

# Dr Chiara DEL VESCOVO

## Curriculum Vitae

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### Education

**PhD** in Computer Science awarded on the 13/02/2013 by the University of Manchester (UoM), United Kingdom

**MSc** in Mathematics awarded on the 23/05/2007 by the University Roma3 (URM3), Rome, Italy

**BSc** in Mathematics awarded on the 16/02/2005 by URM3

### Research Experience

**January 2013 - present** EPSRC Doctoral Award Fellow at UoM. In this project I analyse further exploitations of the technique I have developed during my PhD, called *Atomic Decomposition* (AD). The original idea was to use the AD of an ontology as a means to navigate the content of an ontology in a meaningful way. So far the AD have been used in areas as reasoning, diffing and performance prediction.

**September 2009 - January 2013** PhD candidate at UoM, under the supervision of Prof. Sattler and Dr Parsia in the field of ontology modularity, with a focus on  $\Sigma$ -modules, i.e., subsets of an ontology  $\mathcal{O}$  that preserve all the entailments of  $\mathcal{O}$  over a signature  $\Sigma$ . Ontologies in general have an exponential number of  $\Sigma$ -modules w.r.t. their size. I have identified the family of *genuine modules*, modules that cannot be split into the union of two or more " $\subseteq$ "-incomparable modules, and proved that, surprisingly, this family constitutes a base for the set of all the modules and it is linear in the number of axioms of  $\mathcal{O}$ . I have defined the (AD) of an ontology  $\mathcal{O}$  as a dependency graph between logically indivisible sets of axioms of  $\mathcal{O}$ , and proved that the AD is a compact representation of the genuine modules of  $\mathcal{O}$ . I have determined an algorithm that computes the AD of an ontology in just a linear number of module extraction. Finally, I have defined the *Labelled Atomic Decomposition* (LAD) to be an AD equipped with suitable labels that allow for the exploitation of ADs for several applications.

**May 2008 - May 2009** Industrial Researcher in the R&D Department at CM Sistemi S.p.A., Rome, Italy. My occupation was conceiving, describing, and implementing research projects funded by national and international supporting bodies. I have been involved in various research projects, among which the FIRB led by Prof. M. Lenzerini, TOCAL.It, "Tecniche Orientate alla Conoscenza per Aggregazioni di imprese in Internet" (Knowledge-oriented techniques for companies gathering on internet).

**March - September 2007** Industrial trainee in the R&D Department at CM Sistemi S.p.A., Rome, Italy. The project I was involved in has analysed Stable matching techniques in the management of the job market ("Tecniche di matching stabile nella gestione del mercato del lavoro").

### Awards (Amount of the award)

- Winner of an EPSRC Doctoral Award Fellowship 2012 to be carried out at UoM (~28,800£)
- Best Student Paper award and nomination as Best Research Paper at ISWC-11 for the paper "Decomposition and Modular Structure of BioPortal Ontologies" (300€)
- Runner up for the Best CS Paper Award 2011 at UoM, for the paper "The Modular Structure of an Ontology: Atomic Decomposition" (100£)
- EPSRC (Engineering and Physical Sciences Research Council) bursary for the enrollment as PhD Student at UoM, AYs 2009/10, 2010/11, and 2011/12 (48,300£)
- Bursary holder for attending the Doc-course "Geometric graphs and orders" held in Berlin, 2009 (1,250€)
- Bursary of "Tirocini formativi scientifici", for a scientific training funded by the "Assessorato all'Istruzione, Diritto allo studio e Formazione della Regione Lazio" (5,600€)
- Bursary holder for working in the Department admission office, AY 2005/06, and in the laboratory of informatics, AYs 2000/01 and 2001/02 (~3,000€)
- Bursary of the "Erasmus Project", AY 2002/03 (2,420€)

## Other fundings

- OWLED-12 Student travel grant (280£)
- AISB Student travel grant (150£)
- ISWC-11 Student travel grant (500€)
- IJCAI-11 Volunteering (Free registration worth 330€)
- DL-11 Student travel grant (400€)
- DL-10 Student travel grant (320 Canadian dollars)

## Teaching Experience

**Demonstrations** Assistance to the students in the solution of exercises of several courses, including:

- “Fundamentals of Computation” (AYs 2009/10 to 2011/12 at UoM)
- “Mathematical Techniques for Computer Science” (AYs 2009/10 to 2011/12 at UoM)
- “Ontology engineering for the Semantic Web” (AY 2011/12 at UoM)
- “Semi-structured data and the web” (AY 2011/12 at UoM)
- “PFB - Preparazione alla prova finale di tipo B” (AY 2005/06 at URM3)
- “AN1 - Analisi numerica 1, fondamentali” (AY 2004/05 at URM3)
- “GE1 - Geometria 1, algebra lineare” (AY 2001/02 at URM3)
- “ICA - Introduzione al calcolo” (AY 2001/02 at URM3)

**Teaching Assistance** Assistance for the course “GE2 Geometria euclidea e proiettiva” AY 2007/08 for the Undergraduate degree in Mathematics

## Roles in Scientific Committees

- WoMO, member of the Steering Committee since October 2013
- KESW-13, member of the program committee
- WoMO-13, program chair

## Other Skills

### Technical Skills

- Good knowledge of OWL and Protégé 4
- Basic knowledge of Java, HTML, C
- Good knowledge of LaTeX

**Languages** Self-assessment in the Common European Framework (CEF) Reference level

- Italian: Mother tongue
- English: Advanced user
- German: Independent user
- French: Basic user

## References

Available upon request

## Publications (peer reviewed) (citations according to Google Scholar; overall 91)

### PhD Thesis

- [1] Chiara Del Vescovo. The Modular Structure of an Ontology: Atomic Decomposition and its Applications. PhD thesis. The University of Manchester, 2013.

### Conference Papers

- [2] Chiara Del Vescovo, Pavel Klinov, Bijan Parsia, Uli Sattler, Thomas Schneider, and Dmitry Tsarkov. Empirical Study of Logic-Based Modules: Cheap Is Cheerful. In *Proc. of ISWC-13*, 2013. (2)
- [3] Chiara Del Vescovo, Damian Gessler, Pavel Klinov, Bijan Parsia, Uli Sattler, Thomas Schneider, and Andrew Winget. Decomposition and modular structure of BioPortal ontologies. In *Proc. of ISWC-11*, 2011. (16)
- [4] Chiara Del Vescovo, Bijan Parsia, and Uli Sattler. Topicality in logic-based ontologies. In *Proc. of ICCS-11*, 2011. (4)
- [5] Chiara Del Vescovo, Bijan Parsia, Uli Sattler, and Thomas Schneider. The modular structure of an ontology: Atomic Decomposition. In *Proc. of IJCAI-11*, 2011. (24)
- [6] Cristina Giannone, Roberto Basili, Chiara Del Vescovo, Alessandro Moschitti, and Paolo Naggar. Kernel-based learning for domain-specific relation extraction. In *Proc. of AI\*IA-09*, 2009.

### Workshop Papers

- [7] Chiara Del Vescovo, Pavel Klinov, Bijan Parsia, Uli Sattler, Thomas Schneider, and Dmitry Tsarkov. Empirical Study of Logic-Based Modules: Cheap Is Cheerful. In *Proc. of DL-13*, 2013.
- [8] Dmitry Tsarkov, Chiara Del Vescovo, and Ignazio Palmisano. Instrumenting the Atomic Decomposition: software APIs for OWL. In *Proc. of OWLED-13*, 2013.
- [9] Chiara Del Vescovo, Bijan Parsia, and Uli Sattler. Logical Relevance in Ontologies. In *Proc. of DL-12*, 2012. (2)
- [10] Chiara Del Vescovo, Pavel Klinov, Bijan Parsia, Uli Sattler, Thomas Schneider, and Dmitry Tsarkov. Syntactic vs. Semantic Locality: How Good is a Cheap Approximation? In *Proc. of WoMO-12*, 2012. (4)
- [11] Pavel Klinov, Chiara Del Vescovo, and Thomas Schneider. Incrementally updateable and Persistent Decomposition of OWL Ontologies. In *Proc. OWLED-12*, 2012. (3)
- [12] Chiara Del Vescovo, Bijan Parsia, Uli Sattler, and Thomas Schneider. The modular structure of an ontology: Atomic Decomposition and Module Count. In *Proc. of WoMO-11*, 2011. (10+3)
- [13] Chiara Del Vescovo. The Modular Structure of an Ontology: Atomic Decomposition towards Applications. In *Proc. of DL-11*, 2011. (4)
- [14] Chiara Del Vescovo, Bijan Parsia, Uli Sattler, and Thomas Schneider. The modular structure of an ontology: an empirical study. In *Proc. of WoMO-10*, 2010.
- [15] Chiara Del Vescovo, Bijan Parsia, Uli Sattler, and Thomas Schneider. The modular structure of an ontology: an empirical study. In *Proc. of DL-10*, 2010. (17)
- [16] Cristina Giannone, Roberto Basili, Chiara Del Vescovo, Paolo Naggar, and Alessandro Moschitti. Kernel-based relation extraction from investigative data. In *Proc. of WANUTD-09*, 2009. (2)

### Demo Papers

- [17] Chiara Del Vescovo, Pavel Klinov, Bijan Parsia, Uli Sattler, and Thomas Schneider. DeMoSt: a tool for exploring the decomposition and the modular structure of OWL ontologies. Presented at ISWC-11.

# Presentations

## Invited Seminars

- “The Modular Structure of an Ontology: Atomic Decomposition and its Applications”, Dresden, 1st October 2013
- (TBA) Bremen, November 2013

## Talks at Conferences and Workshops

- The 12th International Semantic Web Conference (ISWC-13), held in Sydney, Australia, 21-25 October 2013.
- The 26th International Workshop in Description Logics (DL-2013), held in Ulm, Germany, 22-26 July 2013
- The 10th International Semantic Web Conference (ISWC-11), held in Bonn, Germany, 23-27 October 2011
- The 19th International Conference on Conceptual Structures (ICCS-11), held in Derby, United Kingdom, 25-29 July 2011
- The International Joint Conference on Artificial Intelligence (IJCAI-11), held in Barcelona, Catalonia, Spain, 16-22 July 2011
- The 4th International Workshop on Modular Ontologies (WoMO-10), held in Toronto, Canada, 11 May 2010
- The 23rd International Workshop on Description Logics (DL-10), held in Waterloo, Canada, 4-7 May 2010

## Other Talks

- I presented my PhD project at the 28th British Colloquium for Theoretical Computer Science (BCTCS-12), held in Manchester, United Kingdom, 2-5 April 2012
- I presented my paper “Decomposition and Modular Structures of BioPortal ontologies” at the IMG seminar held in Manchester, United Kingdom, 19 October 2011

## Poster & Demo Presentations

- The 13th International Conference on Principles of Knowledge Representation and Reasoning (KR-12), held in Rome, Italy, 10-14 June 2012
- The 25th International Workshop on Description Logics (DL-12), held in Rome, Italy, 7-10 June 2012.
- The 10th International Semantic Web Conference (ISWC-11), held in Bonn, Germany, 23-27 October 2011
- The 24th International Workshop on Description Logics (DL-11), held in Barcelona, Catalonia, Spain, 13-16 July 2011

# Other Experiences

## Conferences & Workshops Attendance

- The 6th International Joint Conference on Automated Reasoning (IJCAR-12), held in Manchester, United Kingdom, 26 June - 1 July 2012
- The 9th Workshop OWL: Experiences and Directions (OWLED-12), held in Heraklion, Greece, 27-28 May 2012
- The 2nd International Workshop on Computational Social Choice (COMSOC-08), held in Liverpool, United Kingdom, 3-5 September 2008

## Schools Attendance

- European Summer School in Logic, Language and Information 2013, held in Düsseldorf, Germany, 5-16 August 2013
- GII Doctoral School on Advances in Databases, held at the University of Calabria, Rende, Italy, September 2009
- Geometric Graphs and Orders, Doc-course held in Berlin, Germany, 25 May - 23 July 2009
- European Summer School in Logic, Language and Information 2008, held in Hamburg, Germany, 4-15 August 2008