

Short CV of Enrico Malizia PhD

(April 2023)

PERSONAL INFORMATION

Family name, First name: *Malizia, Enrico*

Researcher unique identifiers: *ORCID: 0000-0002-6780-4711; Scopus Author ID: 36551220000*

DBLP page: <https://dblp.uni-trier.de/pid/01/4274.html>

Google Scholar page: <https://scholar.google.com/citations?user=bWxAXwYAAAAJ>

Current Position: Senior Lecturer/Assistant Professor, DISI, University of Bologna, Italy.

Research Interests: Artificial intelligence, knowledge representation and reasoning, computational logic, logic programming, computational game theory and social choice, computational complexity, theoretical computer science, and algorithms on (hyper)graphs.

EDUCATION

Nov. 2006 – Jan. 2010	“Dottorato di Ricerca” degree (PhD) in Computer and Systems Engineering, University of Calabria, Italy.
Oct. 2003 – Apr. 2006	“Laurea Specialistica” degree, <i>Summa cum Laude</i> , (Two-year MSc, first class honours) in Computer Engineering, University of Calabria, Italy.
Oct. 2000 – Sep. 2003	“Laurea” degree, <i>Summa cum Laude</i> , (Three-year BSc, first class honours) in Computer Engineering, University of Calabria, Italy.

ACADEMIC POSITIONS

Jan. 2021 – current	Senior Lecturer/Assistant Professor, DISI, University of Bologna, Italy.
Feb. 2020 – Dec. 2020	Lecturer/Assistant Professor, Dept. of Informatics, King’s College London, UK.
Oct. 2017 – Jan. 2020	Lecturer/Assistant Professor, Dept. of Computer Science, University of Exeter, UK.
Nov. 2014 – Sep. 2017	Post-doc Research Assistant, Dept. of Computer Science, University of Oxford, UK.
Jun. 2012 – Nov. 2014	Post-doc Visiting Scientist, Dept. of Computer Science, University of Oxford, UK.
Sep. 2011 – Dec. 2013	Fellowship for a Post-doctoral position, DIMES, University of Calabria, Italy.
Nov. 2009 – Aug. 2011	Post-doc Research Assistant, DIMES, University of Calabria, Italy.
Nov. 2006 – Nov. 2009	PhD Student, DIMES, University of Calabria, Italy.
May 2006 – Dec. 2006	Research Assistant, DIMES, University of Calabria, Italy.

ACADEMIC AND PROFESSIONAL HABILITATIONS AND RECOGNITIONS

- Habilitation as Associate Professor in Italy for the area 09/H1 – Information processing systems, Feb. 2022
- Habilitation as Associate Professor in Italy for the area 01/B1 – Informatics, Jan. 2020
- Fellowship of the Higher Education Academy (FHEA), UK, Jan. 2020
- Habilitation as Lecturer/Assistant Professor in Catalonia, Spain, Mar. 2018
- Chartered Engineer in Italy for the area Information Technology, 2006

TEACHING EXPERIENCE

Teaching at the University of Calabria, Italy

Teaching assistant for the following courses and academic years:

- *Theoretical Computer Science*, undergraduate & graduate course, 2006 – 2012.
- *Artificial Intelligence*, graduate course, 2006 – 2012.
- *Formal Languages and Compilers*, undergraduate course, 2010 – 2011.
- *Computability and Complexity*, undergraduate course, 2006 – 2010.
- *Computer Architectures*, post-graduate course, 2006 – 2007.

Teaching at the University of Oxford, UK

Teaching assistant for the following course and academic year:

- *Theory of data and knowledge bases*, undergraduate, graduate, & PhD, course, 2015 – 2016.

Teaching at the University of Exeter, UK

Lecturer/Module leader for the following courses and academic years:

- *Computer Languages and Representations*, undergraduate course, 2017 – 2020 (module leader, 2019 – 2020; taught two third of the module, in particular, the parts on logic programming and Prolog, formal languages and finite-state automata, 2017 – 2019).
- *Computability and Complexity*, undergraduate course, 2018 – 2020 (module leader).
- *Logic, Ontologies and Knowledge Representation*, graduate course, 2018 – 2019 (module leader).
- Supervised 5 BSc and 2 MSc dissertations.

Teaching at King's College London, UK

Lecturer for the following courses and academic years:

- *Elementary Logic with Applications*, undergraduate course, 2020 – 2021 (taught the second half of the module, in particular, the parts on first-order logic and introduction to logic programming).
- Coordinator for the final project module for all the Computer Science-related MSc programmes (i.e., Advanced Computing, Advanced Software Engineering, Artificial Intelligence, Cybersecurity, Computational Finance, Data Science) of the Department of Informatics
- Supervised 5 BSc dissertations.

Teaching at the University of Bologna, Italy

Module leader for the following courses and academic years:

- *Algorithms and Data Structure in Biology* (taught in English), undergraduate course, 2020 – 2023.

RESEARCH FUNDING

Sep. 2011 – Dec. 2013 | Fellowship for a post-doctoral position awarded to my research proposal “Computational complexity of solution concepts related problems in compact coalitional games”, funded by the European Commission and the Calabria Region (Italy).
My research proposal was ranked in the top 10% proposals among all participants.

SCHOLARSHIPS

- Half tuition remission for the entire MSc and BSc programmes in Computer Engineering at the University of Calabria, Italy, awarded based on merit by this institution. *This was the only scholarship based solely on merit awarded by the institution at that time.*

AWARDS

- My paper “Hard and Easy k-Typed Compact Coalitional Games: The Knowledge of Player Types Marks the Boundary” received a nomination for the Best Paper Award at ECAI 2012.
- IJCAI Travel grant, awarded by IJCAI, to participate to the conference IJCAI 2009.

SERVICE EXPERIENCE

Examiner roles

- Committee member for a PhD Final Exam (Sep. 2021, University of Calabria, Italy)
- Committee chair for a PhD Upgrade Exam (Oct. 2020, King's College London, UK)

Editorial/reviewer roles

- Served, or serving, as programme committee member for:
 - Member of the IJCAI Program Committee Board for the period 2022-2024
 - Senior PC member: IJCAI 2021, 2020; AAAI 2022, 2021
 - PC member: KR 2020; IJCAI 2019, 2018, 2017, 2016, 2015.
- Served, or serving, as reviewer in various conferences and workshops:
 - IJCAI 2023, 2022, 2021, 2020, 2019, 2018, 2017, 2016, 2015, 2009
 - AAAI 2022, 2021, 2011, 2007
 - PODS 2021
 - KR 2020
 - ICALP 2014
 - MFCS 2013
 - ECAI 2012
 - AAMAS 2012, 2008
 - IAT 2013, 2010, 2008, 2007, 2006
 - DL 2007
- Served, or serving, as reviewer for journals: Artificial Intelligence, Theoretical Computer Science, European Journal of Operational Research, Journal of Systems and Software, and Journal of Logics and their Applications.
- Guest editor of the special issue on “Reasoning with Inconsistent, Incomplete, and Uncertain Knowledge” of the journal *IEEE Intelligent Systems* (Volume: 37; Issue: 6).

OTHER SCIENTIFIC ACTIVITIES

Seminars and presentations

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| Aug. 2019 | “The Hypergraph Transversal Problem”, invited talk at Samsung AI Center, Cambridge, UK. |
| Oct. 2018 | “Combinatorial Preference Aggregation via Global Voting over (m) CP-nets”, invited talk at the Department of Computer Science of the University of Oxford, UK. |
| Jul. 2018 | “More complexity results about reasoning over (m) CP-nets”, talk at the 17th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2018), Stockholm, Sweden. |
| Mar. 2018 | Short course “Game Theory for Multi-Agent System” for the PhD Programme in “Information and Communication Technologies” at DIMES, University of Calabria, Italy. The course was comprised of four lectures on the following topics: “Introduction to Game Theory and Strategic Games”, “Extensive Games”, “Coalitional Games”, and “Social Choice”. |
| Feb. 2016 | “On the complexity of m CP-Nets”, talk at the 30th AAAI Conference on Artificial Intelligence (AAAI-16), Phoenix, Arizona, USA. |
| Aug. 2012 | “Hard and easy k -typed compact coalitional games: The knowledge of player types marks the boundary”, talk at the 20th European Conference on Artificial Intelligence (ECAI 2012), Montpellier, France. |
| Jul. 2011 | “On the complexity of the core over coalition structures”, poster presentation at the 22nd International Joint Conference on Artificial Intelligence (IJCAI-11), Barcelona, Spain. |
| Jul. 2009 | “On the complexity of compact coalitional games”, talk at the 21st International Joint Conference on Artificial Intelligence (IJCAI-09), Pasadena, California, USA. |
| May 2009 | “Constrained coalitional games: formal framework, properties, and complexity results”, poster presentation, at the 8th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2009), Budapest, Hungary. |

PUBLICATIONS

Articles published in scientific journals

- [1] T. Lukasiewicz and E. Malizia. “On the Complexity of Preference Aggregation over (m) CP-nets: Max and Rank Voting”. In: *Artificial Intelligence* 303 (2022), art. no. 103636, 34 pages. DOI: 10.1016/j.artint.2021.103636.
- [2] T. Lukasiewicz, E. Malizia, M. V. Martinez, C. Molinaro, A. Pieris, and G. I. Simari. “Inconsistency-tolerant Query Answering for Existential Rules”. In: *Artificial Intelligence* 307 (2022), art. no. 103685, 39 pages. DOI: 10.1016/j.artint.2022.103685.
- [3] E. Malizia, C. Molinaro, and F. Parisi. “Guest Editorial: Reasoning With Inconsistent, Incomplete, and Uncertain Knowledge”. In: *IEEE Intelligent Systems* 37.6 (2022), pp. 13–17. DOI: 10.1109/MIS.2022.3218913.
- [4] T. Lukasiewicz and E. Malizia. “On the Complexity of Preference Aggregation over (m) CP-nets: Pareto and Majority voting”. In: *Artificial Intelligence* 272 (2019), pp. 101–142. DOI: 10.1016/j.artint.2018.12.010.
- [5] Y. Bachrach, E. Elkind, E. Malizia, R. Meir, D. Pasechnik, J. S. Rosenschein, J. Rothe, and M. Zuckerman. “Bounds on the Cost of Stabilizing a Cooperative Game”. In: *Journal of Artificial Intelligence Research* 63 (2018), pp. 987–1023. DOI: 10.1613/jair.1.11270.
- [6] G. Gottlob and E. Malizia. “Achieving New Upper Bounds for the Hypergraph Duality Problem through Logic”. In: *SIAM Journal on Computing* 47.2 (2018), pp. 456–492. DOI: 10.1137/15M1027267.
- [7] T. Lukasiewicz and E. Malizia. “A Novel Characterization of the Complexity Class Θ_k^P Based on Counting and Comparison”. In: *Theoretical Computer Science* 694 (2017), pp. 21–33. DOI: 10.1016/j.tcs.2017.06.023.
- [8] G. Greco, E. Malizia, L. Palopoli, and F. Scarcello. “The Complexity of the Nucleolus in Compact Games”. In: *ACM Transactions on Computation Theory* 7.1 (2014), 3:1–3:52. DOI: 10.1145/2692372.2692374.
- [9] G. Greco, E. Malizia, L. Palopoli, and F. Scarcello. “On the complexity of core, kernel, and bargaining set”. In: *Artificial Intelligence* 175.12–13 (2011), pp. 1877–1910. DOI: 10.1016/j.artint.2011.06.002.
- [10] G. Greco, E. Malizia, L. Palopoli, and F. Scarcello. “Non-Transferable Utility Coalitional Games via Mixed-Integer Linear Constraints”. In: *Journal of Artificial Intelligence Research* 38 (2010), pp. 633–685. DOI: 10.1613/jair.3060.

Articles published in proceedings of international conferences

- [11] T. Lukasiewicz, E. Malizia, and C. Molinaro. “Explanations for Negative Query Answers under Inconsistency-Tolerant Semantics”. In: *Proceedings of the 31th International Joint Conference on Artificial Intelligence (IJCAI-22)*. 2022, pp. 2705–2711. DOI: 10.24963/ijcai.2022/375.
- [12] Ī. Ī. Ceylan, T. Lukasiewicz, E. Malizia, C. Molinaro, and A. Vaicenačius. “Preferred Explanations for Ontology-Mediated Queries under Existential Rules”. In: *Proceedings of the 35th AAAI Conference on Artificial Intelligence (AAAI-21)*. 2021, pp. 6262–6270. DOI: 10.1609/aaai.v35i7.16778.
- [13] E. Tsamoura, D. Carral, E. Malizia, and J. Urbani. “Materializing Knowledge Bases via Trigger Graphs”. In: *Proceedings of the 47th International Conference on Very Large Data Bases (VLDB 2021)*. 2021, pp. 943–956. URL: <http://www.vldb.org/pvldb/vol114/p943-tsamoura.pdf>.
- [14] Ī. Ī. Ceylan, T. Lukasiewicz, E. Malizia, C. Molinaro, and A. Vaicenačius. “Explanations for Negative Query Answers under Existential Rules”. In: *Proceedings of the 17th International Conference on Principles of Knowledge Representation and Reasoning (KR 2020)*. 2020, pp. 223–232. DOI: 10.24963/kr.2020/23.
- [15] Ī. Ī. Ceylan, T. Lukasiewicz, E. Malizia, and A. Vaicenačius. “Explanations for Ontology-Mediated Query Answering in Description Logics”. In: *Proceedings of the 24th European Conference on Artificial Intelligence (ECAI 2020)*. 2020, pp. 672–679. DOI: 10.3233/FAIA200153.
- [16] T. Lukasiewicz, E. Malizia, and C. Molinaro. “Explanations for Inconsistency-Tolerant Query Answering under Existential Rules”. In: *Proceedings of the 34th AAAI Conference on Artificial Intelligence (AAAI-20)*. 2020, pp. 2909–2916. DOI: 10.1609/aaai.v34i03.5682.
- [17] Ī. Ī. Ceylan, T. Lukasiewicz, E. Malizia, and A. Vaicenačius. “Explanations for Query Answers under Existential Rules”. In: *Proceedings of the 28th International Joint Conference on Artificial Intelligence (IJCAI-19)*. 2019, pp. 1639–1646. DOI: 10.24963/ijcai.2019/227.
- [18] T. Lukasiewicz, E. Malizia, and A. Vaicenačius. “Complexity of Cardinality-Maximal Approximate Query Answering under Inconsistency in Datalog+/-”. In: *Proceedings of the 33rd AAAI Conference on Artificial Intelligence (AAAI-19)*. 2019, pp. 2962–2969. DOI: 10.1609/aaai.v33i01.33012962.

- [19] T. Lukasiewicz, E. Malizia, and C. Molinaro. “Complexity of Approximate Query Answering under Inconsistency in Datalog[±]”. In: *Proceedings of the 27th International Joint Conference on Artificial Intelligence (IJCAI-18)*. 2018, pp. 1921–1927. DOI: 10.24963/ijcai.2018/265.
- [20] E. Malizia. “More complexity results about reasoning over (*m*)CP-nets”. In: *Proceedings of the 17th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2018)*. 2018, pp. 1540–1548. URL: <http://ifaamas.org/Proceedings/aamas2018/pdfs/p1540.pdf>.
- [21] T. Lukasiewicz and E. Malizia. “On the Complexity of *m*CP-nets”. In: *Proceedings of the 30th AAAI Conference on Artificial Intelligence (AAAI-16)*. 2016, pp. 558–564. DOI: 10.1609/aaai.v30i1.10039.
- [22] V. Fionda and E. Malizia. “How much navigable is the Web of Linked Data?” In: *Proceedings of the ISWC 2014 Posters & Demonstrations. A track of the 13th International Semantic Web Conference (ISWC 2014)*. 2014, pp. 317–320. URL: http://ceur-ws.org/Vol-1272/paper_68.pdf.
- [23] G. Gottlob and E. Malizia. “Achieving New Upper Bounds for the Hypergraph Duality Problem through Logic”. In: *Proceedings of the Joint Meeting of the 23rd EACSL Annual Conference on Computer Science Logic (CSL) and the 29th Annual ACM/IEEE Symposium on Logic in Computer Science (LICS) (CSL-LICS 2014)*. 2014, art. no. 43, 10 pages. DOI: 10.1145/2603088.2603103.
- [24] G. Greco, E. Malizia, F. Scarcello, and L. Palopoli. “Hard and Easy *k*-Typed Compact Coalitional Games: The Knowledge of Player Types Marks the Boundary”. In: *Proceedings of the 20th European Conference on Artificial Intelligence (ECAI 2012)*. 2012, pp. 372–377. DOI: 10.3233/978-1-61499-098-7-372. **Nominated for the Best Paper Award at ECAI 2012.**
- [25] G. Greco, E. Malizia, L. Palopoli, and F. Scarcello. “On The Complexity of the Core over Coalition Structures”. In: *Proceedings of the 22nd International Joint Conference on Artificial Intelligence (IJCAI-11)*. 2011, pp. 216–221. DOI: 10.5591/978-1-57735-516-8/IJCAI11-047.
- [26] R. Meir, J. S. Rosenschein, and E. Malizia. “Subsidies, Stability, and Restricted Cooperation in Coalitional Games”. In: *Proceedings of the 22nd International Joint Conference on Artificial Intelligence (IJCAI-11)*. 2011, pp. 301–306. DOI: 10.5591/978-1-57735-516-8/IJCAI11-060.
- [27] G. Greco, E. Malizia, L. Palopoli, and F. Scarcello. “Constrained coalitional games: formal framework, properties, and complexity results (Extended Abstract)”. In: *Proceedings of the 8th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2009)*. 2009, pp. 1295–1296. URL: https://www.ifaamas.org/Proceedings/aamas09/pdf/02_Extended_Abstract/D_SP_0223.pdf.
- [28] G. Greco, E. Malizia, L. Palopoli, and F. Scarcello. “On the Complexity of Compact Coalitional Games”. In: *Proceedings of the 21st International Joint Conference on Artificial Intelligence (IJCAI-09)*. 2009, pp. 147–152. URL: <http://www.ijcai.org/papers09/Papers/IJCAI09-035.pdf>.
- [29] E. Malizia, L. Palopoli, and F. Scarcello. “Infeasibility Certificates and the Complexity of the Core in Coalitional Games”. In: *Proceedings of the 20th International Joint Conference on Artificial Intelligence (IJCAI-07)*. 2007, pp. 1402–1407. URL: <http://www.ijcai.org/papers07/Papers/IJCAI07-226.pdf>.

Articles published in proceedings of workshops or national conferences

- [30] İ. İ. Ceylan, T. Lukasiewicz, E. Malizia, and A. Vaicenavičius. “Query Answer Explanations under Existential Rules”. In: *Proceedings of the 30th Italian Symposium on Advanced Database Systems (SEBD 2022)*. 2022, pp. 481–488. URL: <http://ceur-ws.org/Vol-3194/paper56.pdf>.
- [31] T. Lukasiewicz, E. Malizia, and C. Molinaro. “Explanations for Inconsistency-Tolerant Query Answering under Existential Rules”. In: *Proceedings of the 30th Italian Symposium on Advanced Database Systems (SEBD 2022)*. 2022, pp. 489–496. URL: <http://ceur-ws.org/Vol-3194/paper57.pdf>.
- [32] T. Lukasiewicz, E. Malizia, and A. Vaicenavičius. “Complexity of Inconsistency-Tolerant Query Answering in Datalog+/- under Cardinality-Based Repairs”. In: *Proceedings of the 30th Italian Symposium on Advanced Database Systems (SEBD 2022)*. 2022, pp. 530–537. URL: <http://ceur-ws.org/Vol-3194/paper62.pdf>.
- [33] İ. İ. Ceylan, T. Lukasiewicz, E. Malizia, and A. Vaicenavičius. “Explanations for Ontology-Mediated Query Answering in Description Logics (Extended Abstract)”. In: *Proceedings of the 33rd International Workshop on Description Logics (DL 2020)*. 2020. URL: <http://ceur-ws.org/Vol-2663/abstract-10.pdf>.
- [34] İ. İ. Ceylan, T. Lukasiewicz, E. Malizia, and A. Vaicenavičius. “Explanations for Query Answers under Existential Rules (Extended Abstract)”. In: *Proceedings of the Workshop on Explainable Logic-Based Knowledge Representation @ KR 2020 (XLoKR 2020)*. 2020. URL: <https://lat.inf.tu-dresden.de/XLoKR20/XLoKRpaper392.pdf>.

- [35] T. Lukasiewicz, E. Malizia, and C. Molinaro. “Complexity of Approximate Query Answering under Inconsistency in Datalog[±]”. In: *Proceedings of the 26th Italian Symposium on Advanced Database Systems (SEBD 2018)*. 2018. URL: <http://ceur-ws.org/Vol-2161/paper22.pdf>.

(Selected) Technical reports

- [36] E. Tsamoura, D. Carral, E. Malizia, and J. Urbani. *Materializing Knowledge Bases via Trigger Graphs*. Tech. rep. arXiv:2102.02753. Feb. 2021. URL: <https://arxiv.org/abs/2102.02753>. Extended version of [13].
- [37] G. Gottlob and E. Malizia. *Achieving New Upper Bounds for the Hypergraph Duality Problem through Logic*. Tech. rep. arXiv:1407.2912. Nov. 2017. URL: <http://arxiv.org/abs/1407.2912>. Extended version of [6].