

# Curriculum Vitae Serena Sorrentino

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# Curriculum Vitae

## References:

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Birth date: October 4, 1981  
Nationality: Italian  
Language skills: Italian, English

## Education:

- **PhD Student** (2<sup>nd</sup> year) at Doctorate School in "INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) - Computer Engineering and Science" (<http://www.ict.unimo.it>) at the "Università di Modena e Reggio Emilia", Faculty of Engineering (since 2008). Tutor: prof. Sonia Bergamaschi, Università di Modena e Reggio Emilia, Modena, Italy.
- **Computer Engineering licence** at the University of Modena and Reggio Emilia, Modena, Italy, June 2008.
- **"Laurea Specialistica" Degree in Computer Engineering (M.Sc.)** at the University of Modena and Reggio Emilia, Faculty of Engineering, Modena, Italy - March, 2007. Degree dissertation: *"Metodi di Disambiguazione del Testo ed Estensioni di WordNet nel sistema MOMIS"*, Supervisor: prof. Sonia Bergamaschi. Mark 110/110 cum laude
- **"Laurea" Degree in Computer Engineering (B.A.)** at the University of Modena and Reggio Emilia, Faculty of Engineering, Modena, Italy - February, 2004. Degree dissertation: *"Protocolli di Negoziazione per Agenti Intelligenti"*, Supervisor: Prof. Sonia Bergamaschi. Mark: 110/110 cum laude.
- **High School Education:** High School Diploma (Scientific Studies) at the "Liceo Scientifico" Manfredo Fanti, Carpi - Modena, July 2000. Mark 97/100

## Research Activity

Since 2008 I am a Ph.D. student at the Doctorate School in "Information and Communication Technologies (ICT) - Computer Engineering and Science", at the University of Modena and Reggio Emilia, Faculty of Engineering, Tutor: Professor Sonia Bergamaschi. I am a member of the DBGroup research group at the University of Modena and Reggio Emilia (<http://www.dbgroup.unimo.it>), led by professor Sonia Bergamaschi.

My areas of research are Intelligent Data Integration and Semantic Schema Matching. In the first year my research was focused on the development of techniques for automatic annotation of terms extracted from structured and semi-structured data sources; particular attention has been given to the comparison of methods for WSD (Word Sense Disambiguation) of schema elements. During the second year my research has been focused on the use of probabilistic approaches to cope with the treatment of uncertainty in data integration systems. I have taken part to the definition of the PWSD (Probabilistic Word Sense Disambiguation) method. The PWSD method is based on a probabilistic combination of different WSD (Word Sense Disambiguation) algorithms. PWSD automatically annotates the terms of source schemas w.r.t. the lexical knowledge WordNet, and associates to any annotation a probability value that indicates the reliability level.

My current research is focused on the study and development of schema labels normalization techniques in order to improve the accuracy of traditional schema matching systems. I deal with the problem of non-dictionary words in schemas. Non-dictionary words represent words that do not exist in the thesaurus or in a knowledge base used during the annotation process. These terms, in particular, may be acronyms, abbreviations, compound nouns (also called multi-words terms), misspellings etc. My future research activity will be devoted to investigate on another kind of "non-dictionary words": words which are not present in the lexical resource as they belong to a specific application domain (e.g. Medicine, architecture, biology etc.). Moreover, I will investigate on techniques to deal with the problem of the presence of "misleading" words in schemas (i.e. the word "telephone" used with the meaning of "phone number").

Main Research topics:

- **Intelligent Information Integration**
- **Schema and Ontology Matching**
- **Natural Language Processing**

## Project Participation:

I participated, as a member of the DBGROUP, in European and National Research Projects:

- **(2009) STASIS** (Software for Ambient Semantic Interoperable Services), FP6-2005-IST-5-034980 STREP project (<http://www.stasis-project.net/>).
- **(2007-2009) NeP4B (Networked Peers for Business)**, MIUR funded research project – FIRB 2005 (<http://www.dbgroup.unimo.it/nep4b>) coordinated by professor Sonia Bergamaschi.

## Participations to national and international conferences and workshops:

- [SEDB 2008](#) – Sixteenth Italian Symposium on Advanced Database Systems, Mondello (Palermo) Italy, June 22-25 2008.
- [SEDB 2009](#) – Seventeenth Italian Symposium on Advanced Database Systems, Camogli (Genova) Italy, June 21-24 2009.
- Semantic Doctoral Symposium in conjunction with [Semantic Week \(SW'09\)](#), Amsterdam Holland, June 22-26 2009.
- [Reasoning Web 2009 Summer School](#), Bressanone (Bolzano) Italy, August 30 – September 4 2009.
- [ER 2009](#) – 28<sup>th</sup> International Conference on Conceptual Modeling – Gramado, Brazil, November 9-12 2009.
- [Modena Lexi-Term Workshop](#), Modena, 5 November 2009, co-located with CLAVIER 2009 - Corpus Linguistics and Language Variation. Invited talk on “Semi-automatic schema labels normalization for improving schema matching”.
- [ISDSI 2009](#), the 1st International Workshop on Interoperability through Semantic Data and Service Integration, June 25 2009, Camogli (GE), Italy, Organizing Committee.

## Review Activity

Serena Sorrentino reviewed papers for National and International Conferences:

- **(MAW2010)** - The 2010 IEEE International Symposium on Mining and Web Perth, Australia, April 20-23 2010.
- **(KEOD 2009)** - International Conference on Knowledge Engineering and Ontology Development - Madeira, Portugal, October 6-8 2009.
- **(ER 2009)** - 28<sup>th</sup> International Conference on Conceptual Modeling – Gramado, Brazil, November 9-12 2009.
- **(WI 2009)** -The 2009 IEEE/WIC/ACM International Conference on Web Intelligence held in conjunction with IAT'09- Milan, Italy, September 15-18 2009.
- **(WI 2008)** -The 2008 IEEE/WIC/ACM International Conference on Web Intelligence - Sidney, Australia, December 9-12 2008.
- **(ODBASE 2008)** – The 7<sup>th</sup> International Conference on Ontologies, Databases, and Applications of Semantics- Monterrey, Mexico, Nov 11 - 13, 2008

# Publications

## International Conferences and Workshops (IC)

- [IC1] S. Bergamaschi, L. Po, A.Sala, S. Sorrentino, "Data source annotation in data integration systems", Fifth International Workshop on Databases, Information Systems and Peer-to-Peer Computing (DBISP2P), VLDB 2007 33rd International Conference on Very Large Data Bases. University of Vienna, Austria, September 24, 2007.
- [IC2] S. Bergamaschi, L. Po, S. Sorrentino, "Automatic annotation in data integration systems", The 6th International Conference on Ontologies, DataBases, and Applications of Semantics (ODBASE) Vilamoura, Algarve, Portugal, November 27-29, 2007 (p.p 27-28).
- [IC3] D. Beneventano, M. Orsini, L. Po, S. Sorrentino, "The MOMIS-STASIS approach for Ontology-Based Data Integration", the 1st International Workshop on Interoperability through Semantic Data and Service Integration, ISDSI 2009, Camogli (GE), Italy June 25 2009.
- [IC4] L. Po, S. Sorrentino, S. Bergamaschi, D. Beneventano "Lexical Knowledge Extraction: an Effective Approach to Schema and Ontology Matching", 10th European Conference on Knowledge Management, ECKM 2009, Università Degli Studi Di Padova, Vicenza, Italy, 3-4 September 2009.
- [IC5] D. Beneventano, M. Orsini, L. Po, A. Sala, S. Sorrentino, "An Ontology-Based Data Integration system for data and multimedia sources", the 2009 International Workshop on Semantic Computing and Multimedia Systems, IEEE-SCMS 2009 in conjunction with the Third IEEE International Conference on Semantic Computing (ICSC 2009) Berkeley, CA, USA - September 14-16 2009 (p.p. 606-611).
- [IC6] D. Beneventano, S. Bergamaschi, S. Sorrentino, "Extending WordNet with compound nouns for semi-automatic annotation in data integration systems", IEEE NLP-KE'09, Dalian, China, , 24-27 September 2009.
- [IC7] S. Sorrentino, S. Bergamaschi, M. Gawinecki, L. Po, "Schema Normalization for Improving Schema Matching", 28th International Conference on Conceptual Modeling, ER 2009, Gramado, Brasil, 9-12 November 2009 (p.p. 280-293) (invited paper to the ER 2009 special issue of the Data and Knowledge Engineering (DKE) journal).
- [IC8] S. Bergamaschi, L. Po, S. Sorrentino, Alberto Corni, "Dealing with Uncertainty in Lexical Annotation", 28th International Conference on Conceptual Modeling, (Demo Session) ER 2009, Gramado, Brasil, 9-12 November 2009.

## National Conferences (NC)

- [NC1] S. Bergamaschi, L. Po, and S. Sorrentino, "Automatic annotation for mapping discovery in data integration systems", Proceedings of the Sixteenth Italian Symposium on Advanced Database Systems, SEBD 2008, Mondello (Palermo), Italy, 22-25 June 2008 (p.p 334-341).
- [NC2] S. Bergamaschi, S. Sorrentino, "Semi-automatic compound nouns annotation for data integration systems", Proceedings of the 17th Italian Symposium on Advanced Database Systems, SEBD 2009, Camogli (Genova), Italy 21-24 June 2009.
- [NC3] S. Bergamaschi, L. Po, S. Sorrentino, A. Corni, "Uncertainty in data integration systems: automatic generation of probabilistic relationships", VI Conference of the Italian Chapter of AIS, Itais 2009, Costa Smeralda, Italy, October 2-3 2009.

## Book Chapters (BC)

- [BC1] Sonia Bergamaschi, Laura Po, Serena Sorrentino, Alberto Corni. Uncertainty in data integration systems: automatic generation of probabilistic relationships. Management of the Interconnected World (A. D'Atri, M. De Marco, A. Maria Braccini, F. Cariddu eds.), Springer, ISBN/ISSN: 978-3-7908-2403-2, 2009.

## Technical Reports (TR)

- [TR1] P. Monari, A. Turati, D. Cerizza, I. Celino, G. Viscusi, F. Rabitti, M. Vincini, M. Orsini, A. Sala, S. Sorrentino, C. Gennaro, V. Morandi, M. Barbi, First technical validation. NeP4B Technical Report, November 2008.
- [TR2] Laura Po, Francesco Guerra, Tiziano Fagni, Fabrizio Falchi, Mirko Orsini, Dario Cerizza, Francesco Corcoglioniti, Matteo Mordacchini, Serena Sorrentino, Fabrizio Sebastiani, Sala Antonio, Alberto Corni, Matteo di Gioia. "Prototypes for building the semantic peer - First release". NeP4B Technical Report, February 2008.
- [TR3] Laura Po, Antonio Sala, Tiziano Fagni, Fabrizio Falchi, Mirko Orsini, Dario Cerizza, Francesco Corcoglioniti, Serena Sorrentino, Matteo Mordacchini. "Prototypes for building the semantic peer – Final Release", NeP4B Technical Report 20 November 2009.
- [TR4] Domenico Beneventano, Serena Sorrentino, Laura Po. Final STASIS Validation. STASIS Technical Report, September 2009.
- [TR5] Domenico Beneventano, Serena Sorrentino et al. Deliverable D8.4.2.b "Camogli workshop and report", WP8 – Discussion, Impact and Dissemination, September 2009.

## Degree Disserta (TL)

- [TL1] Serena Sorrentino, "Protocolli di Negoziazione per Agenti Intelligenti". Degree Dissertation, University of Modena and Reggio Emilia, Faculty of Engineering. "Laurea" Degree in Computer Engineering (B.A.), Modena, Italy, a.y. 2002-2003, Supervisor: Prof. Sonia Bergamaschi (<http://www.dbgroup.unimo.it/tesi/sorrentino.pdf>).
- [TL1] Serena Sorrentino, "*Metodi di Disambiguazione del Testo ed Estensioni di WordNet nel sistema MOMIS*". Degree Dissertation, University of Modena and Reggio Emilia, Faculty of Engineering. "Laurea Specialistica" Degree in Computer Engineering (M.Sc.), Modena, Italy, a.y. 2005-2006, Supervisor: Prof. Sonia Bergamaschi (<http://www.dbgroup.unimo.it/tesi/sorrentinoserena.pdf>)

## Teaching Activities

- **2008/2009** Assistant for the course of “Knowledge Representation” at the University of Modena and Reggio Emilia, Faculty of Engineering, Computer Engineering Degree.
- **2008/2009** Assistant for the course of “Database A” at the University of Modena and Reggio Emilia, Faculty of Engineering, Computer Engineering Degree.
- **2008/2009** Assistant for the course of “Database and Information Systems” at the University of Bologna, Faculty of Law, Legal and IT Operator Degree.
- **2008/2009** Seminar: “Word Sense Disambiguation” for the course of “Knowledge Representation” at the University of Modena and Reggio Emilia, Faculty of Engineering, Computer Engineering Degree.
- **2009/2010** Assistant for the course of “Knowledge Representation” at the University of Modena and Reggio Emilia, Faculty of Engineering, Computer Engineering Degree.
- **2009/2010** Assistant for the course of “Database A” at the University of Modena and Reggio Emilia, Faculty of Engineering, Computer Engineering Degree.
- **2009/2010** Seminar: “WordNet” for the course of “Knowledge Representation” at the University of Modena and Reggio Emilia, Faculty of Engineering, Computer Engineering Degree.



## Work Experience

- **05/2007- 07-2007**: young researcher contract for research activity on the MIUR research project NeP4B (Networked Peers for Business), MIUR funded research project – FIRB 2005.
- **10/2007 – 12/2008**: collaboration with “Quix - Software Solution and Consulting” s.r.l. Appalto di Soliera (Modena), Italy ( <http://www.quix.it> ) for the development of Business Intelligence and Web Applications.
- **10/2007 – 02/2009**: young researcher contract for research activity on the MIUR research project NeP4B (Networked Peers for Business), MIUR funded research project – FIRB 2005.
- **03/2009 – 09/2009**: young researcher contract for research activity on the Project FP6-2005-IST-5-034980 STASIS SofTware for Ambient Semantic Interoperable Services.

## Technical knowledge

- **Programming languages**: Java, C, C++, SQL, MDX
- **Web technologies**: JavaScript, Jsp, Cgi, XML, RDF, OWL.
- **DBMS**: SQL Server, MySql, PostgreSQL, Access.
- **Operating Systems**: Windows, Linux.