

Curriculum Vitæ et Studiorum

Carmine Dodaro

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1 Personal information

First name: Carmine
Last name: Dodaro
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Current position

Senior researcher (ricercatore a tempo determinato di tipo B) at the Department of Mathematics and Computer Science, University of Calabria.

2 Education and training

- January 2015. University of Calabria, Ph.D. in Mathematics and Computer Science.
- April 2013 - October 2013. Visiting researcher at Complex and Adaptive Systems Laboratory (CASL), University College of Dublin.
- February 2012. First Certificate in English (FCE) issued by University of Cambridge attesting the knowledge of the English language to B2 level of the CEFR.
- March 2011 - July 2011. Visiting researcher at Knowledge Based Systems (KBS), TU Wien.
- October 2009 - December 2011. University of Calabria, Master of Science in Computer Science, 110/110 cum laude and honorable mention.
- October 2005 - December 2008. University of Calabria, Bachelor of Science in Computer Science, 108/110.

3 Scholarships and previous positions

Researcher. From 1st January 2017 to 28th February 2019 I was a researcher at the Department of Informatics, Bioengineering, Robotics and Systems Engineering (DIBRIS), University of Genova.

Postdoc. From 1st December 2014 to 31st December 2016 I was postdoc at the Department of Mathematics and Computer Science, University of Calabria.

Ph.D. Scholarship. The scholarship for my Ph.D. was funded by European Social Fund.

4 Awards

Distinguished PC Member IJCAI 2019. Selected as distinguished PC Member of the International Joint Conference on Artificial Intelligence (IJCAI) 2019.

Extended contribution. The paper *Operating Room Scheduling via Answer Set Programming* was selected to be included in a Special Issue of the journal “Intelligenza Artificiale”, selected as one of the best contributions of the XVII International Conference of the Italian Association for Artificial Intelligence (AI*IA 2018). Co-authors: Giuseppe Galatà, Marco Maratea and Ivan Porro.

Extended contribution. The paper *An Advanced Answer Set Programming Encoding for Nurse Scheduling* was selected to be included in a Special Issue of the journal “Intelligenza Artificiale”, selected as one of the best contributions of the XVI International Conference of the Italian Association for Artificial Intelligence (AI*IA 2017). Co-authors: Mario Alviano and Marco Maratea.

Best paper award ICLP 2016. The paper *Anytime answer set optimization via unsatisfiable core shrinking* was awarded as best paper of the International Conference on Logic Programming (ICLP) 2016. Co-author: Mario Alviano.

Award AI*IA Neolaureati. My master thesis was awarded as the best Italian thesis in Artificial Intelligence by “Associazione Italiana per l’Intelligenza Artificiale (AI*IA)”.

Awards for wasp. I am the main developer of wasp, an ASP solver obtaining the first position at the “marathon track” and the second position at the “regular track” of Answer Set Programming Competition 2015.

Second position at ASP Modeling Competition 2015. I was in the team that obtained the second position at the Answer Set Programming Modeling Competition 2015.

First position at ASP Modeling Competition 2014. I was in the team that obtained the first position at the Answer Set Programming Modeling Competition 2014.

5 National and international collaborations

2017–today. Member of the Department of Informatics, Bioengineering, Robotics and Systems Engineering, University of Genova.

2017–today. Collaboration with Matti Järvisalo, HIIT, Department of Computer Science, University of Helsinki.

2016–today. Collaboration with Wolfgang Faber, School of Computing and Engineering University of Huddersfield.

2016–today. Collaboration with Peter Schüller, Faculty of Engineering, Marmara University

2015–today. Collaboration with Kostyantyn Sheketykhin, Intelligent Systems and Business Informatics, Alpen-Adria University.

2013–2015. Collaboration with Joao Marques-Silva, Complex and Adaptive Systems Laboratory (CASL), University College of Dublin.

2012–2016. Member of the Department of Mathematics and Computer Science, University of Calabria.

March–July 2011. Visiting researcher at Knowledge Based Systems (KBS), TU Wien.

6 Talks

Invited talks:

- Alpen-Adria University, Klagenfurt, Austria, 2016. *Efficient Solving Techniques for Answer Set Programming.*
- International Conference of the Italian Association for Artificial Intelligence (AI*IA), 2012. *WASP: A New Model Generator.*

Talks at conferences and workshops:

- International Conference on Logic Programming and Nonmonotonic Reasoning (LPNMR), 2019. *Evaluation of disjunctive programs in WASP.*
- International Conference on Logic Programming and Nonmonotonic Reasoning (LPNMR), 2019. *An ASP-based Framework for the Manipulation of Articulated Objects using Dual-arm Robots.*
- International Conference on Logic Programming and Nonmonotonic Reasoning (LPNMR), 2019. *The ASP Challenge 2019.*
- International Workshop on Answer Set Programming and Other Computing Paradigms (ASPOCP), 2019. *Nurse (Re)scheduling via Answer Set Programming.*
- International Conference on Logic Programming (ICLP), 2018. *Shared aggregate sets in answer set programming.*
- International Conference on Logic Programming (ICLP), 2018. *Cautious reasoning in ASP via minimal models and unsatisfiable cores.*
- International Conference on Logic Programming and Nonmonotonic Reasoning (LPNMR), 2017. *Nurse Scheduling via Answer Set Programming.*
- International Conference on Logic Programming (ICLP), 2016. *Combining Answer Set Programming and domain heuristics for solving hard industrial problems (Application Paper).*
- International Conference of the Italian Association for Artificial Intelligence (AI*IA), 2016. *Answer Set Enumeration via Assumption Literals.*
- International Workshop on Experimental Evaluation of Algorithms for Solving Problems with Combinatorial Explosion (RCRA), 2016. *External Propagators in WASP: Preliminary Report.*
- International Conference on Logic Programming and Nonmonotonic Reasoning (LPNMR), 2015. *Advances in WASP.*
- International Conference on Logic Programming and Nonmonotonic Reasoning (LPNMR), 2015. *Interactive Debugging of Non-ground ASP Programs.*

- International Workshop on Answer Set Programming and Other Computing Paradigms (ASPOCP), 2014. *On the Implementation of Weak Constraints in WASP*.
- International Conference of the Italian Association for Artificial Intelligence (AI*IA), 2013. *Comparing Alternative Solutions for Unfounded Set Propagation in ASP*.
- Doctoral Consortium – International Conference on Logic Programming (ICLP), 2013. *Engineering an Efficient Native ASP Solver*.

7 Committee of conferences and activity as reviewer

I was member of the organization committee of the following workshop:

- Second Doctoral Workshop in Artificial Intelligence (DWAI 2014), workshop of 13th Symposium of the Italian Association for Artificial Intelligence "Artificial Intelligence for Society and Economy" (AI*IA 2014), Pisa, Italia.

I was the chair of the organization committee (with Valeria Fionda) of the following conference:

- 16th European Conference on Logics in Artificial Intelligence (JELIA 2019), Cosenza, Italia.

I was in the program committee of the following conferences:

- AAAI Conference on Artificial Intelligence (AAAI), 2019
- International Joint Conference on Artificial Intelligence (IJCAI), 2019 (Distinguished PC Member Award)
- International Conference of the Italian Association for Artificial Intelligence (AI*IA), 2019
- Knowledge Representation and Reasoning (KRR) track of the Portuguese Conference on Artificial Intelligence (EPIA), 2019
- AAAI Conference on Artificial Intelligence (AAAI), 2018
- AAAI Conference on Artificial Intelligence (AAAI), 2017

- International Joint Conference on Artificial Intelligence (IJCAI), 2016
- European Conference on Artificial Intelligence (ECAI), 2016

I was in the program committee of the following workshops:

- Doctoral Consortium of the International Conference on Logic Programming (ICLP-DC), 2019
- International Workshop on Answer Set Programming and Other Computing Paradigms (ASPOCP), 2019
- R.i.C.e.R.c.A: RCRA Incontri E Confronti, 2018
- International Workshop on Answer Set Programming and Other Computing Paradigms (ASPOCP), 2018
- International Workshop on Experimental Evaluation of Algorithms for Solving Problems with Combinatorial Explosion (RCRA), 2018
- International Workshop on Experimental Evaluation of Algorithms for Solving Problems with Combinatorial Explosion (RCRA), 2017
- International Workshop on Practical Aspects of Answer Set Programming (PAoASP), 2017
- International Workshop on Experimental Evaluation of Algorithms for Solving Problems with Combinatorial Explosion (RCRA), 2016

I was a reviewer for the following journals/conferences/workshops:

- Künstliche Intelligenz, German Journal on Artificial Intelligence
- Special issue of the Fundamenta Informaticae journal 2015, 2019
- Theory and Practice of Logic Programming
- IJCAI 2018, ICLP 2018, KR 2018, LPNMR 2017, IJCAI 2017, ICLP 2017, KR 2016, AAAI 2016, SAT 2016, ASPOCP 2015, ICLP/TPLP 2015, IJCAI 2015, RCRA 2015, AAAI 2014, JELIA 2014, RCRA 2012

8 Teaching activities

I am, or I was, instructor for the following courses:

- Informatica per gli umanisti, University of Genova (54 out of 54 hours), 2017/2018;
- Interfacce grafiche e programmazione ad eventi, University of Calabria (88 out of 88 hours), 2018/2019;
- Efficient ASP Techniques for Solving Hard Problems, course for Ph.D. students, University of Calabria (8 hours), 2017/2018;
- Languages and Solving Techniques for Knowledge Representation and Reasoning, course for Ph.D. students, University of Genova (20 hours), 2017/2018;

I was professor on contract for the following courses:

- Enterprise applications, University of Calabria (24 out of 48 hours), 2015/2016;
- Object Oriented Programming, University of Calabria (36 out of 96 hours), 2015/2016;
- Enterprise applications, University of Calabria (24 out of 48 hours), 2014/2015;
- Object Oriented Programming, University of Calabria (24 out of 96 hours), 2014/2015;
- Object Oriented Programming, University of Calabria (48 out of 96 hours), 2013/2014;
- Object Oriented Programming, University of Calabria (48 out of 96 hours), 2011/2012;
- Course at the company “DLVsystem”, 2015/2016;
- Module A.2, “Tecniche avanzate per lo sviluppo di applicazioni Java” for the project BA2KnowTraining, 2014/2015;
- E-safety at schools, Piano Nazionale Scuola Digitale (PNSD).

9 Ph. D.

- Member of the Ph.D. board of Computer Science and Systems Engineering, University of Genova - DOT1311744.
- Supervisor (with Mario Alviano) of Arnel Zamayla, Ph.D. student at University of Calabria.
- Teacher of the course *Efficient ASP Techniques for Solving Hard Problems*, University of Calabria (8 hours), 2017/2018.
- Teacher of the course *Languages and Solving Techniques for Knowledge Representation and Reasoning*, University of Genova (20 hours), 2017/2018.

10 Projects

I have been/am involved in the following projects:

- (PI) Grant FFABR, “Fondo per il finanziamento delle attività base di ricerca”, comma 295 della Legge di Bilancio 2017 (Legge 232/2016).
- (Participant) Cloud for Europe pre-commercial procurement (PCP) project co-founded by EU Commission under Framework Programme for Research and Innovation (FP7), grant agreement no. 610650 (through AgID, Agenzia per l’Italia Digitale): Phase I ”Solution design” (Lots 2 and 3) and Phase 2 ”Prototype development” (Lot 3).
- (Participant) GESTEC - TecnoloGie orientatE ai Servizi per lo sviluppo e per l’inTEgrazione di piattaforme ICT. SIIT Research project, Phase 2.
- (Participant) DM62617 “Rete Integrata Mediterranea e Accesso a dati e prodotti” (RIMA), funded by MIUR and Distretto Ligure delle Tecnologie Marine.

11 Publications

11.1 Journals

- J1. Dodaro C., Galatà G., Maratea M., Porro I.: *An ASP-based Framework for Operating Room Scheduling*. *Intelligenza Artificiale*. IOS Press, volume to appear.

- J2. Alviano M., Dodaro C.: *Model Enumeration via Assumption Literals*. Fundamenta Informaticae. IOS Press, 167(1-2): 31-58, 2019.
- J3. Dodaro C., Ricca F.: *The External Interface for Extending WASP*. Theory and Practice of Logic Programming. Cambridge University Press, volume to appear.
- J4. Calimeri F., Dodaro C., Fuscà D., Perri S., Zangari J.: *Efficiently Coupling the I-DLV Grounder with ASP Solvers*. Theory and Practice of Logic Programming. Cambridge University Press, volume to appear.
- J5. Dodaro C., Gasteiger P., Reale K., Ricca F., Shchekotykhin K.: *Debugging Non-Ground ASP Programs: Technique and Graphical Tools*. Theory and Practice of Logic Programming. Cambridge University Press, 19(2): 290-316, 2019.
- J6. Alviano M., Dodaro C., Maratea M.: *Nurse (Re)scheduling Via Answer Set Programming*. Intelligenza Artificiale. IOS Press, 12(2): 109-124, 2018.
- J7. Alviano M., Dodaro C., Maratea M.: *Shared aggregate sets in answer set programming*. Theory and Practice of Logic Programming. Cambridge University Press, 18(3-4): 301-318, 2018.
- J8. Alviano M., Dodaro C., Järvisalo M., Maratea M., Previti A.: *Cautious reasoning in ASP via minimal models and unsatisfiable cores*. Theory and Practice of Logic Programming. Cambridge University Press, 18(3-4): 319-336, 2018.
- J9. Adrian W. T., Alviano M., Calimeri F., Cuteri B., Dodaro C., Faber W., Fuscà D., Leone N., Manna M., Perri S., Ricca F., Veltri P., Zangari J.: *The ASP System DLV: Advancements and Applications*. Künstliche Intelligenz. Springer, 32(2-3): 177-179, 2018.
- J10. Cuteri B., Dodaro C., Ricca F., Schüller P.: *Constraints, lazy constraints, or propagators in ASP solving: An empirical analysis*. Theory and Practice of Logic Programming. Cambridge University Press, 17(5-6): 780-799, 2017.
- J11. Alviano M., Dodaro C.: *Anytime answer set optimization via unsatisfiable core shrinking**. Theory and Practice of Logic Programming. Cambridge University Press, 16(5-6): 533-551, 2016.

- J12. Dodaro C., Gasteiger P., Leone N., Musitsch B., Ricca F., Schekotihin K.: *Combining Answer Set Programming and domain heuristics for solving hard industrial problems (Application Paper)*. Theory and Practice of Logic Programming. Cambridge University Press, 16(5-6): 653-669, 2016.
- J13. Alviano M., Dodaro, C., Marques-Silva. J., and Ricca, F.: *Optimal Stable Model Search: Algorithms and Implementation*. Journal of Logic and Computation. Oxford University Press, volume to appear.
- J14. Alviano M., Dodaro C., Ricca F.: *Anytime Computation of Cautious Consequences in Answer Set Programming*. Theory and Practice of Logic Programming. Cambridge University Press, 14(4-5): 755-770, 2014.

11.2 Conferences

- C1. Amendola G., Dodaro C., Faber W., Pulina L., Ricca F.: *Algorithm Selection for Paracoherent Answer Set Computation*. In Calimeri F., Leone N., and Manna M. editors. Proceedings of the European Conference on Logics in Artificial Intelligence (JELIA), 2019.
- C2. Bertolucci R., Capitanelli A., Dodaro C., Leone N., Maratea M., Mastrogianni F., Vallati M.: *An ASP-Based Framework for the Manipulation of Articulated Objects Using Dual-Arm Robots*. In Balduccini M., Lierler Y., and Woltran S. editors. Proceedings of the International Conference on Logic Programming and Nonmonotonic Reasoning (LPNMR), 2019.
- C3. Alviano M., Amendola G., Dodaro C., Leone N., Maratea M., Ricca F.: *Evaluation of Disjunctive Programs in WASP*. In Balduccini M., Lierler Y., and Woltran S. editors. Proceedings of the International Conference on Logic Programming and Nonmonotonic Reasoning (LPNMR), 2019.
- C4. Amendola G., Dodaro C., Faber W., Ricca F.: *Externally supported models for efficient computation of paracoherent answer sets*. In Zilberstein S. editor. Proceedings of the AAI Conference on Artificial Intelligence (AAAI), 2018.
- C5. Dodaro C., Galatà G., Maratea M., Porro I.: *Operating Room Scheduling via Answer Set Programming*. In Ghidini C., Magnini B., Passerini A. and Traverso P. editors. Proceedings of the International Conference of the Italian Association for Artificial Intelligence (AI*IA), 2018.

- C6. Saikko P., Dodaro C., Alviano M., Järvisalo M.: *A Hybrid Approach to Optimization in Answer Set Programming*. In Thielscher M., Toni F. and Wolter F. editors. Proceedings of the International Conference on Principles of Knowledge Representation and Reasoning (KR), 2018.
- C7. Alviano M., Dodaro C.: *Unsatisfiable Core Shrinking for Anytime Answer Set Optimization*. In Sierra C. editor. Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI), 2017.
- C8. Amendola G., Dodaro C., Faber W., Leone N., Ricca F.: *On the Computation of Paracoherent Answer Sets*. In Singh S. P. and Markovitch S. editors. Proceedings of the AAAI Conference on Artificial Intelligence (AAAI), 2017.
- C9. Alviano M., Dodaro C., Maratea M.: *An Advanced Answer Set Programming Encoding for Nurse Scheduling*. In Esposito F., Basili R., Ferilli S. and Lisi F. A. editors. Proceedings of the International Conference of the Italian Association for Artificial Intelligence (AI*IA), 2017.
- C10. Dodaro C., Maratea M.: *Nurse Scheduling via Answer Set Programming*. In Balduccini M. and Janhunen T. editors. Proceedings of the International conference on Logic Programming and Nonmonotonic Reasoning (LPNMR), 2017.
- C11. Alviano M., Calimeri F., Dodaro C., Fuscà D., Leone N., Perri S., Ricca F., Veltri P., Zangari J.: *The ASP System DLV2*. In Balduccini M. and Janhunen T. editors. Proceedings of the International conference on Logic Programming and Nonmonotonic Reasoning (LPNMR), 2017.
- C12. Alviano M., Dodaro C.: *Answer Set Enumeration via Assumption Literals*. In Adorni G., Cagnoni S., Gori M. and Maratea M. editors. Proceedings of the International Conference of the Italian Association for Artificial Intelligence (AI*IA), 2016.
- C13. Amendola G., Dodaro C., Leone N., Ricca F.: *On the Application of Answer Set Programming to the Conference Paper Assignment Problem*. In Adorni G., Cagnoni S., Gori M. and Maratea M. editors. Proceedings of the International Conference of the Italian Association for Artificial Intelligence (AI*IA), 2016.
- C14. Alviano M., Dodaro C.: *Completion of Disjunctive Logic Programs*. In Kambhampati S. editor. Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI), 2016.

- C15. Alviano M., Dodaro, C., Ricca, F.: *A MaxSAT Algorithm Using Cardinality Constraints of Bounded Size*. Yang Q. and Wooldridge M. editors. Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI), 2015.
- C16. Dodaro C., Gasteiger P., Musitsch B., Ricca F., Shchekotykhin K.: *Interactive debugging of non-ground ASP programs*. Calimeri F., Ianni G. and Truszczyński M. editors. Proceedings of the International Conference on Logic Programming and Nonmonotonic Reasoning (LPNMR), 2015.
- C17. Alviano M., Dodaro, C., Leone, N., and Ricca, F.: *Advances in WASP*. Calimeri F., Ianni G. and Truszczyński M. editors. Proceedings of the International Conference on Logic Programming and Nonmonotonic Reasoning (LPNMR), 2015.
- C18. Dodaro, C., Leone, N., Nardi, B., Ricca, F.: *Allotment problem in travel industry: A solution based on ASP*. ten Cate B. and Mileo A. editors. Proceedings of the International Conference on Web Reasoning and Rule Systems (RR), 2015.
- C19. Morgado A., Dodaro C., and Marques-Silva J.: *Core-Guided MaxSAT with Soft Cardinality Constraints*. O’Sullivan B. editor. Proceedings of the International Conference on Principles and Practice of Constraint Programming (CP), 2014.
- C20. Alviano, M., Dodaro, C., Faber, W., Leone, N., Ricca, F.: *WASP A Native ASP Solver Based on Constraint Learning*. Cabalar P. and Son T.C. editors. Proceedings of the International Conference on Logic Programming and Nonmonotonic Reasoning (LPNMR), 2013.
- C21. Alviano, M., Calimeri, F., Charwat, G., Dao-Tran, M., Dodaro, C., Ianni, G., Krennwallner, T., Kronegger, M., Oetsch, J., Pfandler, A., Pührer, J., Redl C., Ricca, F., Schneider, P., Schwengerer, M., Spendier, L.K., Wallner, J.P., Xiao, G.: *The Fourth Answer Set Programming Competition: Preliminary Report*. Cabalar P. and Son T.C. editors. Proceedings of the International Conference on Logic Programming and Nonmonotonic Reasoning (LPNMR), 2013.
- C22. Alviano M., Dodaro, C., Ricca, F.: *Comparing Alternative Solutions for Unfounded Set Propagation in ASP*. In Baldoni M., Baroglio C., Boella G. and Micalizio R. editors. Proceedings of the International Conference of the Italian Association for Artificial Intelligence (AI*IA), 2013.

- C23. Dodaro, C., Alviano, M., Faber, W., Leone, N., Ricca, F., and Sirianni, M.: *The Birth of a WASP: Preliminary Report on a New ASP Solver*. In Fioravanti F. editor. Proceedings of the Italian Conference on Computational Logic (CILC) 2011.

11.3 Workshops

- W1. Dodaro C., Ricca F., Schüller P.: *External Propagators in WASP: Preliminary Report*. Bistarelli S., Formisano A., Maratea M. editors. Proceedings of the International Workshop on Experimental Evaluation of Algorithms for Solving Problems with Combinatorial Explosion (RCRA), 2016.
- W2. Amendola G., Dodaro C., Ricca F.: *ASPQ: An ASP-Based 2QBF Solver*. In Lonsing F. and Seidl M. editors. Proceedings of the International Workshop on Quantified Boolean Formulas (QBF 2016) co-located with the International Conference on Theory and Applications of Satisfiability Testing (SAT 2016) (QBF@SAT), 2016.
- W3. M. Alviano, C. Dodaro, F. Ricca: *JWASP: A New Java-Based ASP Solver*. In: Stefano Bistarelli and Andrea Formisano and Marco Maratea, editors. Proceedings of the 22nd International Workshop on Experimental Evaluation of Algorithms for Solving Problems with Combinatorial Explosion (RCRA), 2015.
- W4. Alviano M., Dodaro, C., Ricca, F.: *Reduct-based Stability Check Using Literal Assumptions*. In: Daniela Inclezan and Marco Maratea, editors. Proceedings of the 8th International Workshop on Answer Set Programming and Other Computing Paradigms (ASPOCP), 2015.
- W5. Alviano M., Dodaro, C., Ricca, F.: *Preliminary Report on WASP 2.0*. In: Sébastien Konieczny and Hans Tompits, editors, Proceedings of the International Workshop on Non-Monotonic Reasoning (NMR), 2014.
- W6. Alviano M., Dodaro, C., Marques-Silva, J., Ricca, F.: *On the Implementation of Weak Constraints in WASP*. In: Daniela Inclezan and Marco Maratea, editors. Proceedings of the 7th International Workshop on Answer Set Programming and Other Computing Paradigms (ASPOCP), 2014.
- W7. Dodaro, C.: *Engineering An Efficient Native ASP Solver*. In: Theory and Practice of Logic Programming Online Supplement. Volume 13 (4-5), July 2013.