for ICT*
- *Regione Toscana: project reviewer for ICT and Humanities*
- *European Union FP6/FP7: project reviewer for ICT*
- *Vrije Universiteit Brussels – Belgium: project reviewer for ICT*
- *von Humboldt prize – Germany: reviewer*
- *ELSAG: ontology design, ontology-driven applications in the banking and regulatory domains*
- *Accenture: semantic CRM applications, ontology design*
- *Selesta: semantic service-level agreement applications, ontology design*
- *WIND telecommunications: taxonomy refactoring, search optimization*
- *ITER: semantic workflows*
- *RAI: semantic advertising, semantic search*
- *United Nations FAO Agency: ontology design, database reengineering, data linking in agriculture and fishery domains*

- *Italian Governmental Authority for Informatics in the Public Sector – CNIPA: coordinator of the working group on Semantic Interoperability for Italian Public Administration Services*
- *European Media Lab – Germany: ontology design, bioinformatics*
- *Boehringer Ingelheim – Germany: ontology design*
- *Reinvent technologies – Canada: ontology design, lexical ontologies, semantic advertising, search optimization*
- *Almaviva (company) – Italia: ontology design, linked data*
- *DigitPA (Italian agency for informatics in the PA) – Italy: ontology design, linked open data*
- *SOGEI (company) – automated summarisation of legal documents*

Specific roles

2017-: Full Professor in Bologna: Supervised researchers (including PhD students): 12; funding: 600K€. Coordinator of the HumanisticAI branch of AlmaAI (Alma Mater Institute for Human-centred Artificial Intelligence)

2019-2023: Director of ISTC-CNR: Supervised researchers:15; funding: ≈4M€ (STLab only), ≈20M€ (all ISTC)

2008-2017: Head of the Semantic Technology Lab. Supervised researchers 2008-17: 13. Total STLab funds 2008-17: ≈2M€

2006-: Coordinator for the Research Programme (“commessa”) “Semantic Technologies” within the ICT Department of CNR

2004-: Reviewing service for the European Union (FP6 and FP7 projects), Italian Ministry of Research and Ministry of Industry (technology transfer and industrial projects from PNR – National Research Programmes–: PIA, FAR, FIT, PON), Tuscany Region, von Humboldt German Academic Prize, Free University of Brussels.

Reviewing of academic and industrial projects on semantic web, information system design, software engineering, medical informatics, etc.

1998-: Regular presence in the program, organization and scientific committees of relevant conferences, journals, workshops, organizations.

Journal editorial board member: Journal of Web Semantics (vice-chair), Semantic Web Journal, Applied Ontology Journal.

Conference scientific committee member: IJCAI (International Joint Conference on Artificial Intelligence), KR (International Conference on Knowledge Representation), ISWC (International Semantic Web Conference), WWW (International World Wide Web Conference), EKAW (European Knowledge Engineering Conference), ESWC (European Semantic Web Conference), FOIS (Formal Ontology and Information Systems), CIKM (Conference on Information and Knowledge Management).

1998-: Presence in the advisory board of international agencies.

W3C-SWBPD-OEP (W3C Working Group on Semantic Web Best Practices and Deployment), W3C-eGovIG (W3C Working Group on eGovernment), ECDC (Working Group on Knowledge Management of the European Council for Disease Control and Prevention), Semic-IDABC (EU Working Group on Semantic Interoperability), W3C Ontology-Lexica Community Group.

1998-: Conference organization: FOIS1998 (Formal Ontology and Information Systems, organization chair), LREC2006 (Linguistic Resources and Evaluation Conference, program

chair), EKAW2008 (European Conference on Knowledge Engineering and Knowledge Management, *conference chair*), SWAP2008 (Semantic Web Applications and Perspectives, *conference chair*), ESWC2010 (Extended Semantic Web Conference, *tutorials chair*), ISWC2011 (International Semantic Web Conference, *vice-chair*), WWW2015 (World Wide Web Conference, *general chair*), ESWC2017 (European Semantic Web Conference, *program chair*), ESWC2018 (European Semantic Web Conference, *general chair*).

2003-: *Workshop organization*: LegOnt2003 (*Third International Workshop on Legal Ontologies*, at International Conference on AI&Law, Edinburgh, 2003), OntoLex2004, *Second International Workshop on Ontologies and Lexica*, at LREC2004, Lisbon, 2004, WORM04 (*Second International Workshop on Regulatory Ontologies*, at ODBASE Conference, Cyprus, 2004), CORONT04 (*First International Workshop on Core Ontologies*, at EKAW2004, Northampton, 2004), WORM05 (*Third International Workshop on Regulatory Ontologies*, at ODBASE Conference, Cyprus, 2005), OPSW05 (*Ontology Engineering Patterns*, at ISWC2005, Galway, Ireland, 2005), EON06 (*Ontology Evaluation Workshop at WWW2006*, Edinburgh, 2006), OntoLex (*The ontology/lexicon interface workshop*, Busan, Korea, 2007), KRSSW2008 (*Workshop on Knowledge Reengineering on the Semantic Web at ESWC2008*, Tenerife, Spain, 2008), SPIM2010 (Semantic Personalized Information Management at LREC2010, Malta, 2010), SPIM2011 (Semantic Personalized Information Management at ISWC2011, Bonn, 2011), WOP2012 (*Workshop on Ontology Patterns at ISWC2012*, Boston).

2004-: *Invited talks in academic contexts*:

- *Some design patterns for domain ontology building and analysis*, Knowledge Media Institute, 2004
- *Context types in Formal Ontology*, Free University of Bruxelles, 2004
- *Ontologie fondazionali*, University of Rome I, DSI, 2004
- *Modelli di progettazione ontologica per la complessità. Il caso dei beni culturali*, Minerva Project, Rome, 2004
- *Legal ontologies*, Final Conference of CNRS Action Spécifique Ontologie du droit et langage juridique, Paris, 2004
- *Ontology-driven Law: What representations are feasible, what inferences can be drawn?*, Colloque de l'Action Spécifique Ontologie du droit et langage juridique, Paris, 2004
- *Formal ontological methods for sharing scientific and cultural information*, Final Mesmuses Project Workshop, Florence, 2004
- *Modelli di progettazione ontologica comunitaria: lessico e conoscenza implicita nella società della conoscenza*, University of Rome II, AI, 2005
- *What's in a term*, European Media Laboratory, Heidelberg, 2005
- *Fishery Ontology Service Project*, University of Bolzano, 2005
- *Knowledge Content Objects: a grounded ontology for content management over the semantic web*, OntoHumanities Workshop, Florence, 2005
- *Trattamento del linguaggio naturale e ingegneria ontologica*, AI*IA NLP Workshop, Perugia, 2005
- *Ontology Design Patterns for Semantic Web Content*, University of Bologna, Dipartimento di Informatica, 2005
- *Social and logical reification*, ICIB-CNR, Napoli, 2006
- *Identity of Resources and Entities*, Semantic Web Applications and Perspectives, Pisa, 2006
- *Ontology Design Patterns*, DynamOnt Project, Salzburg, 2006
- *Ontologie e portali semantici: il caso della IntraWeb CNR*, Workshop on Portale di Ateneo, University of Bologna, 2006
- *Ontology design as mediation: The case for terminological resources*, CNR-ITTIG, Florence, 2006
- *A Collaborative Semantic Web Layer to Enhance Legacy Systems*, CNIPA, Rome, 2007

- *Formalizzare i(l) Web: comunità di pensiero, invarianti semantiche e applicazioni*, Signum, Scuola Normale, Pisa, 2007
- *Plans and Norms as unification criteria for Social Collectives*, Dagstuhl Seminar on Norms and Multi-Agent Systems, 2007
- *Sweet models: a DOLCE history*, Workshop on Legal Ontology Building, Barcelona, 2007
- *Suq semantics*, Keynote Lecture at Terminology and Knowledge Engineering Conference, Copenhagen, 2008
- *The Computational Ontology Perspective*, Approaches to Legal Ontologies Seminar, European University Institute, Florence, 2008
- *Ontology and the lexicon: a roundtrip*, Keynote Lecture at Conference sur le Traitement Automatique du Langage Naturel, Paris, 2009
- *Pattern-based Ontology Design*. Ontolog Invited Speaker Presentation (with Valentina Presutti): http://ontolog.cim3.net/cgi-bin/wiki.pl?ConferenceCall_2009_02_05, 2009
- *Semantic Web Ontologies: What worked, what didn't*, Dagstuhl Seminar on the Future of the Semantic Web, 2009
- *The STLab Research Programme*, STI2 workshop, Kalamaki, Crete, 2010
- *A Pattern Science for the Semantic Web*, Keynote Lecture at the Extended Semantic Web Conference, Hersonissos, Crete, 2010
- *Pattern-based Design of Medical Ontologies*, Sorbonne Paris Nord University, 2011
- *Combining Natural Language Processing and Semantic Web: some Applications*, Migrating Alphabets, CNR, Rome, 2011
- *A Pattern Science for the Semantic Web*, Workshop on La Strutturazione della Conoscenza nel Web, Università di Salerno, 2011
- *Tecnologie di Web Semantico per le Scienze Umane*, Conference Diritto romano e scienze antichistiche nell'era digitale, Firenze, 2011
- *Some Design Patterns for the Ontology-Lexicon Interface over the Web*, Invited talk at the Workshop on Ontologies and Lexical Semantics, Roma, 2011
- *Ontology Evaluation and Pattern-based Design*. Conference Call Ontology Summit 2012: http://ontolog.cim3.net/cgi-bin/wiki.pl?ConferenceCall_2012_02_23, slides: <http://tinyurl.com/bv8ncnv>, 2012
- *Knowledge Patterns*, seminars in the Philosophie du Web series, Sorbonne, Paris, 9-10 Juin 2012
- *Ontology Design: an Empirical Perspective*, 9th SSSW Semantic Web Summer School, Cercedilla, Spain, 2012
- *A Roadmap for LOD in the PA*, Keynote Lecture at the OnToContent Workshop, Roma, 2012
- *Discovering, Recognizing, and Using Knowledge Patterns*, Keynote Lecture at the SOFSEM 2013 Conference, Špindlerův Mlýn, Czech Republic, 2013
- *Objective Fiction: The Semantic Construction of (Web) Reality*, Keynote Lecture at iSemantics 2013 Conference, Graz, Austria, 2013.
- *Extracting, Discovering and Using Knowledge Patterns on the Semantic Web*, Lecture at the Dagstuhl Seminar on Spatial Reference in the Semantic Web and in Robotics (Dagstuhl Seminar 14142), 2014.
- *Integration of Knowledge Extracted from Text and Data as Open-World Semantic Graphs*, Keynote Lecture at OVIVE Workshop@IC2014, Clermont-Ferrand, 2014
- *Open Knowledge Extraction: from Text to Knowledge Graphs*, Invited talk at WorksWeb 2015 Workshop, Paris, 2015
- *Creating and Using Ontologies in a Big Data World*, Invited talk at the Focolise International Summer School, Strasbourg, 2015
- *How many (polymorphic) frames? Classic KR in the World Wild Web*, Keynote Lecture at the International Workshop on Artificial Intelligence and Cognition, Turin, 2015
- *Tackling higher-order and contextual phenomena in Open Knowledge Extraction*. Keynote Lecture at the International Symposium "A Decade of ICR", Luxembourg, 2016
- *Knowledge Patterns in the Deep*. Keynote Lecture at the Ontology Patterns Workshop, Kobe, 2016

- *Patterns for Representing (Legal) Procedural Knowledge*. Keynote Lecture at the Law and the Semantic Web Workshop, Bologna, 2016
- *Frame Dynamics: A Transdisciplinary Theory*. Invited seminar at Centro Internazionale di Studi Umanistici “Umberto Eco”, Bologna, 2018
- *The Symbol Grounding Problem Reloaded*. Keynote Lecture at STAIRS, ECAI2020, 2020
- *Grounded compositionality in AI*. Invited Lecture at UKRI, Imperial College, London, 2021
- *A Cognitive Stance about Knowledge Graphs and Embeddings*. Keynote Lecture at the Deep Learning for Knowledge Graphs Workshop@ISWC Conference, online, 2021
- *Symbol grounding in symbolic and subsymbolic AI*, Invited Presentation at the *Talking Machines Workshop* organised by Tesaco, Paris, 2021
- *The Construction of Artificial Collective Memories*. Invited Presentation at the meeting “L'archivio e il web” at ICCD, Rome, 2022
- *Ontology networks for cultural heritage and its appraisal*, Invited Presentation at the Semantic Web, Cultural Heritage, Art Historical Knowledge Conference 2023, Malaga, 2023
- *Observations, perspectives, and framing: ontology and human interaction*. Invited Presentation at the Journée d'étude Représentation des connaissances : des observations aux données, Tours, 2023
- *Varieties of Multimodal Grounding in AI*, Invited Presentation at the FACETS conference, Liège, 2023
- *AI Grappling with Things*, Keynote Lecture at the ICAART Conference 2023, Lisbon, 2023
- *Observations, perspectives, and framing: ontology and human interaction*, Keynote Lecture at the ISWS Summer School, Bertinoro, 2023
- *Perspectival modelling of human-centred knowledge*, Keynote Lecture at the Hypertext Conference, Rome, 2023

2004-: Invited talks in institutional and business contexts:

- *Ontology Design: A Primer*, Boehringer Ingelheim, 2007
- *CNR Semantic IntraWeb Project*, Agricultural Ontology Workshop, UN-FAO, 2007
- *Il progetto STLab: tecnologie semantiche per una rete di conoscenza fra cittadini, organizzazioni e imprese*, CONSIP, Rome, 2008
- *Ontology and the Lexicon: a Roundtrip*, SRI Menlo Park, US, 2009
- *Ontology Design*, Almaviva, Roma, 2011
- *Knowledge Patterns: Frame Representation across AI, Semantic Web, Linguistics, and Cognitive Science*, IBM Watson Research Center, 2011
- *Machine Reading for the Semantic Web*, New York Semantic Web Meetup, New York, 2015

2000-: Teaching at universities and doctoral schools:

- Tutoring on Ontology Design at the *Summer School on Ontological Engineering and the Semantic Web (ISWS-2024)*, Bertinoro, Italy (June, 2024).
- Course on Ontology Design at the *Fourteenth LEX International Summer School (LEX2023)*, at Ravenna, Italy (September, 2023).
- Course on Ontology Design at the *Thirteenth LEX International Summer School (LEX2022)*, at Ravenna, Italy (September, 2022).
- Course on Ontology Design at the *Twelfth LEX International Summer School (LEX2021)*, at Ravenna, Italy (September, 2021).
- Course on Ontology Design at the *Eleventh LEX International Summer School (LEX2020)*, at Ravenna, Italy (September, 2020).
- Course on Ontology Design at the *Tenth LEX International Summer School (LEX2019)*, at Ravenna, Italy (September, 2019).
- Tutoring on Ontology Design at the *Fifteenth Summer School on Ontological Engineering and the Semantic Web (SSSW-2019)*, Bertinoro, Italy (July, 2019).

- Course on Ontology Design at Ninth LEX International Summer School (LEX2018), at Ravenna, Italy (September, 2018).
- PhD Course on *Ontology Patterns*, First International Semantic Web Research Summer School (ISWS-2018), Bertinoro, Italy (July, 2018).
- Course on *Knowledge Extraction* at the Pavia PhD School on Computational Linguistics, Italy (May, 2018)
- Master Course on *Knowledge Representation and Extraction*, Digital Humanities and Digital Knowledge Degree, University of Bologna (March-May, 2018)
- Course on *Fundamentals of Computer Science*, Humanities Degree, University of Bologna (March-May, 2018)
- Course on *Artificial Intelligence*, Humanities Degree, University of Bologna (February-March, 2018)
- PhD Course on *Ontology Design* at the Ninth LEX International Summer School (LEX2017), at Ravenna, Italy (September, 2017).
- PhD Course on *Knowledge aspects of the Semantic Web*, Thirteenth Summer School on Ontological Engineering and the Semantic Web (SSSW-2016), Bertinoro, Italy (July, 2016).
- Course on *Semantic Web*, Computer Science Department, Sorbonne Paris Nord University (February-April, 2016).
- Course on *Web Content Management*, Computer Science Department, Sorbonne Paris Nord University (February, 2016).
- Course on *Fundamentals of Computer Science*, Computer Science Department, Sorbonne Paris Nord University (October-November, 2015).
- Course on *Semantic Web*, Computer Science Department, Sorbonne Paris Nord University (October-November, 2015).
- Course on *Web Programming*, Computer Science Department, Sorbonne Paris Nord University (February-May, 2015).
- Master Course on *Knowledge Engineering*, Computer Science Department, Sorbonne Paris Nord University (February-May, 2015).
- Master Course on *Knowledge Representation*, Computer Science Department, Sorbonne Paris Nord University (September-December, 2015).
- PhD Course on *Ontology Design* at the Sixth LEX International Summer School (LEX2014), at Ravenna, Italy (September, 2014).
- Tutoring at the Tenth European Summer School on Ontological Engineering and the Semantic Web (SSSW-2013), at Cercedilla, Spain (July, 2013).
- PhD Course on *Ontology Design* at the Fifth LEX International Summer School (LEX2013), at Ravenna, Italy (September, 2013).
- Master Course on *Knowledge Engineering*, Department of Informatics, Sorbonne Paris Nord University (January-May, 2013).
- PhD Course on *Ontology Design* at the Fourth LEX International Summer School (LEX2012), at Ravenna, Italy (September, 2012).
- Master Course on *Knowledge Representation*, Department of Informatics, Sorbonne Paris Nord University (September-December, 2012).
- Tutoring at the Ninth European Summer School on Ontological Engineering and the Semantic Web (SSSW-2012), at Cercedilla, Spain (July, 2012).
- *Applicazioni Semantiche sugli Open Data*, Doctoral lecture at University of Bologna, Faculty of Law, Bologna, (March, 2012).
- PhD Course on *Ontology Design* at the Third LEX International Summer School (LEX2011), at Ravenna, Italy (September, 2011).
- PhD Course on *Ontology Design* at the Eighth European Summer School on Ontological Engineering and the Semantic Web (SSSW-2011), at Cercedilla, Spain (July, 2011).
- PhD Course on *Computational Ontologies* at the Computer Science Department of the University of Bologna (May, 2011).
- *Ontology Design*, Doctoral lecture at University of Bologna, Faculty of Law, Bologna, (March, 2011).

- PhD Course on *Computational Ontologies* at the Computer Science Department of the University of Bologna (February, 2010).
- PhD Course on *Ontology Design* at the Second LEX International Summer School (LEX2010), at Ravenna, Italy (September, 2010).
- PhD Course on *Ontology Design* at the First LEX International Summer School (LEX2009), at Fiesole, Italy (September, 2009).
- PhD Course on *Ontology Design* at the Seventh European Summer School on Ontological Engineering and the Semantic Web (SSSW-2009), at Cercedilla, Spain (July, 2009).
- PhD Course on *Ontology Design* at the University of Jönköping, Sweden, within the bilateral programme DEON between Jönköping University and CNR (November, 2009).
- PhD Course on *Computational Ontologies* at the Computer Science Department of the University of Bologna (October, 2009).
- Invited Tutorial on *Ontology Design* at the Seventh International Semantic Web Conference, Karlsruhe, Germany (October, 2008)
- PhD Course on *Computational Ontologies* at the Computer Science Department of the University of Bologna (September, 2008).
- PhD Course on *Ontology Design* at the Sixth European Summer School on Ontological Engineering and the Semantic Web (SSSW-2008), at Cercedilla, Spain (July, 2008).
- Invited Tutorial on *Ontology Design* at the Sixth International Semantic Web Conference, Busan, Korea (November, 2007)
- PhD Course on *Ontology Design* for the PhD curriculum at the Computer Science Department of the University of Bologna (September, 2007).
- PhD Course on *Ontology Design* at the Epoch Summer School, Procida, Italy, (2007).
- PhD Course on *Ontology Design* at the Fifth European Summer School on Ontological Engineering and the Semantic Web (SSSW-2007), at Cercedilla, Spain (July, 2007).
- Tutorial on *Ontology Design Patterns* at the EKAW Conference, in collaboration with Guus Schreiber and Alan Rector (2006).
- PhD Course on *Ontology Evaluation and Validation* at the Fourth European Summer School on Ontological Engineering and the Semantic Web (SSSW-2006), at Cercedilla, Spain (July, 2006).
- PhD Course on *The emergent ontology: knowledge collectives and conceptual design patterns* at the Interdisciplinary College (IK2006), Günne, Germany (2006)
- PhD Course on *Ontology Evaluation and Validation* at the Third European Summer School on Ontological Engineering and the Semantic Web (SSSW-2005), at Cercedilla, Spain (July, 2005).
- PhD Course on *Ontologies: Theory, Methods and Tools* at the Second European Summer School on Ontological Engineering and the Semantic Web (SSSW-2004), at Cercedilla, Spain (July, 2004).
- Specialist course (supported by professorship) on *Knowledge Engineering* within the School of Strategic Design (Un. Diploma in Communication Studies) at the Università per Stranieri (University for Foreigners of Perugia), (2003-5)
- PhD Course on *Semantic Web* at the ReasonPark Summer School (2003)
- Tutorial on *Formal Ontological Analysis and Conceptual Modelling* at the EKAW Conference, in collaboration with Nicola Guarino (2002).

Supervision of post-docs, research engineers, etc.

Jos Lehmann, post-doc, then researcher (2005-2007), current Google Scholar h-index=14. Now at University of Edinburgh, UK.

Carola Catenacci, post-doc (2005-2007), h-index su Google Scholar=11.

Massimiliano Ciaramita, post-doc (2005-2007), current Google Scholar h-index=39. Now at Google Research, Zurich, Switzerland.

Malvina Nissim, post-doc (2005-2007), current Google Scholar h-index=35. Now at University of Groningen, NL.

Valentina Presutti, researcher (2009-2010), current Google Scholar h-index=39. Now associate professor at University of Bologna.

Eva Blomqvist, post-doc (2009-2010), current Google Scholar h-index=25. Now at University of Linköping, Sweden

Alfio Gliozzo, researcher (2009-2010), current Google Scholar h-index=31. Now at IBM Research AI, New York, US

Silvio Peroni, post-doc (2012), current Google Scholar h-index=32. Now associate professor at University of Bologna

Enrico Daga, research engineer (2009-2011), then PhD; current Google Scholar h-index=16. Now at KMI, Open University, Milton Keynes, UK

Alberto Musetti, research engineer (2011-2012)

Francesco Draicchio, graduate student (2010-2011), research engineer (2011-2012)

Sergio Consoli, post-doc (2013-2015), current Google Scholar h-index=22. Now at JRC at Ispra, IT

Diego Reforgiato, post-doc (2013-2015), current Google Scholar h-index=36. Now full professor at University of Cagliari

Misael Mongiovì, post-doc (2015), current Google Scholar h-index=17. Now associate professor at University of Catania

Giorgia Lodi, post-doc (2015), current Google Scholar h-index=13. Now system engineer at ISTC-CNR

Luigi Asprino, research engineer (2015), PhD from 2016, current Google Scholar h-index=11. Now researcher at University of Bologna

Alessandro Russo, research engineer (2015), post-doc from 2016. Now system engineer at ISTC-CNR

Mehwish Alam, post-doc, 2016-8. Now assistant professor at FIZ Karlsruhe, Leibniz Institute, current Google Scholar h-index=12. Now associate professor at Télécom Paris, Institut Polytechnique de Paris

Christian Colonna, research grant on ArCo4Science project, University of Bologna (2020-2021)

Ludovica Marinucci, post-doc (2019-2021), now research grant at CNR

Margherita Porena, research grant on RaAD project (2020-2023), now consultant for Italian Ministry of Culture

Chiara Lucifora, post-doc on SPICE project (2022-2023), current Google Scholar h-index=10. Now researcher at University of Bologna

Francesca Borriello, research grant on SacrEd project (2024-2025), University of Bologna

Member of Doctorate Program Boards

National Doctoral program in Artificial Intelligence at University of Rome La Sapienza (2023-)

https://phd.uniroma1.it/web/DOTTORATO-NAZIONALE-IN-INTELLIGENZA-ARTIFICIALE_nD3764_IT.aspx

Doctorate program in Philosophy, Science, Cognition and Semiotics (PSCS) at University of Bologna (2022-)

<https://www.unibo.it/en/study/phd-professional-masters-specialisation-schools-and-other-programmes/phd/2023-2024/philosophy-science-cognition-and-semiotics-pscs-1>

Doctoral program in Literary and Philological Cultures at University of Bologna (2019-2022)

<https://www.unibo.it/it/didattica/dottorati/2019-2020/culture-letterarie-e-filologiche>

Erasmus Mundus International doctoral program LAST-JD, “Law, Science and Technology” (2014-2018)

http://www.last-jd.eu/?page_id=54

Supervision of PhD students

Alessandro Adamou, PhD (50%) (2009-2012), current Google Scholar h-index=9. Now at Bibliotheca Hertziana - Max Planck Institute for Art History, Rome, IT
Andrea Nuzzolese, PhD (2010-2013), then post-doc (2013-2015) and researcher, current Google Scholar h-index=28. Now senior researcher at ISTC-CNR, Rome, IT
Ehab Hassan, PhD Sorbonne Paris Nord University (2013-2016)
Stefano de Giorgis, PhD University of Bologna (2019-2022), current Google Scholar h-index=5. Now researcher at ISTC-CNR, IT
Bruno Sartini, PhD University of Bologna (2019-2023), current Google Scholar h-index=5. Now post-doc at University of Munich
Gaia Gambarelli, PhD University of Bologna (2019-2023)
Anna Sofia Lippolis, PhD, University of Bologna (2022-2025)
Margherita Porena, PhD, University of Bologna (2022-2025)
Jeffrey Dickson, PhD, University of Bologna (2023-2026)
Nicola Chinchella, PhD, University of Bologna (2023-2026)
Francesco Petri, PhD (AI National PhD Programme), Sapienza University of Rome / ISTC-CNR, Rome, IT (2023-2026)
Hazem Dewidar, PhD (AI National PhD Programme), Sapienza University of Rome / ISTC-CNR, Rome, IT(2024-2027)

Specific PhD committee sessions

Roberto Garcia Gonzales (2008), Universidad Pompeu Fabre, Barcelona, Spain;
Milan Stankovic (2012), Université Paris IV Sorbonne ;
Amina Chniti (2013), Université Paris V ;
Member of the LAST-JD PhD School (legal informatics) (5 PhD), CIRSIFID Università di Bologna (2013) ;
Khadija Elbedweihy (2014), University of Sheffield ;
Nada Mimouni (2015), Université Paris XIII ;
Manisha Pujari (2015), Université Paris XIII / INSA Lyon ;
Fadhela Kerdjoudj (2015), Université Paris-Est ;
Tatiana Lesnikova (2016), Université Grenoble-Alpes / INRIA;
Valentina Beretta (2018), IMT Mines Alès;
Sayyed Ali Hossayni (2018), University of Girona, Spain;
Thibaut Eude (2018), Mines ParisTech;
Marilena Daquino (2019), Università di Bologna, Italy;
President for the Selection Committee of the PCSC (Philosophy, Communication, Science, Cognition) PhD School (11 PhD positions), FILO, Università di Bologna (2023)

Committees for habilitation à diriger des recherches

Christian Cote, Université Lyon 4 (2014) ;
Marc Spaniol, Université Caen (2014) ;
Cédric Pruski, Université de Luxembourg (2015)

Master students

Francesco Draicchio, University of Bologna (2013)
Stefano de Giorgis, University of Bologna (2019)
Christian Colonna, University of Bologna (2019)
Bruno Sartini, University of Bologna (2019)
Remo Grillo, University of Bologna (2019)
Eleonora Peruch, University of Bologna (2020)
Andrea Poltronieri, University of Bologna (2021)
Mattia Spadoni, University of Bologna (2021)

Cristian Santini, University of Bologna (2021)
Sara Coppini, University of Bologna (2022)
Simone Persiani, University of Bologna (2023)
Maddalena Ghiotto, University of Bologna (2024)
Loredana Salvatore, University of Bologna (2024)
Lucia Bertoldini, University of Bologna (2024)

B. Selected international, peer-reviewed publications (main conferences, books and journals only)

H-index=66; i10 index=216; hc-index=42; 20669 citations

(Google Scholar, November 2024)

Scopus h-index=41; 6493 citations, November 2024

ISI h-index=25; 2726 citations, October 2024

Full set of publications (>350) available from Google Scholar page: <http://scholar.google.it/citations?user=-iVGcoAAAAAJ>

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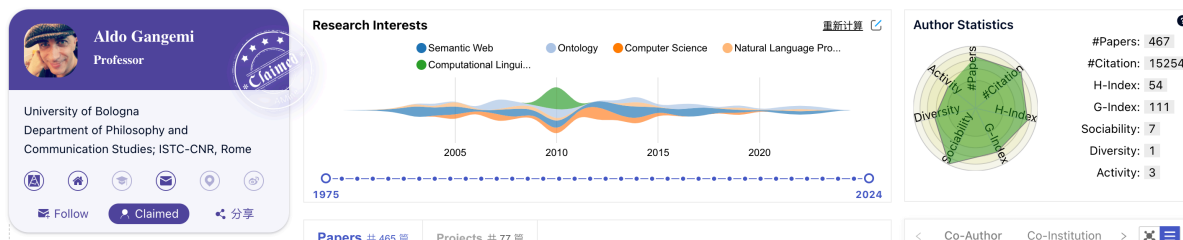
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All publications in numbers:

Type	Amount
Articles in international peer-reviewed journals	67
Books	10
Chapters of books with scientific committee	33
Papers in proceedings of international peer-reviewed conferences	83
Posters/demos in international peer-reviewed conferences	19
Articles in national peer-reviewed journals	7
Workshop proceedings	7
Papers in proceedings of international peer-reviewed workshops	58
Reports of scientific committes and international scientific projects	35



C. Research Support

1994-: Coordination of research activities (from 2008 as STLab coordinator)

- *A4ALL (Access for All)*, PON-PNRR Project, funded by the Italian Ministry for Economic Development, about supporting automated generation of Public Administration web portals that can be accessed in multimodal ways, 2024-2026 (Coordinator for CNR)
- *Transversal Research Group on Societal Implications and Impact, SPOKE 7 of the PNRR National Centre for HPC, Big Data and Quantum Computing*, 2024-2025 (Coordinator for ISTC-CNR, addressing formal neuroethical foundations for AI models)
- *KnowledgeX, FESR Emilia Romagna project*, about expert knowledge formalization for human-centered manufacturing, 2024-2025 (Coordinator for CNR)
- *SACR-eD, PRIN 2022 project*, about schizophrenia, autism and the myth of creativity: an interdisciplinary perspective on psychopathological expression and its digitalisation, 2024-2025
- *FAIR (Future Artificial Intelligence Research)*, PNRR Partnership, about foundational AI, 2023-2025 (co-PI of SPOKE 10 and coordinator for ISTC-CNR, addressing bio-neuro-cognitive AI foundations)
- *L4ALL (Learning for All)*, PON-PNRR Project, funded by the Italian Ministry for Economic Development, about supporting eLearning platforms with automated translation between sign languages and oral languages, and ontologies, 2023-2025
- *COKE (PI), FISIR project*, funded by Italian Ministry of Research, about a COvid-19 Knowledge Extraction framework for next generation discovery science
- *MARE3*, tender of Department for Maritime Affairs of European Union, design and implementation of multilingual knowledge management system for fishery commercial denominations, deployment, updating, and maintenance, 2021-24 (Project coordinator)
- *Portale delle Fonti della Repubblica Italiana* (funded by the Italian Presidency of the Republic), knowledge graph extraction, representation and reasoning from heterogeneous data and content from the proceedings of the Parliament and the Presidency of Italy, 2022-2024 (Project coordinator for ISTC-CNR)
- *ReAD, funded by Regione Lazio, consortium with ICCD (Italian Ministry of Culture) and University Rome 3*, 2021-2023 (Project Coordinator)
- *SPICE*, H2020 project *Social Cohesion, Participation and Inclusion through Cultural Engagement*, 2020-2023 (Project Scientific Coordinator)
- *ArCo4Science*, contract with Italian Ministry of Cultural Heritage for the enrichment, refinement, and application of the ArCo Italian Cultural Heritage knowledge graph, 2019-21.
- *MARE2*, tender of Department for Maritime Affairs of European Union, design and implementation of multilingual knowledge management system for fishery commercial denominations, deployment, updating, and maintenance, 2017-20.
- *ArCo*, contract with Italian Ministry of Cultural Heritage for ontology design for, and refactoring of catalographic cards of Italian Cultural Heritage objects, 2017-9.
- *OntoPiA*, contract with *Team Digitale*, agency of the Italian Presidency of the Council of Ministers, for the design of ontologies for the Italian Public Administration, and implementation of data refactoring and cleaning in the DAF framework, 2017-8.
- *Computational semantic analysis — Axis 5 of LabEx (Laboratoire d'Excellence) EFL (Empirical Foundations of Linguistics) — automated abstractive text summarization*, 2016-7
- *Cartographie de la diaspora des savoirs par fouille sémantique des résultats recherche sur le web*, ECOS-Nord project (France-Mexico), 2016-7
- *Golfred*, AUF-PIRAT project (France-Mexico), reading robots, 2015-7
- *MARIO*, H2020 project on human-robot dialogue systems for assistance to elderly people with mild dementia, 2015-7.
- *MARE*, tender of Department for Maritime Affairs of European Union, design and implementation of multilingual knowledge management system for fishery commercial denominations, production of related Linked Open Data, 2014-5.

- *FOOD*, sponsored by AgID (Ministry Council's Agency for Digital Italy) to produce Linked Open Data out of DOP products descriptions from the Ministry for Agriculture, 2014-5.
- *S&TDL* (Science and Technology Digital Library), MIUR-CNR-AgID sponsored project, semantic digital libraries, 2014-15.
- *Hermes*, Project of the FILAS programme (Lazio district) on new technologies for cultural heritage, 2014-15.
- *Semantic Sicily*, semantic technology transfer project sponsored by a Sicilian enterprise consortium, 2013-4.
- *PRISMA* (PiattafoRme cloud Interoperabili per SMART-government, 2012-2015), PON-RC Italian Ministry of Research project, coordinator for STLab.
- *Semantic Scouting* (2009-2010), project sponsored by the technology Transfer agency of CNR, coordinator for five CNR institutes
- *SocNet* (2010-12), US National Science Foundation funded project on discovering social networks in historical series and facts.
- *NeOn* (2006-10), EU FP6 Integrating Project (IP), scientific coordinator for ISTC-CNR. Aim: collaborative, networked ontology lifecycle management.
- *Historical Knowledge Representation* (2007-9), CNR project, coordinator. Aim: Representation and reasoning with historical models over spatio-temporal situations.
- *Semantic Intrawebs* (2006-10), CNR programme for the reengineering, integration, and porting to the semantic web of legacy administrative research databases.
- *Bony* (2008-9), EU Leonardo project for creating semantic, multi-lingual e-Learning units.
- *METOKIS* (2004-5), EU FP6 STReP project, scientific coordinator for my Lab. Aim: a platform for the management of knowledge work and the representation of workflows. Task of the LOA: ontology of plans and tasks.
- *Task force on Porting WordNet to the Semantic Web* within the W3C Semantic Web Best Practices and Deployment working group.
- *Fishery Ontology Service* (2002-4), institutional project, scientific coordinator. Joint project with UN-FAO. Aim: developing a modular ontology library for fishery (starting from existing thesauri), and deploying it for database and portal integration. Task of my Lab: scientific architecture, methodology, supervision and consultancy.
- *OntoWordNet* (2001-), academic research programme, scientific coordinator. In conjunction with the University of Rome La Sapienza and the University of Princeton. Aim: deriving a full-fledged formal ontology from the WordNet lexical database. Both formal ontology and machine learning techniques are used. In collaboration with Alessandro Oltramari.
- *IF-LEX*: Banking regulation dynamics and anti-money laundering ontology (2000-2003), industrial project, scientific coordinator for my Lab. Automatic warning system for bank transactions over legacy databases, driven by an ontology of anti-money laundering guidelines derived from legal regulations from the Bank of Italy.
- *ISK*: Ontology-driven quality assessment in service-level agreements (2002-2003), industrial project, scientific coordinator for my Lab. Automatic evaluation of the economic impact of service-level agreements and their deployment in the domain of information services, based on a modular ontology of service contracts and information services.
- *IES*: Ontology-driven Customer Relationship Management in the insurance domain (2003), industrial project, scientific coordinator for my Lab.
- *LegOntoWeb* (2002-2004), working group sponsored by EU FP5 OntoWeb project, coordinator.
- *ONIONS* (1994-1999), academic research programme, scientific coordinator. Aim: developing a methodology for terminology reengineering, ontology construction and modularization. Mainly applied to biomedicine.

1992-: *Participation in research activities (besides those coordinated).*

- *Tecnologie semantiche per il fisco italiano* (2012-2013), industrial project for Italian public/private company SOGEI.

- *IKS* (2009-12), EU FP7 Integrating Project (IP). Aim: semantic components for content management systems and technology transfer to SMEs.
- *WonderWeb* (2002-2004), EU FP5 FET, coordinated by the University of Manchester. Aim: excellence infrastructure for the Semantic Web. Task of my Lab: foundational ontology library, ontology building methodology, ontology of Web Services.
- *OntoWeb* (2002-2004), EU FP5 Thematic Network, coordinated by the University of Innsbruck (initially by the University of Amsterdam). Aim: Semantic Web research coordination. Task of my Lab: content standards, ontologies.
- *IKF* (2000-2003), EUREKA project, coordinated by NOMOS Sistema, Milan. Aim: industrial platform for knowledge fusion. Task of my Lab: foundational ontologies, methodologies, scientific supervision on domain ontology development. Three sub-projects.
- *SOLMC* (linguistic and ontological tools for conceptual modelling), and *ONTOINT* (ontological tools and methods for analysis, integration, and representation of heterogeneous knowledge) (1995-1998), Italian coordinated projects funded by the Italian Ministry of Research.
- *GALEN* (1992-1994), EU AIM project, coordinated by the University of Manchester. Aim: medical knowledge representation and terminology management. Task of ITBM: core models for biomedicine.

D. Software projects

ontologydesignpatterns.org (portal about best practices in ontology design)

data.cnr.it (linked open data from CNR)

[SemanticScout](#) (exploratory search system over linked data)

[aemoo.org](#) (differential exploratory search over Wikipedia, Twitter and Google News)

[Semiosearch Wikifier](#) (named entity recognizer and identity resolution service)

[FRED](#) (machine reading of natural language to RDF and OWL through semantic deep parsing)

[Tipalo](#) (machine reading of Wikipedia natural language definitions to RDF)

[Sentilo](#) (opinion mining service based on deep parsing and machine reading)

[NeOn Toolkit](#) (ontology editor)

[LinkedOpenIPA](#) (linked open data from the Italian Public Administration Index)

[Smart City apps](#) (georeferenced linked open data for the Municipality of Catania used in smart city apps)

[MARE](#) (multilingual open data for commercial designation of seafood in the EU)

[FOOD](#) (linked open data for Italian DOP products)

[Framester](#) (a giant hub of linguistic and factual data)

[ArCo](#) (the Italian Cultural Heritage Knowledge Graph)

[OntoPiA](#) (the ontology network for Italian Public Administration data integration)

[Text2AMR2FRED](#) (transformer-based machine reading of natural language to RDF and OWL with Framester alignments)