

LUCA PULINA

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Academic Profile

Luca Pulina is Full Professor of Computer Science at the University of Sassari and Director of the Artificial Intelligence and formal METHods Laboratory (AIMet Lab). His research lies at the intersection of automated reasoning, knowledge representation, formal methods and artificial intelligence. A recurrent theme of his work is the use of explicit reasoning and verification techniques to make intelligent systems more reliable, inspectable and suitable for decision-critical applications.

His research trajectory spans quantified Boolean formulas and Answer Set Programming, algorithm selection and experimental evaluation of reasoning systems, formal verification of neural networks and learned control policies, requirements engineering for cyber-physical systems, ontology-based data access and semantic technologies. More recent work combines symbolic reasoning, machine learning, digital twins and data-intensive methods for decision support, territorial and environmental monitoring, cultural heritage, tourism, cybersecurity and health data.

Methodologically, the work combines formal modelling, algorithm design, software implementation and systematic experimental evaluation. This has led to decision procedures, verification frameworks, benchmark infrastructures and applied AI platforms, as well as long-term participation in European and national research projects involving academic, industrial and public-sector partners.

Current research areas

- Automated reasoning and computational logic: QBF, ASP, satisfiability and optimisation, algorithm selection, multi-engine reasoning, solver benchmarking.
- Formal methods for AI: verification of neural networks, robustness analysis, verification and repair of learned policies, AI assurance.
- Trustworthy and hybrid AI: integration of symbolic reasoning, machine learning and explicit constraints for interpretable and verifiable intelligent systems.
- Cyber-physical systems: requirements formalisation, consistency checking, automated testing, hybrid planning and dependable intelligent components.
- Knowledge representation and semantic technologies: ontologies, knowledge graphs, ontology-based data access, temporal/spatial reasoning and knowledge extraction.
- Decision intelligence and digital twins: knowledge-driven decision support, scenario analysis, territorial and environmental monitoring, public-sector AI.
- LLMs and data validation: text analytics, tourism review analysis, synthetic-data validation and knowledge-driven cybersecurity reasoning.

Academic Appointments and Education

- 2021–present — Full Professor of Computer Science, University of Sassari (INFO-01/A, Computer Science).
- 2017–2021 — Associate Professor of Computer Science, University of Sassari.
- 2011–2017 — University Researcher, University of Sassari.
- 2009–2011 — Postdoctoral Research Fellow, University of Genoa; research on computational learning methods for cognitive systems in humanoid robots.
- 2008 — Visiting Student, School of Computer Science and Information Systems, Birkbeck, University of London.
- 2009 — PhD in Robotics, University of Genoa.
- 2005 — Laurea degree (five-year degree) in Computer Engineering, University of Genoa.

1. Research Interests

The central scientific interest is the design of intelligent systems whose behaviour can be analysed, explained and, where possible, formally verified. This connects three strands that have characterised the research over time: automated reasoning and decision procedures; formal verification of learned or adaptive components; and knowledge-driven architectures combining data, predictive models and explicit rules.

The work on automated reasoning includes quantified Boolean formulas (QBF), Answer Set Programming (ASP), Boolean and constraint-based optimisation, portfolio and multi-engine solving, adaptive algorithm selection, benchmarking and experimental evaluation. In formal methods, the focus is on neural-network verification, safe reinforcement learning, requirements analysis, cyber-physical systems and automated testing. In knowledge representation, the activity includes ontologies, semantic data integration, OBDA, temporal and spatial reasoning, linked data and digital archives.

Recent work extends these foundations towards trustworthy and hybrid AI: formal or knowledge-based validation of AI components, integration of symbolic and statistical methods, synthetic-data validation, LLM-based text analysis, digital twins, and decision-support systems for industrial, health, territorial, tourism and cultural-heritage applications.

2. Main Scientific Contributions

The following contributions are organised by scientific problem rather than chronologically. For each line of work, the emphasis is on the methodological question, the proposed approach, the resulting systems or experimental evidence, and representative publications. The complete publication list is provided at the end of this CV.

2.1 Formal verification of artificial neural networks

A major line of work concerns the verification of safety and robustness properties of neural networks. With Armando Tacchella, Pulina developed an abstraction-refinement approach in which verification conditions for multilayer perceptrons are reduced to Boolean combinations of linear arithmetic constraints and analysed by automated decision procedures. The abstraction is conservative: proving the property on the abstraction establishes it for the original network, while spurious counterexamples trigger refinement. The approach was presented at CAV 2010 and became the starting point for a sustained line of research on formal verification of learned components.

Subsequent work investigated the use of SMT solvers for neural-network verification, the computational characteristics of the resulting instances, and methods for improving scalability. Later contributions considered pruning during learning, transfer-learning based simplification, reachability analysis, and verification and repair of deeper neural models. This research resulted in the NeVer family of tools, later redesigned as pyNeVer and NeVer2 to integrate learning, property specification, verification and experimental comparison within a common framework.

More recent work has brought these techniques into predictive-maintenance and industrial AI scenarios, including the verification of autoencoders and classifiers used for anomaly detection and vehicle recognition. The broader objective is not merely to test predictive performance, but to attach explicit behavioural guarantees or robustness evidence to models deployed in safety- or reliability-relevant contexts.

Representative publications

- L. Pulina, A. Tacchella, “An Abstraction-Refinement Approach to Verification of Artificial Neural Networks”, CAV 2010, LNCS 6174, pp. 243–257.
- L. Pulina, A. Tacchella, “Challenging SMT Solvers to Verify Neural Networks”, AI Communications, 25(2), pp. 117–135, 2012.
- D. Guidotti, F. Leofante, L. Pulina, A. Tacchella, “Verification of Neural Networks: Enhancing Scalability Through Pruning”, ECAI 2020.
- S. Demarchi, D. Guidotti, L. Pulina, A. Tacchella, “NeVer2: Learning and Verification of Neural Networks”, Soft Computing, 28(19), 2024.

2.2 Adaptive algorithm selection for QBF and Answer Set Programming

Another central contribution concerns automatic algorithm selection and multi-engine solving. The underlying problem is the strong complementarity of reasoning algorithms: a solver that performs well on one family of instances may be ineffective on another. The research therefore treats solver selection as a learning problem in which syntactic and structural features of an instance are used to predict the most suitable solving engine.

For QBF, this led to AQME, an adaptive multi-engine architecture in which classification models guide solver selection and can be updated when observed performance indicates a degradation of the learned policy. The work combined machine learning with automated reasoning well before the current interest in hybrid AI, using data-driven prediction not as a replacement for symbolic reasoning but as a mechanism for orchestrating heterogeneous decision procedures.

The same principle was later transferred to Answer Set Programming with Marco Maratea and Francesco Ricca. The resulting me-asp line included solver selection, policy adaptation and multi-level selection of grounding and solving components. Taken together, these systems provide a general methodology for adaptive reasoning architectures in which explicit decision procedures are selected according to instance characteristics and empirical performance.

Representative publications

- L. Pulina, A. Tacchella, “A Self-Adaptive Multi-Engine Solver for Quantified Boolean Formulas”, *Constraints*, 14(1), pp. 80–116, 2009.
- M. Maratea, L. Pulina, F. Ricca, “A Multi-Engine Approach to Answer-Set Programming”, *Theory and Practice of Logic Programming*, 14(6), pp. 841–868, 2014.
- M. Maratea, L. Pulina, F. Ricca, “Multi-Engine ASP Solving with Policy Adaptation”, *Journal of Logic and Computation*, 25, pp. 1285–1306, 2015.
- M. Maratea, L. Pulina, F. Ricca, “Multi-Level Algorithm Selection for ASP”, *LPNMR* 2015.

2.3 QBF decision procedures, structural properties and experimental evaluation

Research on quantified Boolean formulas also addressed the relation between structural properties and empirical hardness, the integration of alternative inference strategies, and the methodology of solver evaluation. Work on treewidth investigated whether structural indicators could predict difficulty and support preprocessing or solver design. Related studies combined search and deduction and examined the behaviour of different reasoning techniques across benchmark families.

A substantial part of this activity concerned the creation of experimental infrastructure for the QBF community. Through repeated organisation of QBFEVAL and the management of benchmark resources, the work contributed to common evaluation protocols, benchmark selection, certification of solver results, reproducibility and longitudinal analysis of solver progress. The comparative study of QBFEVAL 2016 and 2017, published in *Artificial Intelligence*, examined the state of QBF solving across systems and benchmark classes.

The research later broadened to a systematic survey of QBF applications and to benchmark generation from proof complexity. QBFFam, developed with Olaf Beyersdorff, Martina Seidl and Ankur Shukla, generates scalable QBF families whose expected proof-theoretic difficulty can be compared with the observed performance of solvers.

Representative publications

- L. Pulina, A. Tacchella, “A Structural Approach to Reasoning with Quantified Boolean Formulas”, *IJCAI* 2009.
- L. Pulina, M. Seidl, “The 2016 and 2017 QBF Solvers Evaluations (QBFEVAL’16 and QBFEVAL’17)”, *Artificial Intelligence*, 274, pp. 224–248, 2019.
- A. Shukla, A. Biere, L. Pulina, M. Seidl, “A Survey on Applications of Quantified Boolean Formulas”, *ICTAI* 2019.
- O. Beyersdorff, L. Pulina, M. Seidl, A. K. Shukla, “QBFFam: A Tool for Generating QBF Families from Proof Complexity”, *SAT 2021, LNCS 12831*, pp. 21–29.

2.4 Safe learning and verification of learned control policies

The verification of intelligent systems was extended from static neural models to learned control policies. Early work in robotics explored how learning could be combined with explicit safety constraints in human–robot interaction. Later research used probabilistic model checking to verify policies learned through reinforcement learning and to repair unsafe behaviours when violations were detected.

The methodology was evaluated on robotic tasks including navigation, manipulation and goal reaching in the presence of obstacles. This line of work anticipated a recurring theme of current trustworthy-AI research: learning and adaptation should be accompanied by mechanisms that check, constrain or repair behaviour with respect to explicit safety properties.

Representative publications

- G. Metta, L. Natale, S. Pathak, L. Pulina, A. Tacchella, “Safe and Effective Learning: A Case Study”, *ICRA* 2010.
- S. Pathak, L. Pulina, A. Tacchella, “Evaluating Probabilistic Model Checking Tools for Verification of Robot Control Policies”, *AI Communications*, 29(2), 2016.
- S. Pathak, L. Pulina, A. Tacchella, “Verification and Repair of Control Policies for Safe Reinforcement Learning”, *Applied Intelligence*, 48, pp. 886–908, 2018.

2.5 Formal requirements engineering, automated testing and cyber-physical systems

A further line of research addresses the gap between formal verification techniques and the way requirements are actually expressed in engineering practice. Work with Massimo Narizzano, Armando Tacchella and Simone Vuotto extended Property

Specification Patterns with Boolean and constrained numerical signals, translated them into temporal logic, and developed automated methods for consistency checking and inconsistency explanation.

The same research programme investigated SMT-based consistency checking for configurable components and requirements-based black-box testing of reactive systems. The objective was to use formal methods early in the engineering process, where inconsistent or underspecified requirements can otherwise propagate into costly implementation errors. More recently, ReqH explored the use of large language models as an assistive layer for mapping natural-language requirements into formal specification patterns, while keeping the formal verification step explicit and inspectable.

These methods were developed and evaluated in the context of cyber-physical systems and European industrial research projects, where model-based design, verification, testing and runtime concerns have to coexist with heterogeneous hardware and software components.

Representative publications

- M. Narizzano, L. Pulina, A. Tacchella, S. Vuotto, “Property Specification Patterns at Work: Verification and Inconsistency Explanation”, *Innovations in Systems and Software Engineering*, 15, pp. 307–323, 2019.
- M. Narizzano, L. Pulina, A. Tacchella, S. Vuotto, “Automated Requirements-Based Testing of Black-Box Reactive Systems”, *NFM* 2020.
- L. Pandolfo, L. Pulina, S. Vuotto, “SMT-Based Consistency Checking of Configuration-Based Components Specifications”, *IEEE Access*, 9, pp. 83718–83726, 2021.

2.6 Automated reasoning for optimisation and hybrid planning

Pulina has also applied automated reasoning to optimisation and planning problems. Work on collaborative expert portfolio management combined Bayesian modelling and collaborative filtering to select among heterogeneous experts or algorithms. Research on Disjunctive Temporal Problems with Preferences translated temporal reasoning and preference optimisation into Boolean and SMT-based formulations, with formal correctness results and experimental validation.

In cyber-physical planning, work with Arthur Bit-Monnot and Armando Tacchella connected symbolic planning with continuous numerical optimisation. High-level symbolic plans were refined into continuous trajectories subject to system dynamics and control constraints; when refinement failed, the resulting information was fed back into the symbolic search. The approach was evaluated on hybrid-planning benchmarks and robotic navigation, and subsequently explored in smart-factory settings.

Representative publications

- D. Stern, R. Herbrich, T. Graepel, H. Samulowitz, L. Pulina, A. Tacchella, “Collaborative Expert Portfolio Management”, *AAAI* 2010.
- E. Giunchiglia, M. Maratea, L. Pulina, “Translation-Based Approaches for Solving Disjunctive Temporal Problems with Preferences”, *Constraints*, 23(4), 2018.
- A. Bit-Monnot, L. Pulina, A. Tacchella, “Cyber-Physical Planning: Deliberation for Hybrid Systems with a Continuous Numeric State”, *ICAPS* 2019.

2.7 Knowledge representation, ontology-based data access and semantic integration

The knowledge-representation strand includes ontology modularisation, semantic data integration and ontology-based data access. With Roman Kontchakov, Ulrike Sattler, Thomas Schneider, Frank Wolter, Michael Zakharyashev and collaborators, QBF solving was used in minimal-module extraction for DL-Lite ontologies under different notions of inseparability. This provided a concrete bridge between automated reasoning technology and ontology engineering.

Subsequent work with the Birkbeck group investigated temporal and spatial OBDA. A multidimensional extension of Datalog based on Halpern–Shoham-style temporal operators was developed to query knowledge bases containing temporal and spatial information, with theoretical results connecting certain-answer computation to standard Datalog evaluation and with experimental work on historical data.

Representative publications

- R. Kontchakov, L. Pulina, U. Sattler, T. Schneider, P. Selmer, F. Wolter, M. Zakharyashev, “Minimal Module Extraction from DL-Lite Ontologies Using QBF Solvers”, *IJCAI* 2009.
- R. Kontchakov, L. Pandolfo, L. Pulina, V. Ryzhikov, M. Zakharyashev, “Temporal and Spatial OBDA with Many-Dimensional Halpern-Shoham Logic”, *IJCAI* 2016.

2.8 Semantic technologies, digital archives and cultural heritage

Semantic technologies were further developed in application domains where heterogeneous documentary resources require explicit conceptual modelling. Work with Laura Pandolfo and collaborators addressed ontology design for historical research documents, automatic knowledge extraction and adaptive ontology-based annotation. ADnOTO and related methods were designed to reduce the manual effort needed to populate knowledge bases from unstructured or semi-structured archival material.

A major application was the semantic layer of the Józef Piłsudski Institute of America digital archive. The ARKIVO ontology was used to describe archival resources and publish linked data; the associated ARKIVO Dataset contains roughly 300,000 RDF triples produced with domain-expert involvement and made available as a resource for evaluating extraction and annotation methods.

More recent work extends this approach to intangible cultural heritage. The BISTIRIS ontology models Sardinian traditional female costumes using domain-expert knowledge, automated reasoning, competency questions and validation against real research tasks. This line of activity links knowledge representation to digital humanities and cultural-heritage applications without abandoning explicit semantics and formal validation.

Representative publications

- G. Adorni, M. Maratea, L. Pandolfo, L. Pulina, “An Ontology for Historical Research Documents”, 2015.
- L. Pandolfo, L. Pulina, “Building the Semantic Layer of the Józef Piłsudski Digital Archive With an Ontology-Based Approach”, *International Journal on Semantic Web and Information Systems*, 17(4), 2021.
- G. Corona, D. Guidotti, L. Pandolfo, L. Pulina, “Enhancing Intangible Cultural Heritage Through Ontology: The BISTIRIS Model for Sardinian Traditional Costumes”, *Semantic Web*, 2026.

2.9 Trustworthy machine learning for industrial applications

European projects on Industry 4.0 and intelligent motion control extended the AI-verification programme to industrial predictive maintenance. The research investigated neural and autoencoder-based anomaly detection together with methods for analysing the robustness and verifiability of the underlying models. SMT-based verification was studied for neural networks with different activation functions and for models trained on industrial data.

A complementary contribution was a systematic review of supervised machine-learning techniques for predictive maintenance in Industry 4.0. The study examined 216 publications from 2019–2024, built a taxonomy of methods, analysed their distribution across industrial sectors and investigated the characteristics of the datasets used. The purpose was to connect methodological development with an evidence-based picture of current industrial practice and its open reliability problems.

Representative publications

- D. Guidotti, L. Pandolfo, L. Pulina, “Leveraging Satisfiability Modulo Theory Solvers for Verification of Neural Networks in Predictive Maintenance Applications”, *Information*, 14(7), 2023.
- D. Guidotti, L. Pandolfo, L. Pulina, “Formal Verification of Neural Networks: A ‘Step Zero’ Approach for Vehicle Detection”, *IEA/AIE* 2024.
- D. Guidotti, L. Pandolfo, L. Pulina, “A Systematic Literature Review of Supervised Machine Learning Techniques for Predictive Maintenance in Industry 4.0”, *IEEE Access*, 13, 2025.

2.10 Synthetic-data validation and knowledge-driven security reasoning

Within the Horizon Europe SECURED project, research focused on two complementary aspects of trustworthy data-intensive systems. SynthVal provides a modular framework for evaluating synthetic medical images by extracting semantic representations with transformer-based models and comparing real and synthetic distributions through multiple statistical distances and divergences. The objective is to make synthetic-data evaluation reproducible and less dependent on a single ad-hoc metric.

A second contribution uses explicit knowledge to validate modular software systems against cybersecurity threats and consistency constraints. Ontologies derived from established threat and vulnerability taxonomies are combined with inference rules to identify potential security problems and recommend mitigation strategies. The resulting reasoning process is traceable and can be presented through an interface that exposes the evidence and rules behind each conclusion.

Representative publications

- L. Pandolfo, G. Corona, D. Guidotti, L. Pulina, “A Knowledge-Driven Approach to Threat Validation and Security Reasoning in Modular Systems”, *IEEE Access*, 13, 2025.

- D. Guidotti, L. Pandolfo, A. Gutierrez-Torre, O. Lopez-Rubio, L. Pulina, “SynthVal: A Framework for Validating Synthetic Medical Images”, IEEE Access, 13, 2025.

2.11 LLM-based text analytics, hybrid AI and decision support

Recent work investigates how large language models and machine-learning components can be embedded in decision-support architectures without turning the entire process into an opaque end-to-end predictor. In tourism-review analysis, open-source LLMs were evaluated in zero-shot settings for sentiment classification, keyword extraction and interpretable analysis of large collections of user-generated text. This work provides the methodological basis for RUMOR, AIMet Lab’s platform for review-based reputation analysis.

A broader line of research integrates observational data, predictive models and symbolic reasoning. SKET-Monitor combines sensor streams, a digital representation of the territory and hybrid AI to support environmental and territorial monitoring. The architecture maintains a distinction between observed facts, model outputs and conclusions derived from rules and decision criteria. This makes scenario analysis and what-if reasoning possible while preserving the traceability of the decision layer.

The same principle underlies BRIDGE and current AIMet work on decision intelligence: machine learning is used where data support induction or prediction, while ASP and related declarative methods represent policies, preferences, constraints and explicit decision rules. Current applications include territorial governance, tourism, public-sector decision support, sustainability monitoring and policy analysis.

Representative publications

- D. Guidotti, L. Pandolfo, L. Pulina, “Discovering Sentiment Insights: Streamlining Tourism Review Analysis with Large Language Models”, Information Technology & Tourism, 27(1), 2025.
- V. Camerada, D. Guidotti, S. Lampreu, L. Pandolfo, L. Pulina, “SKET-Monitor: A Knowledge-Driven AI System for Sustainable Environmental and Territorial Monitoring”, Green-Aware AI, ECAI 2025.

3. Research Software, Systems and Experimental Resources

Software and experimental artefacts are treated as a distinct part of the research record. The systems below either implement methodological contributions described above or provide reusable infrastructure for empirical evaluation and applied decision support.

AQME and QBF solvers

AQME (Adaptive QBF Multi-Engine) integrates multiple QBF decision procedures and uses learned models to select the most appropriate engine for each instance, including adaptation of the selection policy. Related experimental solvers include QuBIS, StruQS and QuReS, developed to study incomplete solving, structural properties, and combinations of search and deduction. QuTE supports structural analysis through treewidth estimation.

QBFEVAL and QBFLIB

A long-running experimental infrastructure for the evaluation of QBF solvers and the management of benchmark collections. QBFEVAL provided competition methodology, result processing and comparative evaluation; QBFLIB supports benchmark collection and distribution.

me-asp and me-aspML

Multi-engine Answer Set Programming systems based on learned solver selection. me-asp combines multiple ASP engines and adapts selection policies; me-aspML extends algorithm selection across both grounding and solving stages.

NeVer, pyNeVer and NeVer2

A family of frameworks for neural-network learning and formal verification. NeVer implemented early abstraction/decision-procedure-based verification; pyNeVer moved the architecture to Python and integrated learning and verification; NeVer2 provides an open-source, cross-platform environment for network design, training, safety-property specification, reachability analysis and verification.

ARKIVO, ARKIVO Dataset and BISTIRIS

ARKIVO models archival resources and supported the semantic layer of the Józef Piłsudski Institute digital archive. The associated dataset contains approximately 300,000 RDF triples. BISTIRIS models Sardinian traditional costume heritage using expert knowledge, formal validation and competency questions.

RUMOR

Review-based Understanding & Mining of Online Reputation: an AIMet platform combining NLP and large language models to turn large-scale tourism reviews into sentiment, topic and reputation indicators for territorial and business analysis.

TRACES

TRavel Analytics, Clustering & Economic Segmentation: a data-analysis and machine-learning component for characterising and segmenting tourism demand from heterogeneous data sources.

BRIDGE

Business Rules Inference for Decision Guidance Engine: an ASP-based what-if and policy engine representing facts, rules, constraints, preferences and optimisation criteria explicitly. It supports decision scenarios in which conclusions remain traceable to evidence and declarative rules.

SKET-Monitor and FARO

SKET-Monitor integrates sensor data, digital-twin representations, machine-learning modules and symbolic reasoning for environmental and territorial monitoring. FARO (Framework Analitico per Reti di Osservazione) generalises this architecture to networks of observation and decision-support scenarios.

4. Research Leadership and Collaborations

4.1 Research laboratories and scientific coordination

AIMet Lab — Artificial Intelligence and formal METHods Laboratory (2021–present)

Founder/director of the University of Sassari research laboratory bringing together automated reasoning, formal methods, knowledge representation, trustworthy AI and application-oriented decision intelligence. Current lines include AI verification, semantic technologies, digital twins, tourism/territorial analytics, LLM-based text analysis and hybrid decision-support systems.

e.INS Spoke 2 — Scientific Coordinator (February 2024–January 2026)

Scientific coordinator of the Spoke “Innovation and Sustainability for the Competitiveness of Tourism and Cultural Heritage SMEs in Marginal Markets” within the PNRR-funded e.INS ecosystem. The Spoke had an overall scale of approximately €12M within a €119M ecosystem. Coordination covered multidisciplinary research lines, technology development, territorial experimentation, collaboration with firms and public administrations, and a network of 49 projects and more than 50 institutional collaborations.

IDEA Lab — Intelligent system DEsign and Applications Laboratory (2017–2022)

Director of the laboratory that preceded AIMet Lab. Research focused on formal methods for cyber-physical systems, automated reasoning, machine learning and semantic technologies, with activities connected to CERBERO, FITOPTIVIS, COMP4DRONES, PROSSIMO and PILOW.

4.2 Selected national and international collaborations

- Johannes Kepler University Linz — collaboration with Martina Seidl and collaborators on QBF solving, QBFEVAL/QBF Gallery, benchmark methodology, QBF applications and QBFFam.
- Barcelona Supercomputing Center — collaboration with Alberto Gutierrez-Torre and Omar Lopez-Rubio on synthetic medical-data validation and SynthVal within SECURED.
- Birkbeck, University of London — collaboration with Michael Zakharyashev and colleagues on ontology-based data access and temporal/spatial knowledge representation.
- Józef Piłsudski Institute of America, New York — joint work on semantic technologies for digital archives, ARKIVO and linked-data publication.
- University of Genoa — long-term collaboration with Armando Tacchella and colleagues on automated reasoning, formal methods, neural-network verification and cyber-physical systems.
- University of Calabria / University of Genoa — collaboration with Francesco Ricca and Marco Maratea on multi-engine Answer Set Programming and algorithm selection.
- Interdisciplinary collaborations at the University of Sassari — joint research with economic and political geography, digital humanities, cultural heritage and electronic-systems groups, including territorial monitoring, tourism, semantic heritage and trustworthy AI.

4.3 Research supervision

Scientific responsibility has included supervision of research fellows, postdoctoral researchers, technologists, scholarship holders and collaborators funded through European, national and regional projects. The activity covers definition of research objectives, methodological supervision, experimental design, software development and preparation of scientific publications. In recent years the core AIMet computer-science team has included Laura Pandolfo and Dario Guidotti, alongside project-specific researchers and interdisciplinary collaborators.

PhD supervision/co-supervision includes Laura Pandolfo (Digital Humanities, University of Genoa) and Simone Vuotto (Computer Science and Systems Engineering, University of Genoa; thesis on formal requirements analysis and specification-based testing in cyber-physical systems). Numerous BSc and MSc theses have been supervised at the University of Sassari in AI, formal methods, semantic technologies, web technologies and digital applications.

5. Major Research Projects and Funding

Roles and budgets are reported where they are available in the project documentation. The emphasis is on scientific responsibility and the research contribution of the University of Sassari unit rather than on administrative detail.

e.INS Spoke 2 — Innovation and Sustainability for the Competitiveness of Tourism and Cultural Heritage SMEs in Marginal Markets

2023–29 Jan 2026 | PNRR M4C2, Innovation Ecosystems, e.INS ECS00000038 | Scientific Coordinator from Feb 2024 | Approx. €12M Spoke; €119M ecosystem

Multidisciplinary programme on tourism, cultural heritage and marginal territories, integrating AI, data analysis, digital twins, knowledge representation, technology transfer and territorial experimentation. Scientific coordination included integration of research lines, supervision of projects and infrastructures, and relations with firms and public administrations.

SKET-Monitor — Smart Knowledge-Driven Environmental and Territorial Monitoring

2024–2025 | PNRR Extended Partnership FAIR, cascade funding, Spoke 9 | Project Coordinator and Scientific Lead | €199,803.12

Hybrid-AI architecture for environmental and territorial monitoring. Sensor observations, digital-twin representations, predictive/analytic modules and symbolic reasoning are integrated to support scenario analysis and public decision making. Pilot experimentation was carried out in the Maria Pia coastal area in Alghero.

C-WISE — Citizen Wellness Centric AI-Based Policy Making Support System in an Urban Environment

2024–2025 | PNRR RAISE Innovation Ecosystem, Spoke 1 | Scientific Lead at University of Sassari | €360,058.52 total project value

AI-based decision support for urban policy, integrating an Urban Data Platform and citizen-oriented digital-twin representations. Research addressed data integration, predictive/analytical models and scenario analysis for accessibility, services and urban mobility, with experimentation in the Municipality of Alghero.

PROSSIMO — Design, development and optimisation of intelligent multi-object systems

2018–2020 | Autonomous Region of Sardinia, Cluster Top-Down | Scientific Coordinator | €284,396

Research and technology-transfer project on formal specification, modelling, verification and optimisation of cyber-physical systems, including industrial experimentation and methods for reducing design and validation effort.

DESKTOP — Decision support for container-terminal optimisation

2012–2014 | Autonomous Region of Sardinia, LR 7/2007 | Scientific Coordinator | €338,800 total project value (later documentation)

Applied automated-reasoning and optimisation project on decision support for container-terminal operations, combining formal modelling of operational choices with planning and optimisation methods.

European research projects — scientific responsibility / team leadership

- SECURED — Scaling Up Secure Processing, Anonymization and Generation of Health Data for EU Cross-Border Collaborative Research and Innovation. Horizon Europe Health, GA 101095717, 2023–2025. Scientific Lead of the University of Sassari unit. Total €6,999,723.75; UniSS €243,750. Contributions: synthetic-data validation, knowledge-driven security reasoning, modular-system validation; SynthVal.
- IMOCO4.E — Intelligent Motion Control under Industry 4.E. Horizon 2020 / ECSEL JU, GA 101007311, 2021–2024. Scientific Lead of UniSS unit. Total €30,823,019.15; UniSS participation cost €260,625. Contributions: predictive-maintenance anomaly detection, autoencoders, neural-network verification and trustworthy industrial AI.
- AIDOaRt — AI-Augmented Automation for Efficient DevOps, a Model-Based Framework for Continuous Development at Runtime in Cyber-Physical Systems. Horizon 2020 / ECSEL JU, GA 101007350, 2021–2024. Scientific Lead of UniSS unit.

Total €22,543,755.19; UniSS participation cost €249,250. Contributions: formal methods, requirements analysis and verification in AI-augmented CPS development.

- **COMP4DRONES** — Framework of Key Enabling Technologies for Safe and Autonomous Drones' Applications. Horizon 2020 / ECSEL JU, GA 826610, 2019–2023. Team Leader for UniSS activities. Total €29,461,259.83; UniSS participation cost €401,000. Contributions to dependable design, verification and validation of complex drone systems.
- **FITOPTIVIS** — From the Cloud to the Edge: Smart Integration and Optimization Technologies for Highly Efficient Image and Video Processing Systems. Horizon 2020 / ECSEL JU, GA 783162, 2018–2021. Team Leader, University of Sassari. Contributions: requirements analysis and formal verification for distributed cyber-physical systems.
- **CERBERO** — Cross-Layer Model-Based Framework for Multi-Objective Design of Reconfigurable Systems in Uncertain Hybrid Environments. Horizon 2020, GA 732105, 2017–2020. Task Leader. Total €5,383,597.50; UniSS €384,321. Contributions: requirements verification, consistency analysis and design-time validation for adaptive CPS.
- **CHRIS** — Cooperative Human Robot Interaction Systems. FP7, project 215805, 2008–2010. Research participant at IIT/University of Genoa. Contributions to learning and safety verification in cognitive robotics.

Current and recent national/regional projects

- **PEGASO** — Predictive Environment for Generative AI Analytics and Shared Open Data. PR FESR Sardegna 2021–2027, 2026–2028. Scientific Lead of UniSS activities. Total grant €376,202.28; UniSS eligible costs €165,798.60, contribution €110,623.08. Focus: predictive/generative models, time series, hybrid reasoning and what-if analysis.
- **CONTU** — COmunicazione Naturale per il Territorio e l'Utente: Digital Twin Vocale per la Cittadinanza Attiva. PR FESR Sardegna 2021–2027, 2026–2028. Scientific Lead of UniSS activities. Total grant €106,277.33; UniSS contribution €34,991.57. Focus: NLP/speech technologies, low-resource language varieties, reproducible evaluation and voice interaction.
- **COMFORT** — MIMIT “Accordi per l'innovazione”, 36 months from October 2026. University of Sassari participation; UniSS budget €40,000. Research contribution on validation, robustness, explainability and cooperative multi-agent decision support, including logic-declarative / ASP-based reasoning.
- **SMART UzER** — industrial research on intelligent decision support for energy-use optimisation, 2018–2020. Scientific Lead of UniSS unit; approx. €30,000 UniSS share.
- **PRO-COMFORT** — industrial research on energy efficiency and comfort in smart buildings, 2018–2021. Scientific Lead of UniSS unit; approx. €45,000 UniSS share.
- **PILOW** — web platform for logistics, 2017–2019. Scientific Lead of UniSS unit; approx. €180,000 UniSS share.
- **PIUCultura** — digital technologies for cultural heritage, 2016–2019. Research participant; contributions in semantic models, knowledge representation and user/cultural-resource interaction.

Research and industrial consultancy

- **KIBI-OS** — scientific consultancy on cloud-edge architecture, 2026. Scientific Lead of the University of Sassari contract with ABIRK Italia; €20,000 + VAT. Work includes cloud-edge/MLOps architecture, wearable-data pipelines, requirements, validation metrics, performance/scalability analysis and recommendations.

Additional competitive funding

- **Fondazione di Sardegna** — “Techniques and tools for neural-network verification”, 2021–2022. Principal Investigator, €20,000.
- **University of Sassari research funding**, 2019 and 2020 — Principal Investigator.
- **University of Sassari research fund** — “Machine-learning methods for algorithm selection”, 2011–2013. Principal Investigator.

6. Teaching and Supervision

University teaching has been continuous since 2005 at the University of Genoa and, since 2010, at the University of Sassari. Courses have covered computer science fundamentals, algorithms and data structures, web and multimedia technologies, human–computer interaction, Semantic Web, cybersecurity, e-government, bioengineering software, and more recent applications of data and AI to tourism, communication and territorial systems.

Current teaching (2026/2027)

- Multimedia Design for Communication — MSc programme in Languages and Literatures for Cultural Mediation and Territorial Enhancement, University of Sassari.
- Web Technologies and Digital Communication — BSc programme in Tourism Itinerary Design, Management and Promotion, University of Sassari.
- Digital Innovation in Tourism: Data, AI and Territory — BSc programme in Tourism Development and Digital Territories, University of Sassari.

Previous teaching includes Algorithms and Data Structures, Semantic Web, Human–Computer Interaction, Web Technologies and Multimedia Development, Computer Security, Foundations of Computer Science, E-Government, Computer Science for Pharmacy, and graduate/master-level teaching in bioengineering, policy evaluation and advanced intelligent systems.

Doctoral and thesis supervision

Supervision and co-supervision of PhD, MSc and BSc theses in artificial intelligence, automated reasoning, formal methods, verification, knowledge representation, semantic technologies and digital applications. PhD supervision/co-supervision includes Laura Pandolfo and Simone Vuotto. External PhD examination activities include committees at TU Wien and the University of Calabria.

7. Scientific Community Service

Conference and workshop leadership

- 2025 — Co-organiser and co-editor, 40th Italian Conference on Computational Logic (CILC 2025), Alghero.
- 2023 — Local Chair, 26th International Conference on Theory and Applications of Satisfiability Testing (SAT 2023), Alghero.
- 2020 — Program Co-Chair (with Martina Seidl), 23rd International Conference on Theory and Applications of Satisfiability Testing (SAT 2020); co-editor of the LNCS proceedings.
- 2019 — Publicity Chair, International Conference of the Italian Association for Artificial Intelligence (AIXIA 2019).
- 2017–2019 — Organising Committee, International Summer School on Designing Cyber-Physical Systems; Chair of associated PhD workshops in 2018 and 2019.
- 2015 — Publicity Chair, 9th International Conference on Web Reasoning and Rule Systems (RR 2015).

QBF evaluation infrastructure and competitions

Long-term organiser/co-organiser of the international QBFEVAL series (2006, 2007, 2008, 2010, 2016–2020, 2022), including benchmark selection, evaluation methodology, infrastructure, result analysis and dissemination. Co-organiser of QBF Gallery 2023 and QBF Gallery 2026. Contributor to the management of QBFLIB, the international QBF benchmark library.

Scientific organisations and editorial activity

- SAT Association — Steering Committee member since 2020.
- VNN-LIB — Steering Committee member since 2019, supporting shared benchmarks and formats for neural-network verification.
- Journal on Satisfiability, Boolean Modeling and Computation — Editorial Board / Associate Editor activity, 2018–2024.
- Guest Editor, Information special issue “Artificial Intelligence and Knowledge Representation for Cultural Heritage and Tourism Enhancement” (with Laura Pandolfo, Dario Guidotti and Stefan Schlobach), 2024–2025.
- Guest Editor, JSAT special volume on SAT 2018 Competitions and Evaluations.
- Co-editor, SAT 2020 proceedings (Springer LNCS 12178) and CILC 2025 proceedings (CEUR-WS 4003).

Selected Program Committee service

- IJCAI: 2019, 2020, 2021.
- AAAI: 2012, 2019, 2020, 2021, 2022.
- ECAI: 2014, 2020, 2023, 2024, 2025.
- SAT: 2019, 2021, 2023, 2024; Program Co-Chair in 2020.
- ICTAI: 2020, 2021, 2022, 2023, 2025, 2026.

- AIXIA: 2015, 2016, 2019, 2022, 2023, 2024, 2026.
- RuleML+RR: 2018–2021.
- Symposium on AI Verification (SAIV): 2024, 2025.
- Formal Methods for ML-Enabled Autonomous Systems (FoMLAS): 2019–2023.
- Italian Conference on Computational Logic (CILC): 2013–2017, 2020, 2023, 2024.
- RCRA workshop: multiple editions from 2008 to 2022.

Journal reviewing

Reviewer for international journals including ACM Transactions on Computational Logic, AI Communications, Annals of Mathematics and Artificial Intelligence, Fundamenta Informaticae, IEEE Access, IEEE Transactions on Industrial Electronics, IEEE Transactions on Pattern Analysis and Machine Intelligence, Image and Vision Computing, Journal of Computer and System Sciences, Journal of Experimental & Theoretical Artificial Intelligence, Journal of Logic and Computation, Pattern Recognition Letters, Theoretical Computer Science, and Theory and Practice of Logic Programming.

External academic evaluation

External member of PhD final-examination committees at TU Wien (2017, 2019) and the University of Calabria (2015, 2019), and external evaluator of doctoral work. Member of academic recruitment and evaluation committees, including a 2023 RTD-A Computer Science recruitment committee at the University of Calabria. Numerous internal selection committees for researchers, technologists, research fellows and project personnel are not itemised here.

8. Invited Talks, Tutorials and Selected Presentations

Invited talks and panels

- 2019 — Invited Guest Speaker, 31st IEEE International Conference on Tools with Artificial Intelligence (ICTAI 2019), Portland, USA: “A Survey on Applications of Quantified Boolean Formulas”.
- 2019 — Invited Speaker, Lorentz Center Workshop “Advancing Verification Competitions as a Scientific Method”, Leiden, The Netherlands.
- 2019 — Invited Guest Speaker, International Workshop on Quantified Boolean Formulas and Beyond, Lisbon, Portugal: QBFEVAL 2019.
- 2019 — Invited panel expert, FoMLAS 2019 (CAV 2019), New York: “Formal Methods and Machine Learning: Progress and Future Directions”.
- 2018 — Invited Speaker, JKU Computer Science Colloquium, Johannes Kepler University Linz: “Formal Methods and Cyber-Physical Systems: Research Activities and Funded Projects at the IDEA Lab”.
- 2017 — Invited colloquium, IBM Research Haifa: “Consistency of Property Specification Patterns with Boolean and Constrained Numerical Signals”.
- 2017 — Invited colloquium, Birkbeck, University of London: “ARKIVO: An Ontology for Describing Archival Resources”.
- 2016 — Expert panellist, Competitive Events Panel, SAT 2016.

Tutorials

- 2020 — HiPEAC 2020: “Formal Methods in the CERBERO Toolchain”, within the tutorial Adaptive CPS Architectures, Methods and Tools — The CERBERO Project.
- 2019 — HiPEAC 2019: “CPS Requirements Formalization and Verification”, within DAS-CPS: Design of Adaptive and Secure Cyber-Physical Systems.
- 2018 — CPS Week 2018: “CPS Requirements Formalization and Verification”, within the Design of Adaptive and Secure Cyber-Physical Systems tutorial.

Selected scientific presentations

- 2025 — “SKET-Monitor: A Knowledge-Driven AI System for Sustainable Environmental and Territorial Monitoring”, Green-Aware AI 2025, ECAI 2025.
- 2021 — “pyNeVer: A Framework for Learning and Verification of Neural Networks”, ATVA 2021.
- 2021 — “QBFFam: A Tool for Generating QBF Families from Proof Complexity”, SAT 2021.

- 2019 — “Reasoning about Convolutional Neural Networks via Transfer Learning and Convex Programming”, FoMLAS 2019 / CAV 2019.
- 2018 — “Constrained Image Generation Using Binarized Neural Networks with Decision Procedures”, SAT 2018.
- 2017 — “More Adaptive Does Not Imply Less Safe (with Formal Verification)”, Haifa Verification Conference.
- 2016 — “Learning with Safety Requirements: State of the Art and Open Questions”, RCRA 2016.
- 2015 — “Multi-level Algorithm Selection for ASP”, LPNMR 2015.
- 2014 — “An Ontology for Container Terminal Operations”, RR 2014.
- 2012 — “The Multi-Engine ASP Solver me-asp”, JELIA 2012.
- 2008 — QBFEVAL 2008 results, SAT 2008, Guangzhou, China; and research presentations at LPAR 2008 and MICA 2008.
- 2006–2010 — multiple presentations on QBF solving, algorithm evaluation and neural-network verification at SAT, RCRA, AIXIA and related workshops.

9. Institutional and Academic Service (selected)

Institutional activities are reported selectively, as they are secondary to the scientific purpose of this CV. They include academic quality assurance, programme coordination and service on university committees.

- 2024–2025 — President, BSc programme in Tourism Itinerary Design, Management and Promotion, University of Sassari.
- 2020–2021 — Chair, Joint Teaching-Student Committee, Department of Chemistry and Pharmacy, University of Sassari; member 2018–2021.
- 2018–2020 — Member, Third Mission Committee, Department of Chemistry and Pharmacy.
- 2016–2017 — Member, Quality Assurance Group, Department of Political Science, Communication Sciences and Information Engineering.
- 2013–2017 — Member, Teaching Committee, MSc programme in Communication and Public Administration.
- 2012–2015 — Member, Joint Teaching-Student Committee, former Department of Political Science, Communication Sciences and Information Engineering.

10. Complete List of Scientific Publications

Updated to 30 September 2026 from the source CV, which cross-checked Scopus, DBLP, institutional repositories and publisher records. Preprints of subsequently published papers are listed separately and should not be counted as independent publications.

10.1 Journal articles

2026

G. Corona, D. Guidotti, L. Pandolfo, L. Pulina, “Enhancing Intangible Cultural Heritage Through Ontology: The BISTIRIS Model for Sardinian Traditional Costumes”, *Semantic Web*, vol. 17, n. 5, 2026. DOI: 10.1177/22104968261438486.

2025

- L. Pandolfo, G. Corona, D. Guidotti, L. Pulina, “A Knowledge-Driven Approach to Threat Validation and Security Reasoning in Modular Systems”, *IEEE Access*, vol. 13, pp. 149817–149833, 2025. DOI: 10.1109/ACCESS.2025.3602292.
- D. Guidotti, L. Pandolfo, L. Pulina, “A Systematic Literature Review of Supervised Machine Learning Techniques for Predictive Maintenance in Industry 4.0”, *IEEE Access*, vol. 13, pp. 102479–102504, 2025. DOI: 10.1109/ACCESS.2025.3578686.
- D. Guidotti, L. Pandolfo, L. Pulina, “Discovering Sentiment Insights: Streamlining Tourism Review Analysis with Large Language Models”, *Information Technology & Tourism*, vol. 27, n. 1, pp. 227–261, 2025. DOI: 10.1007/s40558-024-00309-9.
- D. Guidotti, L. Pandolfo, A. Gutierrez-Torre, O. Lopez-Rubio, L. Pulina, “SynthVal: A Framework for Validating Synthetic Medical Images”, *IEEE Access*, vol. 13, pp. 195871–195903, 2025. DOI: 10.1109/ACCESS.2025.3633780.

2024

S. Demarchi, D. Guidotti, L. Pulina, A. Tacchella, “NeVer2: Learning and Verification of Neural Networks”, *Soft Computing*, vol. 28, n. 19, pp. 11647–11665, 2024. DOI: 10.1007/s00500-024-09907-5.

2023

D. Guidotti, L. Pandolfo, L. Pulina, “Leveraging Satisfiability Modulo Theory Solvers for Verification of Neural Networks in Predictive Maintenance Applications”, *Information*, vol. 14, n. 7, art. 397, 2023. DOI: 10.3390/info14070397.

2021

- L. Pandolfo, L. Pulina, “Building the Semantic Layer of the Józef Piłsudski Digital Archive With an Ontology-Based Approach”, *International Journal on Semantic Web and Information Systems*, vol. 17, n. 4, pp. 1–21, 2021. DOI: 10.4018/IJSWIS.2021100101.
- L. Pulina, M. Pulina, V. Santoni, “Efficiency and Inventory Turnover in the Primary Sector: A Regional Analysis”, *Economics Bulletin*, vol. 41, n. 4, pp. 2711–2724, 2021.

L. Pandolfo, L. Pulina, S. Vuotto, “SMT-Based Consistency Checking of Configuration-Based Components Specifications”, *IEEE Access*, vol. 9, pp. 83718–83726, 2021. DOI: 10.1109/ACCESS.2021.3085911.

2020

L. Pandolfo, S. Spanu, L. Pulina, E. Grosso, “Understanding and Modeling Visitor Behaviours for Enhancing Personalized Cultural Experiences”, *International Journal of Technology and Human Interaction*, vol. 16, n. 3, pp. 24–38, 2020. DOI: 10.4018/IJTHI.2020070102.

L. Pulina, M. Pulina, V. Santoni, “The Effects of CAP Payments on Farm Efficiency: An EU Cross-Country Investigation”, *Agricultural Economics Review*, vol. 21, n. 1, pp. 47–60, 2020.

2019

M. Narizzano, L. Pulina, A. Tacchella, S. Vuotto, “Property Specification Patterns at Work: Verification and Inconsistency Explanation”, *Innovations in Systems and Software Engineering*, vol. 15, nn. 3–4, pp. 307–323, 2019. DOI: 10.1007/s11334-019-00339-1.

L. Pulina, M. Seidl, “The 2016 and 2017 QBF Solvers Evaluations (QBF EVAL’16 and QBF EVAL’17)”, *Artificial Intelligence*, vol. 274, pp. 224–248, 2019. DOI: 10.1016/j.artint.2019.04.002.

2018

E. Giunchiglia, M. Maratea, L. Pulina, “Translation-Based Approaches for Solving Disjunctive Temporal Problems with Preferences”, *Constraints*, vol. 23, n. 4, pp. 383–402, 2018. DOI: 10.1007/s10601-018-9293-6.

S. Pathak, L. Pulina, A. Tacchella, “Verification and Repair of Control Policies for Safe Reinforcement Learning”, *Applied Intelligence*, vol. 48, n. 4, pp. 886–908, 2018. DOI: 10.1007/s10489-017-0999-8.

2016

S. Pathak, L. Pulina, A. Tacchella, “Evaluating Probabilistic Model Checking Tools for Verification of Robot Control Policies”, *AI Communications*, vol. 29, n. 2, pp. 287–299, 2016. DOI: 10.3233/AIC-150689.

P. Marin, M. Narizzano, L. Pulina, A. Tacchella, E. Giunchiglia, “Twelve Years of QBF Evaluations: QSAT Is PSPACE-Hard and It Shows”, *Fundamenta Informaticae*, vol. 149, nn. 1–2, pp. 133–158, 2016. DOI: 10.3233/FI-2016-1445.

2015

M. Maratea, L. Pulina, F. Ricca, “Multi-Engine ASP Solving with Policy Adaptation”, *Journal of Logic and Computation*, vol. 25, n. 6, pp. 1285–1306, 2015. DOI: 10.1093/logcom/ext068.

L. Lorusso, L. Pulina, E. Grosso, “The Measure of Perceived Similarity Between Faces: Old Issues for a New Method”, *Review of Philosophy and Psychology*, vol. 6, n. 2, pp. 317–339, 2015. DOI: 10.1007/s13164-014-0229-9.

2014

M. Maratea, L. Pulina, F. Ricca, “A Multi-Engine Approach to Answer Set Programming”, *Theory and Practice of Logic Programming*, vol. 14, n. 6, pp. 841–868, 2014. DOI: 10.1017/S1471068413000094.

M. Maratea, L. Pulina, “Efficient DTPP Solving with a Reduction-Based Approach”, *Intelligenza Artificiale*, vol. 8, n. 1, pp. 101–111, 2014.

2012

L. Pulina, A. Tacchella, “Challenging SMT Solvers to Verify Neural Networks”, *AI Communications*, vol. 25, n. 2, pp. 117–135, 2012. DOI: 10.3233/AIC-2012-0525.

M. Maratea, L. Pulina, “Solving Disjunctive Temporal Problems with Preferences Using Maximum Satisfiability”, *AI Communications*, vol. 25, n. 2, pp. 137–156, 2012. DOI: 10.3233/AIC-2012-0527.

2011

L. Pulina, A. Tacchella, “NeVer: A Tool for Artificial Neural Networks Verification”, *Annals of Mathematics and Artificial Intelligence*, vol. 62, nn. 3–4, pp. 403–425, 2011. DOI: 10.1007/s10472-011-9243-0.

2010

L. Pulina, A. Tacchella, “An Empirical Study of QBF Encodings: From Treewidth Estimation to Useful Preprocessing”, *Fundamenta Informaticae*, vol. 102, nn. 3–4, pp. 391–427, 2010. DOI: 10.3233/FI-2010-312.

L. Pulina, A. Tacchella, “AQME’10: System Description”, *Journal on Satisfiability, Boolean Modeling and Computation*, vol. 7, nn. 2–3, pp. 65–70, 2010. DOI: 10.3233/SAT190076.

L. Pulina, “Engineering Portfolios of Machine Learning Algorithms to Solve Complex Tasks in Robotics and Automated Reasoning”, *AI Communications*, vol. 23, n. 1, pp. 61–63, 2010. DOI: 10.3233/AIC-2010-0471.

2009

L. Pulina, A. Tacchella, “A Self-Adaptive Multi-Engine Solver for Quantified Boolean Formulas”, *Constraints*, vol. 14, n. 1, pp. 80–116, 2009. DOI: 10.1007/s10601-008-9051-2.

M. Narizzano, C. Peschiera, L. Pulina, A. Tacchella, “Evaluating and Certifying QBFs: A Comparison of State-of-the-Art Tools”, *AI Communications*, vol. 22, n. 4, pp. 191–210, 2009. DOI: 10.3233/AIC-2009-0468.

2006

M. Narizzano, L. Pulina, A. Tacchella, “Report of the Third QBF Solvers Comparative Evaluation”, *Journal on Satisfiability, Boolean Modeling and Computation*, vol. 2, nn. 1–4, pp. 145–164, 2006. DOI: 10.3233/SAT190019.

10.2 Peer-reviewed conference and workshop proceedings

2025

V. Camerada, D. Guidotti, S. Lampreu, L. Pandolfo, L. Pulina, “SKET-Monitor: A Knowledge-Driven AI System for Sustainable Environmental and Territorial Monitoring”, *2nd Workshop on Green-Aware Artificial Intelligence, ECAI 2025, CEUR Workshop Proceedings*, pp. 160–166, 2025.

2024

- D. Guidotti, L. Pandolfo, L. Pulina, “Anomaly Recognition with Trustworthy Neural Networks: A Case Study in Elevator Control”, AI4CC-IPS-RCRA-SPIRIT 2024, CEUR Workshop Proceedings, vol. 3883, pp. 189–200, 2024.
- G. Corona, D. Guidotti, L. Pandolfo, L. Pulina, “Bistiris Ontology: Towards a Structured Representation of Sardinian Traditional Female Costumes”, 1st International Workshop on Semantic Digital Humanities (SemDH 2024), CEUR Workshop Proceedings, vol. 3724, 2024.
- D. Guidotti, L. Pandolfo, L. Pulina, “Formal Verification of Neural Networks: A ‘Step Zero’ Approach for Vehicle Detection”, 37th International Conference on Industrial, Engineering and Other Applications of Applied Intelligent Systems (IEA/AIE 2024), Lecture Notes in Artificial Intelligence, vol. 14748, pp. 297–309, Springer, 2024.
- D. Guidotti, L. Pandolfo, L. Pulina, “LLMs for Sentiment Analysis in Tourism Reviews: A Resource-Efficient Approach”, 36th IEEE International Conference on Tools with Artificial Intelligence (ICTAI 2024), pp. 502–508, IEEE Computer Society, 2024.
- F. Regazzoni et al. (incl. L. Pulina), “SECURED for Health: Scaling Up Privacy to Enable the Integration of the European Health Data Space”, Design, Automation and Test in Europe Conference and Exhibition (DATE 2024), pp. 1–4, IEEE, 2024.
- D. Guidotti, L. Pandolfo, T. Fanni, M. K. Zedda, L. Pulina, “Translating Requirements in Property Specification Patterns Using LLMs”, AI4CC-IPS-RCRA-SPIRIT 2024, CEUR Workshop Proceedings, vol. 3883, pp. 176–188, 2024.
- D. Guidotti, L. Pandolfo, L. Pulina, “Verifying Autoencoders for Anomaly Detection in Predictive Maintenance”, IEA/AIE 2024, Lecture Notes in Artificial Intelligence, vol. 14748, pp. 188–199, Springer, 2024.

2023

- D. Guidotti, L. Pandolfo, L. Pulina, “Detection of Component Degradation: A Study on Autoencoder-Based Approaches”, 19th IEEE International Conference on e-Science, IEEE, 2023.
- L. Pandolfo, L. Pulina, “Unlocking Historical Insights: Developing a Dataset from Historical Archives”, 38th Italian Conference on Computational Logic (CILC 2023), CEUR Workshop Proceedings, vol. 3428, 2023.
- D. Guidotti, R. Masiero, L. Pandolfo, L. Pulina, “Vector Reconstruction Error for Anomaly Detection: Preliminary Results in the IMOCO4.E Project”, 28th IEEE International Conference on Emerging Technologies and Factory Automation (ETFA 2023), IEEE, 2023.
- D. Guidotti, L. Pandolfo, L. Pulina, “Verification of NNs in the IMOCO4.E Project: Preliminary Results”, ETFA 2023, IEEE, 2023.
- D. Guidotti, L. Pandolfo, L. Pulina, “Verifying Neural Networks with Non-Linear SMT Solvers: A Short Status Report”, 35th IEEE International Conference on Tools with Artificial Intelligence (ICTAI 2023), pp. 423–428, IEEE Computer Society, 2023.
- D. Guidotti, L. Pandolfo, L. Pulina, “Verifying Neural Networks with SMT: An Experimental Evaluation”, 19th IEEE International Conference on e-Science, IEEE, 2023.
- S. Demarchi, D. Guidotti, L. Pulina, A. Tacchella, “Supporting Standardization of Neural Networks Verification with VNNLIB and CoCoNet”, 6th Workshop on Formal Methods for ML-Enabled Autonomous Systems (FoMLAS 2023), Kalpa Publications in Computing, vol. 16, pp. 47–58, 2023.

2022

- D. Angilica, G. B. Ianni, F. A. Lisi, L. Pulina, “AI and Videogames: A ‘Drosophila’ for Declarative Methods”, IPS-RiCeRcA-SPIRIT 2022, CEUR Workshop Proceedings, vol. 3345, 2022.
- R. Eramo, T. Fanni, D. Guidotti, L. Pandolfo, L. Pulina, M. K. Zedda, “Verification of Neural Networks: Challenges and Perspectives in the AIDoArt Project”, IPS-RiCeRcA-SPIRIT 2022, CEUR Workshop Proceedings, vol. 3345, 2022.

2021

- L. Pandolfo, L. Pulina, “ARKIVO Dataset: A Benchmark for Ontology-Based Extraction Tools”, 17th International Conference on Web Information Systems and Technologies (WEBIST 2021), pp. 341–345, 2021.
- O. Beyersdorff, L. Pulina, M. Seidl, A. K. Shukla, “QBFFam: A Tool for Generating QBF Families from Proof Complexity”, 24th International Conference on Theory and Applications of Satisfiability Testing (SAT 2021), Lecture Notes in Computer Science, vol. 12831, pp. 21–29, Springer, 2021.
- D. Guidotti, L. Pulina, A. Tacchella, “pyNeVer: A Framework for Learning and Verification of Neural Networks”, 19th International Symposium on Automated Technology for Verification and Analysis (ATVA 2021), Lecture Notes in Computer Science, vol. 12971, pp. 357–363, Springer, 2021.

2020

- M. Narizzano, L. Pulina, A. Tacchella, S. Vuotto, “Automated Requirements-Based Testing of Black-Box Reactive Systems”, 12th International Symposium on NASA Formal Methods (NFM 2020), Lecture Notes in Computer Science, vol. 12229, pp. 153–169, Springer, 2020.
- D. Guidotti, F. Leofante, L. Pulina, A. Tacchella, “Verification of Neural Networks: Enhancing Scalability Through Pruning”, 24th European Conference on Artificial Intelligence (ECAI 2020), Frontiers in Artificial Intelligence and Applications, vol. 325, pp. 2505–2512, IOS Press, 2020.

2019

- A. K. Shukla, A. Biere, L. Pulina, M. Seidl, “A Survey on Applications of Quantified Boolean Formulas”, 31st IEEE International Conference on Tools with Artificial Intelligence (ICTAI 2019), pp. 78–84, IEEE Computer Society, 2019.
- G. Amendola, C. Dodaro, W. Faber, L. Pulina, F. Ricca, “Algorithm Selection for Paracoherent Answer Set Computation”, 16th European Conference on Logics in Artificial Intelligence (JELIA 2019), Lecture Notes in Artificial Intelligence, vol. 11468, pp. 479–489, Springer, 2019.
- S. Vuotto, M. Narizzano, L. Pulina, A. Tacchella, “Automata Based Test Generation with SpecPro”, 6th IEEE/ACM International Workshop on Requirements Engineering and Testing (RET 2019), pp. 13–16, IEEE, 2019.
- F. Palumbo et al. (incl. L. Pulina), “CERBERO: Cross-Layer Model-Based Framework for Multi-Objective Design of Reconfigurable Systems in Uncertain Hybrid Environments”, 16th ACM International Conference on Computing Frontiers (CF 2019), pp. 320–325, ACM, 2019.
- A. Bit-Monnot, L. Pulina, A. Tacchella, “Cyber-Physical Planning: Deliberation for Hybrid Systems with a Continuous Numeric State”, 29th International Conference on Automated Planning and Scheduling (ICAPS 2019), pp. 49–57, AAAI Press, 2019.
- L. Pandolfo, L. Pulina, M. Zieliński, “Exploring Semantic Archival Collections: The Case of Pilsudski Institute of America”, 15th Italian Research Conference on Digital Libraries (IRCDL 2019), Communications in Computer and Information Science, vol. 988, pp. 107–121, Springer, 2019.
- S. Vuotto, M. Narizzano, L. Pulina, A. Tacchella, “Poster: Automatic Consistency Checking of Requirements with ReqV”, 12th IEEE International Conference on Software Testing, Verification and Validation (ICST 2019), pp. 363–366, IEEE, 2019.

- A. Bit-Monnot, F. Leofante, L. Pulina, A. Tacchella, “SMT-Based Planning for Robots in Smart Factories”, 32nd International Conference on Industrial, Engineering and Other Applications of Applied Intelligent Systems (IEA/AIE 2019), Lecture Notes in Computer Science, vol. 11606, pp. 674–686, Springer, 2019.
- D. Guidotti, F. Leofante, L. Pulina, A. Tacchella, “Verification and Repair of Neural Networks: A Progress Report on Convolutional Models”, 18th International Conference of the Italian Association for Artificial Intelligence (AIIA 2019)*, Lecture Notes in Computer Science, vol. 11946, pp. 405–417, Springer, 2019.

2018

- L. Pandolfo, L. Pulina, E. Grosso, “A User Model Ontology for Adaptive Systems in Cultural Tourism Domain”, 1st International Conference on Applications of Intelligent Systems (APPIS 2018), Frontiers in Artificial Intelligence and Applications, vol. 310, pp. 212–219, IOS Press, 2018.
- L. Pandolfo, L. Pulina, M. Zieliński, “ARKIVO: An Ontology for Describing Archival Resources”, 33rd Italian Conference on Computational Logic (CILC 2018), CEUR Workshop Proceedings, vol. 2214, pp. 112–116, 2018.
- M. Narizzano, L. Pulina, A. Tacchella, S. Vuotto, “Consistency of Property Specification Patterns with Boolean and Constrained Numerical Signals”, 10th International Symposium on NASA Formal Methods (NFM 2018), Lecture Notes in Computer Science, vol. 10811, pp. 383–398, Springer, 2018.
- S. V. Korneev, N. Narodytska, L. Pulina, A. Tacchella, N. S. Bjørner, M. Sagiv, “Constrained Image Generation Using Binarized Neural Networks with Decision Procedures”, 21st International Conference on Theory and Applications of Satisfiability Testing (SAT 2018), Lecture Notes in Computer Science, vol. 10929, pp. 438–449, Springer, 2018.
- S. Kheilat-Kihel, L. Pandolfo, L. Pulina, E. Grosso, “On Leveraging Facial Emotion Recognition Techniques in Personalized Recommendations”, APPIS 2018, Frontiers in Artificial Intelligence and Applications, vol. 310, pp. 220–230, IOS Press, 2018.

2017

- L. Pandolfo, L. Pulina, “ADnOTO: A Self-Adaptive System for Automatic Ontology-Based Annotation of Unstructured Documents”, 30th International Conference on Industrial, Engineering and Other Applications of Applied Intelligent Systems (IEA/AIE 2017), Lecture Notes in Computer Science, vol. 10350, pp. 495–501, Springer, 2017.
- L. Pulina, A. Tacchella, “More Adaptive Does Not Imply Less Safe (with Formal Verification)”, 13th Haifa Verification Conference (HVC 2017), Lecture Notes in Computer Science, vol. 10629, pp. 237–240, Springer, 2017.
- L. Pandolfo, L. Pulina, M. Zieliński, “Towards an Ontology for Describing Archival Resources”, 2nd Workshop on Humanities in the Semantic Web (WHiSe 2017), CEUR Workshop Proceedings, vol. 1014, pp. 111–116, 2017.

2016

- L. Pandolfo, L. Pulina, G. Adorni, “A Framework for Automatic Population of Ontology-Based Digital Libraries”, 15th International Conference of the Italian Association for Artificial Intelligence (AIIA 2016)*, Lecture Notes in Computer Science, vol. 10037, pp. 406–417, Springer, 2016.
- G. Cicala, A. Khalili, G. Metta, L. Natale, S. Pathak, L. Pulina, A. Tacchella, “Engineering Approaches and Methods to Verify Software in Autonomous Systems”, 13th International Conference on Intelligent Autonomous Systems (IAS 2014), Advances in Intelligent Systems and Computing, vol. 302, pp. 1683–1700, Springer, 2016.
- F. Leofante, L. Pulina, A. Tacchella, “Learning with Safety Requirements: State of the Art and Open Questions”, 23rd RCRA International Workshop on Experimental Evaluation of Algorithms for Solving Problems with Combinatorial Explosion, CEUR Workshop Proceedings, vol. 1745, pp. 11–25, 2016.
- R. Kontchakov, L. Pandolfo, L. Pulina, V. Ryzhikov, M. Zakharyashev, “Temporal and Spatial OBDA with Many-Dimensional Halpern-Shoham Logic”, 25th International Joint Conference on Artificial Intelligence (IJCAI 2016), pp. 1160–1166, 2016.
- L. Pulina, “The Ninth QBF Solvers Evaluation: Preliminary Report”, 4th International Workshop on Quantified Boolean Formulas (QBF 2016), CEUR Workshop Proceedings, vol. 1719, pp. 1–13, 2016.

2015

- S. Pathak, L. Pulina, A. Tacchella, “A Case for Robust AI in Robotics”, 2nd Italian Workshop on Artificial Intelligence and Robotics (AIRO 2015), CEUR Workshop Proceedings, vol. 1544, pp. 94–103, 2015.
- M. Maratea, L. Pulina, F. Ricca, “Advances in Multi-Engine ASP Solving”, 14th International Conference of the Italian Association for Artificial Intelligence (AIIA 2015)*, Lecture Notes in Computer Science, vol. 9336, pp. 179–190, Springer, 2015.
- P. Marin, M. Narizzano, L. Pulina, A. Tacchella, E. Giunchiglia, “An Empirical Perspective on Ten Years of QBF Solving”, 22nd RCRA International Workshop, CEUR Workshop Proceedings, vol. 1451, pp. 62–75, 2015.
- G. Adorni, M. Maratea, L. Pandolfo, L. Pulina, “An Ontology for Historical Research Documents”, 9th International Conference on Web Reasoning and Rule Systems (RR 2015), Lecture Notes in Computer Science, vol. 9209, pp. 11–18, Springer, 2015.
- G. Adorni, M. Maratea, L. Pandolfo, L. Pulina, “An Ontology-Based Archive for Historical Research”, 28th International Workshop on Description Logics (DL 2015), CEUR Workshop Proceedings, vol. 1350, 2015.
- L. Pulina, A. Mazzette, L. Pandolfo, E. Piga, M. L. Ruiu, C. G. A. Tidore, “Leveraging Semantic Web Technologies for Analysis of Crime in Social Science”, 30th Italian Conference on Computational Logic (CILC 2015), CEUR Workshop Proceedings, vol. 1459, pp. 66–71, 2015.
- M. Maratea, L. Pulina, F. Ricca, “Multi-Level Algorithm Selection for ASP”, 13th International Conference on Logic Programming and Nonmonotonic Reasoning (LPNMR 2015), Lecture Notes in Computer Science, vol. 9345, pp. 439–445, Springer, 2015.
- S. Pathak, L. Pulina, A. Tacchella, “Testing a Learn-Verify-Repair Approach for Safe Human-Robot Interaction”, AIIA 2015*, Lecture Notes in Computer Science, vol. 9336, pp. 260–273, Springer, 2015.

2014

- L. Pulina, “An Ontology for Container Terminal Operations”, 8th International Conference on Web Reasoning and Rule Systems (RR 2014), Lecture Notes in Computer Science, vol. 8741, pp. 224–229, Springer, 2014.
- J.-R. Bourguet, L. Pulina, “TROVe: A Graphical Tool to Evaluate OWL Reasoners”, 3rd International Workshop on OWL Reasoner Evaluation (ORE 2014), CEUR Workshop Proceedings, vol. 1207, pp. 30–35, 2014.
- E. Grosso, A. Lagorio, L. Pulina, M. Tistarelli, “Towards Practical Space-Variant Based Face Recognition and Authentication”, 2nd International Workshop on Biometrics and Forensics (IWBIF 2014), IEEE, 2014.

2013

- J.-R. Bourguet, M. Maratea, L. Pulina, “A Reduction-Based Approach for Solving Disjunctive Temporal Problems with Preferences”, 13th International Conference of the Italian Association for Artificial Intelligence (AIIA 2013)*, Lecture Notes in Computer Science, vol. 8249, pp. 445–456, Springer, 2013.
- M. Maratea, L. Pulina, F. Ricca, “Automated Selection of Grounding Algorithm in Answer Set Programming”, AIIA 2013*, Lecture Notes in Computer Science, vol. 8249, pp. 73–84, Springer, 2013.
- S. Pathak, L. Pulina, G. Metta, A. Tacchella, “Ensuring Safety of Policies Learned by Reinforcement: Reaching Objects in the Presence of Obstacles with the iCub”, IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2013), pp. 170–175, IEEE, 2013.
- J.-R. Bourguet, L. Pulina, “FRaQuE: A Framework for Rapid Query Processing Evaluation”, 2nd International Workshop on OWL Reasoner Evaluation (ORE 2013), CEUR Workshop Proceedings, vol. 1015, pp. 61–67, 2013.
- S. Pathak, L. Pulina, G. Metta, A. Tacchella, “How to Abstract Intelligence? If Verification Is in Order”, AAAI Fall Symposium Series, Technical Report FS-13-02, pp. 58–63, 2013.
- J.-R. Bourguet, G. Cicala, L. Pulina, A. Tacchella, “OBDA and Intermodal Logistics: Active Projects and Applications”, 7th International Conference on Web Reasoning and Rule Systems (RR 2013), Lecture Notes in Computer Science, vol. 7994, pp. 210–215, Springer, 2013.

2012

- M. Maratea, L. Pulina, F. Ricca, “Applying Machine Learning Techniques to ASP Solving”, 28th International Conference on Logic Programming (ICLP 2012), LIPIcs, vol. 17, pp. 37–48, 2012.
- E. Grosso, L. Pulina, M. Tistarelli, “Modeling Biometric Template Update with Ant Colony Optimization”, 5th IAPR International Conference on Biometrics (ICB 2012), pp. 506–511, 2012.
- M. Maratea, L. Pulina, F. Ricca, “The Multi-Engine ASP Solver ME-ASP”, 13th European Conference on Logics in Artificial Intelligence (JELIA 2012), Lecture Notes in Computer Science, vol. 7519, pp. 484–487, Springer, 2012.
- E. Grosso, A. Lagorio, L. Pulina, M. Tistarelli, “Understanding Critical Factors in Appearance-Based Gender Categorization”, ECCV 2012 Workshops and Demonstrations, Lecture Notes in Computer Science, vol. 7584, pp. 280–289, Springer, 2012.

2011

- L. Pulina, A. Tacchella, “Checking Safety of Neural Networks with SMT Solvers: A Comparative Evaluation”, 12th International Conference of the Italian Association for Artificial Intelligence (AIIA 2011)*, Lecture Notes in Computer Science, vol. 6934, pp. 127–138, Springer, 2011.
- M. Maratea, L. Pulina, “Over-Subscription Planning with Boolean Optimization: An Assessment of State-of-the-Art Solutions”, AIIA 2011*, Lecture Notes in Computer Science, vol. 6934, pp. 420–425, Springer, 2011.

2010

- L. Pulina, A. Tacchella, “An Abstraction-Refinement Approach to Verification of Artificial Neural Networks”, 17th RCRA Workshop, CEUR Workshop Proceedings, vol. 616, 2010.
- L. Pulina, A. Tacchella, “An Abstraction-Refinement Approach to Verification of Artificial Neural Networks”, 22nd International Conference on Computer Aided Verification (CAV 2010), Lecture Notes in Computer Science, vol. 6174, pp. 243–257, Springer, 2010.
- D. H. Stern, R. Herbrich, T. Graepel, H. C. Samulowitz, L. Pulina, A. Tacchella, “Collaborative Expert Portfolio Management”, 24th AAAI Conference on Artificial Intelligence (AAAI 2010), pp. 179–184, AAAI Press, 2010.
- G. Metta, L. Natale, S. Pathak, L. Pulina, A. Tacchella, “Safe and Effective Learning: A Case Study”, IEEE International Conference on Robotics and Automation (ICRA 2010), pp. 4809–4814, IEEE, 2010.
- G. Metta, L. Natale, S. Pathak, L. Pulina, A. Tacchella, “Safe Learning with Real-Time Constraints: A Case Study”, 23rd International Conference on Industrial Engineering and Other Applications of Applied Intelligent Systems (IEA/AIE 2010), Lecture Notes in Computer Science, vol. 6096, pp. 133–142, Springer, 2010.
- C. Peschiera, L. Pulina, A. Tacchella, U. Bubeck, O. Kullmann, I. Lynce, “The Seventh QBF Solvers Evaluation (QBFEVAL'10)”, 13th International Conference on Theory and Applications of Satisfiability Testing (SAT 2010), Lecture Notes in Computer Science, vol. 6175, pp. 237–250, Springer, 2010.

2009

- L. Pulina, A. Tacchella, “A Structural Approach to Reasoning with Quantified Boolean Formulas”, 16th RCRA Workshop, CEUR Workshop Proceedings, vol. 589, 2009.
- L. Pulina, A. Tacchella, “A Structural Approach to Reasoning with Quantified Boolean Formulas”, 21st International Joint Conference on Artificial Intelligence (IJCAI 2009), pp. 596–602, 2009.
- L. Pulina, A. Tacchella, “Hard QBF Encodings Made Easy: Dream or Reality?”, 11th Conference of the Italian Association for Artificial Intelligence (AIIA 2009)*, Lecture Notes in Computer Science, vol. 5883, pp. 31–41, Springer, 2009.
- L. Pulina, A. Tacchella, “Learning to Integrate Deduction and Search in Reasoning about Quantified Boolean Formulas”, 7th International Symposium on Frontiers of Combining Systems (FroCoS 2009), Lecture Notes in Computer Science, vol. 5749, pp. 350–365, Springer, 2009.
- R. Kontchakov, L. Pulina, U. Sattler, T. Schneider, P. Selmer, F. Wolter, M. Zakharyashev, “Minimal Module Extraction from DL-Lite Ontologies Using QBF Solvers”, IJCAI 2009, pp. 836–841, 2009.
- L. Pulina, A. Tacchella, “Treewidth: A Useful Marker of Empirical Hardness in Quantified Boolean Logic Encodings”, 15th RCRA Workshop, CEUR Workshop Proceedings, vol. 451, 2009.

2008

- L. Pulina, A. Tacchella, “QuBIS: An (In)Complete Solver for Quantified Boolean Formulas”, 7th Mexican International Conference on Artificial Intelligence (MICAI 2008), Lecture Notes in Computer Science, vol. 5317, pp. 34–43, Springer, 2008.
- L. Pulina, A. Tacchella, “Treewidth: A Useful Marker of Empirical Hardness in Quantified Boolean Logic Encodings”, 15th International Conference on Logic for Programming, Artificial Intelligence and Reasoning (LPAR 2008), Lecture Notes in Computer Science, vol. 5330, pp. 528–542, Springer, 2008.

2007

- L. Pulina, A. Tacchella, “A Multi-Engine Solver for Quantified Boolean Formulas”, 13th International Conference on Principles and Practice of Constraint Programming (CP 2007), Lecture Notes in Computer Science, vol. 4741, pp. 574–589, Springer, 2007.
- M. Narizzano, L. Pulina, A. Tacchella, “Ranking and Reputation Systems in the QBF Competition”, 10th Congress of the Italian Association for Artificial Intelligence (AIIA 2007)*, Lecture Notes in Computer Science, vol. 4733, pp. 97–108, Springer, 2007.

2006

- L. Pulina, “Empirical Evaluation of Scoring Methods”, 3rd European Starting AI Researchers Symposium (STAIRS 2006), Frontiers in Artificial Intelligence and Applications, vol. 142, pp. 108–119, IOS Press, 2006.
- M. Narizzano, L. Pulina, A. Tacchella, “The QBFEVAL Web Portal”, 10th European Conference on Logics in Artificial Intelligence (JELIA 2006), Lecture Notes in Computer Science, vol. 4160, pp. 494–497, Springer, 2006.

10.3 Book chapters

- G. Adorni, M. Maratea, S. Mura, L. Pandolfo, L. Pulina, F. Soddu, “A Domain Ontology for Historical Research Documents”, in L. Bordoni, F. Mele, A. Sorgente (eds.), *Artificial Intelligence for Cultural Heritage*, Cambridge Scholars Publishing, Newcastle upon Tyne, pp. 25–48, 2016.

10.4 Edited volumes and special issues

- D. Guidotti, L. Pandolfo, L. Pulina (eds.), *Proceedings of the 40th Italian Conference on Computational Logic – CILC 2025*, Alghero, 25–27 June 2025, CEUR Workshop Proceedings, vol. 4003, CEUR-WS, 2025.
- L. Pulina, M. Seidl (eds.), *Theory and Applications of Satisfiability Testing – SAT 2020*. 23rd International Conference, Proceedings, Lecture Notes in Computer Science, vol. 12178, Springer, 2020.
- L. Pulina (ed.), *Proceedings of the Cyber-Physical Systems PhD Workshop 2019*, Alghero, 23 September 2019, CEUR Workshop Proceedings, vol. 2457, CEUR-WS, 2019.
- M. Seidl, L. Pulina (Guest Editors), *SAT 2018 Competitions and Evaluations*, special volume of the *Journal on Satisfiability, Boolean Modeling and Computation*, vol. 11, n. 1, 2019.
- F. Palumbo, C. Pilato, L. Pulina, C. Sau (eds.), *Proceedings of the Cyber-Physical Systems PhD & Postdoc Workshop 2018*, Alghero, 17 September 2018, CEUR Workshop Proceedings, vol. 2208, CEUR-WS, 2018.
- L. Pulina, L. Pandolfo, D. Guidotti, S. Schlobach (Guest Editors), *Artificial Intelligence and Knowledge Representation for Cultural Heritage and Tourism Enhancement*, Special Issue, Information, editorial activity started in 2024.

10.5 Preprints, technical reports and other scientific contributions

Preprints and scientific reports

- S. Heisinger, L. Pulina, M. Seidl, “The QBF Gallery 2023”, arXiv, arXiv:2604.16153, 2026.
- D. Guidotti, S. Demarchi, L. Pulina, A. Tacchella, “Evaluating Reachability Algorithms for Neural Networks on NeVer2”, preprint, 2022.
- D. Guidotti, L. Pulina, A. Tacchella, “NeVer 2.0: Learning, Verification and Repair of Deep Neural Networks”, arXiv, arXiv:2011.09933, 2020. Preliminary work preceding the subsequent development of NeVer2.
- D. Guidotti, F. Leofante, L. Pulina, A. Tacchella, “Verification of Neural Networks: Enhancing Scalability through Pruning”, arXiv, arXiv:2003.07636, 2020. Preprint of the version subsequently published at ECAI 2020.
- M. Narizzano, L. Pulina, A. Tacchella, S. Vuotto, “Automated Requirements-Based Testing of Black-Box Reactive Systems”, arXiv, arXiv:2005.06750, 2020. Preprint of the version subsequently published at NFM 2020.
- F. Leofante, N. Narodytska, L. Pulina, A. Tacchella, “Automated Verification of Neural Networks: Advances, Challenges and Perspectives”, arXiv, arXiv:1805.09938, 2018.
- A. Bit-Monnot, F. Leofante, L. Pulina, E. Ábrahám, A. Tacchella, “SMarTplan: A Task Planner for Smart Factories”, arXiv, arXiv:1806.07135, 2018.
- S. V. Korneev, N. Narodytska, L. Pulina, A. Tacchella, N. S. Bjørner, M. Sagiv, “Constrained Image Generation Using Binarized Neural Networks with Decision Procedures”, arXiv, arXiv:1802.08795, 2018. Preprint della versione successivamente pubblicata in SAT 2018.
- M. Narizzano, L. Pulina, A. Tacchella, S. Vuotto, “Consistency of Property Specification Patterns with Boolean and Constrained Numerical Signals”, arXiv, arXiv:1712.04162, 2017. Preprint of work subsequently published at NFM 2018 and further developed in Innovations in Systems and Software Engineering.
- M. Maratea, L. Pulina, F. Ricca, “The Multi-Engine ASP Solver ME-ASP: Progress Report”, arXiv, arXiv:1405.0876, 2014. Version associated with the contribution presented at NMR 2014.
- M. Maratea, L. Pulina, F. Ricca, “A Multi-Engine Approach to Answer Set Programming”, arXiv, arXiv:1306.4925, 2013. Preprint of the version subsequently published in *Theory and Practice of Logic Programming*.

Other reviewed scientific contributions

- P. Marin, M. Narizzano, L. Pulina, A. Tacchella, E. Giunchiglia, “Old Challenges and New Solutions: A Comprehensive Assessment of State-of-the-Art QBF Solvers”, *International Workshop on Quantification (QUANTIFY 2015)*, 2015.
- M. Maratea, L. Pulina, F. Ricca, “The Multi-Engine ASP Solver ME-ASP: Progress Report”, *15th International Workshop on Non-Monotonic Reasoning (NMR 2014)*, Vienna, 2014.
- G. Adorni, M. Maratea, L. Pandolfo, L. Pulina, “ARAP: A Semantic Digital Archive for Historical Research”, *Artificial Intelligence for Cultural Heritage Workshop (AICH 2014)**, Pisa, 2014.
- J.-R. Bourguet, E. Giunchiglia, M. Maratea, L. Pandolfo, L. Pulina, S. Saccone, S. Siri, “Metodi innovativi per il supporto alle decisioni riguardanti l’ottimizzazione delle attività in un terminal container”, *RiCeReA 2013*, workshop of the XIII Conference of the Italian Association for Artificial Intelligence, 2013.
- J.-R. Bourguet, M. Maratea, L. Pulina, “Efficient DTPP Solving with a Reduction-Based Approach”, *5th Italian Workshop on Planning and Scheduling (IPS 2013)*, 2013.
- C. Liperi, G. Sales, L. Pistidda, L. Floris, L. Pulina, M. G. Manconi, L. Brazzi, “La capnometria nell’adulto”, *CARACT 2013*, 2013.

- M. Maratea, L. Pulina, F. Ricca, “On the Automated Selection of ASP Instantiators”, 2nd Workshop on Grounding and Transformations for Theories With Variables, p. 39, 2013.
- S. Pathak, L. Pulina, A. Tacchella, G. Metta, “Hierarchical Abstraction for Verifiable Learning”, RiCeRcA 2013, 2013.
- J.-R. Bourguet, G. Cicala, L. Pulina, A. Tacchella, “An Experimental Evaluation of Tools for Ontology-Based Data Access”, 20th RCRA International Workshop on Experimental Evaluation of Algorithms for Solving Problems with Combinatorial Explosion, 2013.
- L. Lorusso, G. Brelstaff, L. Pulina, E. Grosso, “On the Plausibility of a Generalized Model of Perceived Similarity Between Faces”, European Conference on Visual Perception, 2012; abstract published in *Perception*, vol. 41, p. 116.
- L. Pulina, “A Swarm Intelligence Approach for Biometrics Verification and Identification”, 19th RCRA Workshop, 2012.
- M. Maratea, L. Pulina, F. Ricca, “Applying Machine Learning Techniques to ASP Solving”, 9th Italian Convention on Computational Logic (CILC 2012), 2012. Preliminary version of the work subsequently published in the ICLP 2012 proceedings.
- L. Pulina, A. Tacchella, “Challenging SMT Solvers to Verify Neural Networks”, 18th RCRA Workshop, IJCAI 2011 Workshops, 2011. Preliminary version of the subsequent AI Communications paper.
- M. Maratea, M. Pianfetti, L. Pulina, “Solving Disjunctive Temporal Problems with Preferences Using Boolean Optimization Solvers”, 18th RCRA Workshop, IJCAI 2011 Workshops, 2011.
- L. Pulina, A. Tacchella, “AQME’10 System Description”, Pragmatics of SAT (POS 2010), SAT 2010 workshop, 2010. Workshop version of the system description published in JSAT in the same year.
- C. Peschiera, L. Pulina, A. Tacchella, “Designing a Solver Competition: The QBFEVAL’10 Case Study”, Evaluation Methods for Solvers and Quality Metrics for Solutions (EMSQMS 2010), workshop CAV/IJCAR, 2010.
- L. Pulina, A. Tacchella, “Can We Check Robot ‘Brains’?”, Formal Methods for Robotics and Automation, ICRA 2010 workshop, 2010.
- L. Pulina, A. Tacchella, “An Empirical Study of QBF Encodings: From Treewidth to Useful Preprocessing”, 15th RCRA Workshop, 2008. Preliminary version of the subsequent *Fundamenta Informaticae* paper.
- L. Pulina, “Time to Learn or Time to Forget? Strengths and Weaknesses of a Self-Adaptive Approach to Reasoning in Quantified Boolean Formulas”, Doctoral Program of the 14th International Conference on Principles and Practice of Constraint Programming (CP 2008), Sydney, 2008.
- L. Pulina, A. Tacchella, “What Makes for Hard QBF Encodings?”, 2nd International Workshop on Quantification in Constraint Programming (QiCP 2008), Sydney, 2008.
- C. Ghersi, L. Pulina, A. Tacchella, “Which System Should I Buy? A Case Study about the QBF Solvers Competition”, International Workshop on Scheduling a Scheduling Competition, co-located with ICAPS 2007, 2007.
- L. Pulina, A. Tacchella, “Harnessing Machine Learning Techniques to Build a Robust Solver for Quantified Boolean Formulas”, 14th RCRA Workshop, 2007.
- M. Narizzano, L. Pulina, A. Tacchella, “Voting Systems and Automated Reasoning: The QBF Evaluation Case Study”, 1st International Workshop on Computational Social Choice (COMSOC 2006), Amsterdam, 2006.
- M. Narizzano, L. Pulina, A. Tacchella, “Competitive Evaluation of Automated Reasoning Tools: Statistical Testing vs. Empirical Scoring”, Workshop on Empirical Methods for the Analysis of Algorithms (EMAA 2006), 2006.
- M. Narizzano, L. Pulina, A. Tacchella, “Scoring Methods for the Evaluation of Automated Reasoning Systems”, Workshop “Analisi sperimentale e benchmark di algoritmi per l’Intelligenza Artificiale”, RCRA, Udine, 2006.