Ionel Eduard STAN, Ph.D.

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Short Bio

Ionel Eduard Stan is an Assistant Professor (RTD/a) at the University of Milano-Bicocca (DISCo), within the Intelligent Sensing Laboratory (ISLab). His research builds **trustworthy, interpretable artificial intelligence (AI) for sequential and multimodal data**, combining modern learning with **logic-based and neuro-symbolic** representations to obtain explanations that can be inspected, validated, and monitored. His work targets high-impact settings—especially healthcare and telemonitoring—and extends to smart environments. He contributes to Italian programmes (ANTHEM/PNC; previously iNEST/PNRR) and serves the community as Associate Editor (*Neurocomputing*, *Frontiers in Artificial Intelligence*), including as Lead Editor of a special issue on explainable AI (XAI) for human-centric healthcare, as well as Area Chair and Organizing/Program Committee member for major AI venues. He teaches Databases (B.Sc.), Intelligent Consumer Technologies (M.Sc.), and Foundations of AI (2nd-level Master's).

Research Focus

Trustworthy (explainable and neuro-symbolic) AI for time series and multimodal signals, with an emphasis on **logic-guided learning and representation, auditable explanations, and model monitoring**, applied to healthcare, telemonitoring, and smart environments.

Academic Appointments / Experience

- **Assistant Professor (RTD/a)** *Jul 2024–Present*
  University of Milano-Bicocca (Intelligent Sensing Laboratory—ISLab) Milan, Italy
  - Teaching (Instructor of record), thesis supervision, and mentoring activities.
  - Research within the ANTHEM project (Piano Nazionale Complementare—PNC): XAI and neuro-symbolic methods for signals and healthcare-oriented AI.
- **Research Fellow / Postdoctoral Researcher** *Mar 2023–Jun 2024*
  Free University of Bozen-Bolzano (Database Group—DBS Group) Bozen-Bolzano, Italy
  - Research in the iNEST ecosystem (Piano Nazionale di Ripresa e Resilienza—PNRR): time series analytics and applied machine learning.
- **Research Assistant** *Nov 2019–Jul 2024*
  University of Ferrara (Applied Computational Logic and AI Laboratory—ACLAI Lab) Ferrara, Italy
  - Modal and interval temporal logic; symbolic / modal machine learning.
  - Supervised and coordinated multiple theses; some outcomes published in international venues.

Education

- **Ph.D. in Mathematics (Excellent cum laude)** *Nov 2019–Feb 2023*
  University of Parma Parma, Italy
- **M.Sc. in Computer Science (110/110 cum laude)** *Oct 2017–Oct 2019*
  University of Udine Udine, Italy
- **B.Sc. in Computer Science (110/110 cum laude)** *Oct 2014–Jun 2017*
  University of Ferrara Ferrara, Italy

Teaching

- **Official Lecturer (Instructor of Record)** *Jul 2024–Present*
  University of Milano-Bicocca (DISCo) Milan, Italy

Course	Programme / Level	Key topics	Hours
Databases	B.Sc. Computer Science	SQL; relational algebra; database design; lab/project work	30 h/yr
Intelligent Consumer Technologies	M.Sc. AI for Society and Technology (AI4ST)	XAI; ethical/legal/privacy aspects; agentic AI (overview)	6 h/yr

- **Official Lecturer (Instructor of Record)** *Dec 2025–Present*
  Bicocca Academy (2nd-level Master, DAI4Health) Milan, Italy

Course	Programme / Level	Key topics	Hours
Foundations of Artificial Intelligence	2nd-level Master (DAI4Health)	NLP foundations; agentic AI (overview); ethical/legal/privacy aspects of AI in healthcare	10 h/yr

- **Teaching Assistant** *Oct 2019–Feb 2023*
  University of Ferrara Ferrara, Italy

Course	Programme / Level	Key topics	Hours
Algorithms and Data Structures	B.Sc. Computer Science	Laboratory/project work	21 h/yr
Databases and Laboratory	B.Sc. Computer Science	ER-to-relational mapping; relational algebra; SQL; normal forms	20 h/yr
Statistics and Probability Calculus	B.Sc. Computer Science	Descriptive statistics; discrete/continuous random variables; confidence intervals; hypothesis testing	20 h/yr

Editorial, Reviewing & Conference Service

- **Associate Editor** *Oct 2025–Present*
  Elsevier Neurocomputing Journal ***[IF: 6.5, Q1]***
- **Associate Editor** *Mar 2024–Present*
  Frontiers in Artificial Intelligence Journal, Pattern Recognition Section ***[IF: 4.7, Q2]***
  - Lead Editor of the Special Issue on Explainable Artificial Intelligence for Trustworthy and Human-Centric Healthcare: Methods, Evaluation, and Clinical Impact (25+ submissions to date).
- **Technical Committee Member** *Apr 2025–Present*
  IEEE Consumer Technology Society (CTSoc), Machine learning, Deep learning and AI in CE (MDA) Technical Committee
- **Tutorials/Special Session Co-Chair**
  IEEE International Conference on Intelligent Reality (ICIR), 2026
- **Area Chair**
  IEEE International Joint Conference on Neural Networks (IJCNN), 2025–2026 ***[CORE Rank: B]***
- **Area Chair**
  IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2026 ***[CORE Rank: B]***
- **Program Committee**
  Association for the Advancement of Artificial Intelligence (AAAI) Conference on Artificial Intelligence, 2024–2026 ***[CORE Rank: A*]***
- **Program Committee**
  International Conference on Learning Representations (ICLR), 2025–2026 ***[CORE Rank: A*]***
- **Program Committee**
  International Joint Conference on Artificial Intelligence (IJCAI), 2025–2026 ***[CORE Rank: A*]***
- **Program Committee**
  European Conference on Artificial Intelligence (ECAI), 2025 ***[CORE Rank: A]***
- **Reviewer**
  Elsevier Engineering Applications of Artificial Intelligence Journal ***[IF: 8.0; Q1]***
- **Reviewer**
  IEEE Journal of Biomedical and Health Informatics ***[IF: 6.7; Q1]***
- **Reviewer**
  AI Access Foundation Journal of Artificial Intelligence Research ***[IF: 4.6; Q1]***
- **Reviewer**
  PeerJ Computer Science Journal ***[IF: 2.5; Q1]***
- **Reviewer**
  Elsevier Information and Computation Journal ***[IF: 1.0; Q2]***

Research Projects

- **ANTHEM — AdvaNced Technologies for Human-centred Medicine** *Jul 2024–Present*
  Collaborator (University of Milano-Bicocca, ISLab)
  ◦ Research on explainability and neuro-symbolic learning for time series and multimodal physiological signals, aligned with trustworthy AI in healthcare.

- **iNEST — Interconnected Nord-Est Innovation Ecosystem** *Feb 2023–Jun 2024*
  Collaborator (Free University of Bozen-Bolzano, DBS Group)
  ◦ Contributed to applied time-series analytics and machine learning pipelines within a multi-partner innovation ecosystem, supporting research-to-impact activities on real-world data.

- **Certification, Monitoring, and Interpretability of Artificial Intelligent Systems** *Jan 2023–Jan 2024*
  Research collaborator (University of Ferrara, ACLAI Lab) — GNCS / INdAM
  ◦ Developed and assessed interpretability and monitoring strategies for AI systems, focusing on explainability reporting, reliability checks, and reproducible evaluation practices.

- **Set-up and Optimization of an ML Model to Predict Gas Turbine Trip** *Jan 2022–Jan 2023*
  Research collaborator (University of Ferrara, ACLAI Lab) — Siemens Energy Global GmbH & Co. KG
  ◦ Supported predictive modelling for rare-event/failure prediction on operational turbine data, with emphasis on validation protocols and interpretable model analysis and rule extraction for engineering stakeholders.

- **Symbolic and Numerical Analysis of Cyber-Physical Systems** *Jan 2022–Jan 2023*
  Research collaborator (University of Ferrara, ACLAI Lab) — GNCS / INdAM
  ◦ Contributed to hybrid symbolic–numerical methods for analyzing cyber-physical behaviors, connecting formal modeling assumptions with empirical validation on representative scenarios.

- **Modal Geometric Symbolic Learning** *May 2021–Jun 2022*
  Research collaborator (University of Ferrara, ACLAI Lab) — University of Ferrara
  ◦ Investigated interpretable learning methods grounded in modal/logical representations, including prototype implementations and empirical assessment on benchmark tasks.

- **Natural Language Elaboration and Temporal Logic for Text Formalization** *Jan 2021–Jan 2022*
  Research collaborator (University of Ferrara, ACLAI Lab) — GNCS / INdAM
  ◦ Explored NLP-to-logic workflows to formalize textual requirements into temporal/logical specifications, targeting traceability and explainable reasoning over system properties.

- **Strategic Reasoning and Automated Synthesis of Multi-Agent Systems** *Jan 2020–Jan 2021*
  Research collaborator (University of Ferrara, ACLAI Lab) — GNCS / INdAM
  ◦ Contributed to strategic reasoning and automated synthesis themes, strengthening the formal-methods research line on explainability and symbolic reasoning.

Awards & Scholarships

- **Finalist (2nd place) & Team Leader** *Nov 2021*
  Huawei Italy University Challenge
- **3-year Ph.D. Full Scholarship** *Sep 2019*
  Ministero dell'Istruzione, dell'Università e della Ricerca (MIUR)
- **Best M.Sc. Graduate Student in Computer Science** *Sep 2019*
  University of Udine
  ◦ Awarded by the Rector at the Dacia Arena Stadium; prize €1000.
- **Erasmus$^+$ Full Scholarship** *Sep 2016*
  University of Ferrara

Student Supervision (Theses & Internships)

Total supervision: 10+ B.Sc. theses/internships; 5+ M.Sc. theses/internships. Supervision includes problem definition, methodological guidance, implementation support, evaluation protocols, and thesis/report writing.

Topic coverage: Formal Methods; Knowledge-Based AI; Symbolic AI; Robotics; Human–Computer Interaction; Healthcare AI (e.g., dementia prediction); Trustworthy/Explainable AI.

Level	#	Notes (scope and international experience)
B.Sc. theses / internships	10+	End-to-end supervision of short-to-medium projects, including prototyping and empirical evaluation
M.Sc. theses / internships	5+	Supervision of research-oriented projects with stronger methodological depth and experimental design
Erasmus$^+$ visiting student (traineeship)	1	Hosted and supervised a 3-month Erasmus$^+$ internship (incoming student from TED University, Turkey)

Additional Information

Languages: Romanian (native), Italian (fluent), English (fluent), Spanish (fluent), French (basic)

Talks & Presentations

I=Invited talks, O=Oral sessions, P=Poster sessions

Invited talks

[I1] I. E. Stan. "Modal Isolation Forest: Harnessing Modal Logic in Isolation-based Anomaly Detection". Annual Meeting of the GNCS (Gruppo Nazionale Calcolo Scientifico) / INdAM (Istituto Nazionale di Alta Matematica) Project (Rome, Italy). Invited talk. June 25, 2024.

[I2] I. E. Stan. "NLP meets Modal Logic". Annual Meeting of the GNCS (Gruppo Nazionale Calcolo Scientifico) / INdAM (Istituto Nazionale di Alta Matematica) Project (Rome, Italy). Invited talk. May 11, 2023.

[I3] I. E. Stan. "Modal Symbolic Learning". Seminar for the Faculty of Computer Science (Iasi, Romania (virtual due to COVID-19 pandemic)). Invited talk. Nov. 7, 2021.

Conference oral presentations

[O1] I. E. Stan. "Fitting's Style Many-Valued Interval Temporal Logic Tableau System: Theory and Implementation". 31st International Symposium on Temporal Representation and Reasoning, TIME 2024 (Montpellier, France). Oral presentation. Oct. 29, 2024.

[O2] I. E. Stan. "On Modal Logic Association Rule Mining". 23rd Italian Conference on Theoretical Computer Science, ICTCS 2022 (Rome, Italy). Oral presentation. Sept. 10, 2022.

[O3] I. E. Stan. "Multi-Frame Modal Symbolic Learning". 3rd Workshop on Artificial Intelligence and Formal Verification, Logic, Automata, and Synthesis hosted by the Twelfth International Symposium on Games, Automata, Logics, and Formal Verification, GandALF 2021 (Padua, Italy). Oral presentation. Sept. 22, 2021.

[O4] I. E. Stan. "A Note on Ultimately-Periodic Finite Interval Temporal Logic Model Checking". 2nd Workshop on Artificial Intelligence and Formal Verification, Logic, Automata, and Synthesis hosted by the Bolzano Summer of Knowledge, (BOSK 2020) (Bozen-Bolzano, Italy). Oral presentation. Sept. 25, 2020.

[O5] I. E. Stan. "Knowledge Extraction with Interval Temporal Logic Decision Trees". 27th International Symposium on Temporal Representation and Reasoning, TIME 2020 (Bozen-Bolzano, Italy). Oral presentation. Sept. 24, 2020.

[O6] I. E. Stan. "Rule Extraction via Dynamic Discretization with an Application to Air Quality Modelling". 14th International Rule Challenge, 4th Doctoral Consortium, and 6th Industry Track @ RuleML+RR 2020 co-located with 16th Reasoning Web Summer School (RW 2020) 12th DecisionCAMP 2020 as part of Declarative AI 2020 (Oslo, Norway (virtual due to COVID-19 pandemic)). Oral presentation. June 30, 2020.

[O7] I. E. Stan. "Implementation of a Tableau-based Satisfiability Checker for HS3". 32nd Italian Conference on Computational Logic, CILC 2017 Naples, Italy, September 26-28, 2017 (Naples, Italy). Oral presentation. Sept. 27, 2017.

Poster presentations

[P1] I. E. Stan. "Evolutionary Explainable Rule Extraction from (Modal) Random Forests". 26th European Conference on Artificial Intelligence, ECAI 2023 (Kraków, Poland). Poster presentation. Oct. 4, 2023.

Publications

J=Journal, C=Conference, W=Workshop, U=Under review, S=Software

Journal articles (peer-reviewed)

[J1] I. E. Stan, H. Amrani, P. Napoletano, and D. D'Auria. "Authenticated Robotic Teleoperation With Task Recognition". In: *IEEE Consumer Electron. Mag.* 15.1 (2026), pp. 33–40. DOI: 10.1109/MCE.2025.3546049.

[J2] I. E. Stan, D. D'Auria, and P. Napoletano. "A Systematic Literature Review of Innovations, Challenges, and Future Directions in Telemonitoring and Wearable Health Technologies". In: *IEEE Journal of Biomedical and Health Informatics* (2025), pp. 1–22. DOI: 10.1109/JBHI.2025.3598056.

[J3] G. Pagliarini, S. Scaboro, G. Serra, G. Sciavicco, and I. E. Stan. "Neural-symbolic temporal decision trees for multivariate time series classification". In: *Inf. Comput.* 301 (2024), p. 105209. DOI: 10.1016/J.IC.2024.105209.

[J4] G. Bechini, E. Losi, L. Manservigi, G. Pagliarini, G. Sciavicco, I. E. Stan, and M. Venturini. "Statistical Rule Extraction for Gas Turbine Trip Prediction". In: *Journal of Engineering for Gas Turbines and Power* 145.5 (2023), p. 051017. DOI: 10.1115/1.4056287.

[J5] W. Conradie, D. D. Monica, E. Muñoz-Velasco, G. Sciavicco, and I. E. Stan. "Fuzzy Halpern and Shoham's interval temporal logics". In: *Fuzzy Sets Syst.* 456 (2023), pp. 107–124. DOI: 10.1016/J.FSS.2022.05.014.

[J6] F. Manzella, G. Pagliarini, G. Sciavicco, and I. E. Stan. "The voice of COVID-19: Breath and cough recording classification with temporal decision trees and random forests". In: *Artif. Intell. Medicine* 137 (2023), p. 102486. DOI: 10.1016/J.ARTMED.2022.102486.

[J7] E. Lucena-Sánchez, G. Sciavicco, and I. E. Stan. "Feature and Language Selection in Temporal Symbolic Regression for Interpretable Air Quality Modelling". In: *Algorithms* 14.3 (2021), p. 76. DOI: 10.3390/A14030076.

[J8] E. Muñoz-Velasco, M. Pelegrín-García, P. Sala, G. Sciavicco, and I. E. Stan. "On coarser interval temporal logics". In: *Artif. Intell.* 266 (2019), pp. 1–26. DOI: 10.1016/J.ARTINT.2018.09.001.

Conference papers (peer-reviewed)

[C1] P. Bellodi, P. Casavecchia, A. Paparella, G. Sciavicco, and I. E. Stan. "Assessing the (In)Ability of LLMs to Reason in Interval Temporal Logic". In: *32nd International Symposium on Temporal Representation and Reasoning, TIME 2025, Queen Mary University of London, UK, August 27-29, 2025*. Ed. by T. Vidal and P. A. Walega. Vol. 355. LIPIcs. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2025, 4:1–4:15. DOI: 10.4230/LIPICS.TIME.2025.4.

[C2] M. Milella, G. Pagliarini, G. Sciavicco, and I. E. Stan. "Temporal Association Rules from Motifs (Short Paper)". In: *32nd International Symposium on Temporal Representation and Reasoning, TIME 2025, Queen Mary University of London, UK, August 27-29, 2025*. Ed. by T. Vidal and P. A. Walega. Vol. 355. LIPIcs. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2025, 19:1–19:7. DOI: 10.4230/LIPICS.TIME.2025.19.

[C3] G. Badia, C. Noguera, A. Paparella, G. Sciavicco, and I. E. Stan. "Fitting's Style Many-Valued Interval Temporal Logic Tableau System: Theory and Implementation". In: *31st International Symposium on Temporal Representation and Reasoning, TIME 2024, Montpellier, France, October 28-30, 2024*. Ed. by P. Sala, M. Sioutis, and F. Wang. Vol. 318. LIPIcs. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2024, 7:1–7:16. DOI: 10.4230/LIPICS.TIME.2024.7.

[C4] E. Marzano, G. Pagliarini, R. Pasini, G. Sciavicco, and I. E. Stan. "Symbolic Audio Classification via Modal Decision Tree Learning". In: *Proceedings of the 3rd Italian Conference on Big Data and Data Science (ITADATA 2024), Pisa, Italy, September 17-19, 2024*. Report number ITADATA/2024/03; preprint arXiv:2503.17018. 2024. URL: https://arxiv.org/abs/2503.17018.

[C5] M. Milella, G. Pagliarini, G. Sciavicco, and I. E. Stan. "ModalFP-Growth: Efficient Extraction of Modal Association Rules from Non-Tabular Data". In: *Proceedings of the 25th Italian Conference on Theoretical Computer Science, Torino, Italy, September 11-13, 2024*. Ed. by U. de'Liguoro, M. Palazzo, and L. Roversi. Vol. 3811. CEUR Workshop Proceedings. CEUR-WS.org, 2024, pp. 241–254. URL: https://ceur-ws.org/Vol-3811/paper150.pdf.

[C6] G. Pagliarini, A. Paradiso, G. Sciavicco, and I. E. Stan. "On Modal Logic Formulae Minimization". In: *Proceedings of the 39th Italian Conference on Computational Logic, Rome, Italy, June 26-28, 2024*. Ed. by E. D. Angelis and M. Proietti. Vol. 3733. CEUR Workshop Proceedings. CEUR-WS.org, 2024. URL: https://ceur-ws.org/Vol-3733/paper2.pdf.

[C7] P. Cavina, F. Manzella, G. Pagliarini, G. Sciavicco, and I. E. Stan. "(Un)supervised Univariate Feature Extraction and Selection for Dimensional Data". In: *Proceedings of the 2nd Italian Conference on Big Data and Data Science (ITADATA 2023), Naples, Italy, September 11-13, 2023*. Ed. by N. Bena, B. D. Martino, A. Maratea, A. Sperduti, E. D. Nardo, A. Ciaramella, R. Montella, and C. A. Ardagna. Vol. 3606. CEUR Workshop Proceedings. CEUR-WS.org, 2023. URL: https://ceur-ws.org/Vol-3606/paper51.pdf.

[C8] W. Conradie, R. Monego, E. Muñoz-Velasco, G. Sciavicco, and I. E. Stan. "A Sound and Complete Tableau System for Fuzzy Halpern and Shoham's Interval Temporal Logic". In: *30th International Symposium on Temporal Representation and Reasoning, TIME 2023, NCSR Demokritos, Athens, Greece, September 25-26, 2023*. Ed. by A. Artikis, F. Bruse, and L. Hunsberger. Vol. 278. LIPIcs. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2023, 9:1–9:14. DOI: 10.4230/LIPICS.TIME.2023.9.

[C9] D. D. Fante, F. Manzella, G. Sciavicco, and I. E. Stan. "A Post-Modern Approach to Automatic Metaphor Identification". In: *Proceedings of the 9th Italian Conference on Computational Linguistics, Venice, Italy, November 30 - December 2, 2023*. Ed. by F. Boschetti, G. E. Lebani, B. Magnini, and N. Novielli. Vol. 3596. CEUR Workshop Proceedings. CEUR-WS.org, 2023. URL: https://ceur-ws.org/Vol-3596/short9.pdf.

[C10] M. Ghiotti, F. Manzella, G. Pagliarini, G. Sciavicco, and I. E. Stan. "Evolutionary Explainable Rule Extraction from (Modal) Random Forests". In: *ECAI 2023 - 26th European Conference on Artificial Intelligence, September 30 - October 4, 2023, Kraków, Poland - Including 12th Conference on Prestigious Applications of Intelligent Systems (PAIS 2023)*. Ed. by K. Gal, A. Nowé, G. J. Nalepa, R. Fairstein, and R. Radulescu. Vol. 372. Frontiers in Artificial Intelligence and Applications. IOS Press, 2023, pp. 827–834. DOI: 10.3233/FAIA230350.

[C11] F. Manzella, G. Pagliarini, G. Sciavicco, and I. E. Stan. "Efficient Modal Decision Trees". In: *AIxIA 2023 - Advances in Artificial Intelligence - XXIInd International Conference of the Italian Association for Artificial Intelligence, AIxIA 2023, Rome, Italy, November 6-9, 2023, Proceedings*. Ed. by R. Basili, D. Lembo, C. Limongelli, and A. Orlandini. Vol. 14318. Lecture Notes in Computer Science. Springer, 2023, pp. 381–395. DOI: 10.1007/978-3-031-47546-7_26.

[C12] D. D. Monica, G. Pagliarini, G. Sciavicco, and I. E. Stan. "Decision Trees with a Modal Flavor". In: *AIxIA 2022 - Advances in Artificial Intelligence - XXIst International Conference of the Italian Association for Artificial Intelligence, AIxIA 2022, Udine, Italy, November 28 - December 2, 2022, Proceedings*. Ed. by A. Dovier, A. Montanari, and A. Orlandini. Vol. 13796. Lecture Notes in Computer Science. Springer, 2022, pp. 47–59. DOI: 10.1007/978-3-031-27181-6_4.

[C13] G. Pagliarini, S. Scaboro, G. Serra, G. Sciavicco, and I. E. Stan. “Neural-Symbolic Temporal Decision Trees for Multivariate Time Series Classification”. In: *29th International Symposium on Temporal Representation and Reasoning, TIME 2022, Virtual Conference, November 7-9, 2022*. Ed. by A. Artikis, R. Posenato, and S. Tonetta. Vol. 247. LIPIcs. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2022, 13:1–13:15. DOI: 10.4230/LIPICS.TIME.2022.13.

[C14] I. E. Stan, G. Sciavicco, E. Muñoz-Velasco, G. Pagliarini, M. Milella, and A. Paradiso. “On Modal Logic Association Rule Mining”. In: *Proceedings of the 23rd Italian Conference on Theoretical Computer Science, ICTCS 2022, Rome, Italy, September 7-9, 2022*. Ed. by U. D. Lago and D. Gorla. Vol. 3284. CEUR Workshop Proceedings. CEUR-WS.org, 2022, pp. 53–65. URL: https://ceur-ws.org/Vol-3284/492.pdf.

[C15] F. Manzella, G. Pagliarini, G. Sciavicco, and I. E. Stan. “Interval Temporal Random Forests with an Application to COVID-19 Diagnosis”. In: *28th International Symposium on Temporal Representation and Reasoning, TIME 2021, Klagenfurt, Austria, September 27-29, 2021*. Ed. by C. Combi, J. Eder, and M. Reynolds. Vol. 206. LIPIcs. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2021, 7:1–7:18. DOI: 10.4230/LIPICS.TIME.2021.7.

[C16] W. Conradie, D. D. Monica, E. Muñoz-Velasco, G. Sciavicco, and I. E. Stan. “Time Series Checking with Fuzzy Interval Temporal Logics”. In: *Proceedings of the 21st Italian Conference on Theoretical Computer Science, Ischia, Italy, September 14-16, 2020*. Ed. by G. Cordasco, L. Gargano, and A. A. Rescigno. Vol. 2756. CEUR Workshop Proceedings. CEUR-WS.org, 2020, pp. 250–262. URL: https://ceur-ws.org/Vol-2756/paper%5C_29.pdf.

[C17] J. Kaminska, E. Lucena-Sánchez, G. Sciavicco, and I. E. Stan. “Rule Extraction via Dynamic Discretization with an Application to Air Quality Modelling”. In: *Proceedings of the 14th International Rule Challenge, 4th Doctoral Consortium, and 6th Industry Track @ RuleML+RR 2020 co-located with 16th Reasoning Web Summer School (RW 2020) 12th DecisionCAMP 2020 as part of Declarative AI 2020, Oslo, Norway (virtual due to Covid-19 pandemic), 29 June - 1 July, 2020*. Ed. by S. Moschoyiannis, P. Fodor, J. Vanthienen, D. Inclezan, N. Nikolov, F. Martín-Recuerda, and I. Toma. Vol. 2644. CEUR Workshop Proceedings. CEUR-WS.org, 2020, pp. 42–57. URL: https://ceur-ws.org/Vol-2644/paper11.pdf.

[C18] G. Sciavicco and I. E. Stan. “Knowledge Extraction with Interval Temporal Logic Decision Trees”. In: *27th International Symposium on Temporal Representation and Reasoning, TIME 2020, Bozen-Bolzano, Italy, September 23-25, 2020*. Ed. by E. Muñoz-Velasco, A. Ozaki, and M. Theobald. Vol. 178. LIPIcs. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2020, 9:1–9:16. DOI: 10.4230/LIPICS.TIME.2020.9.

[C19] A. Brunello, G. Sciavicco, and I. E. Stan. “Interval Temporal Logic Decision Tree Learning”. In: *Logics in Artificial Intelligence - 16th European Conference, JELIA 2019, Rende, Italy, May 7-11, 2019, Proceedings*. Ed. by F. Calimeri, N. Leone, and M. Manna. Vol. 11468. Lecture Notes in Computer Science. Springer, 2019, pp. 778–793. DOI: 10.1007/978-3-030-19570-0_50.

[C20] G. Sciavicco, I. E. Stan, and A. Vaccari. “Towards a General Method for Logical Rule Extraction from Time Series”. In: *From Bioinspired Systems and Biomedical Applications to Machine Learning - 8th International Work-Conference on the Interplay Between Natural and Artificial Computation, IWINAC 2019, Almería, Spain, June 3-7, 2019, Proceedings, Part II*. Ed. by J. M. F. de Vicente, J. R. Á. Sánchez, F. de la Paz López, F. J. Toledo-Moreo, and H. Adeli. Vol. 11487. Lecture Notes in Computer Science. Springer, 2019, pp. 3–12. DOI: 10.1007/978-3-030-19651-6_1.

[C21] E. Muñoz-Velasco, G. Sciavicco, and I. E. Stan. “Implementation of a Tableau-based Satisfiability Checker for HS3”. In: *Joint Proceedings of the 18th Italian Conference on Theoretical Computer Science and the 32nd Italian Conference on Computational Logic co-located with the 2017 IEEE International Workshop on Measurements and Networking (2017 IEEE M&N), Naples, Italy, September 26-28, 2017*. Ed. by D. D. Monica, A. Murano, S. Rubin, and L. Sauro. Vol. 1949. CEUR Workshop Proceedings. CEUR-WS.org, 2017, pp. 326–340. URL: https://ceur-ws.org/Vol-1949/CILCpaper09.pdf.

Workshop papers

[W1] G. Pagliarini, E. Ponsanesi, G. Sciavicco, and I. E. Stan. “Towards Modern Rule-Based Learning”. In: *Short Paper Proceedings of the 6th International Workshop on Artificial Intelligence and Formal Verification, Logic, Automata, and Synthesis, OVERLAY 2024, Bolzano, Italy, November 28-29, 2024*. Ed. by D. Porello, C. Vinci, and M. Zavatteri. Vol. 3904. CEUR Workshop Proceedings. CEUR-WS.org, 2024, pp. 83–88. URL: https://ceur-ws.org/Vol-3904/paper10.pdf.

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[W3] M. Milella, G. Pagliarini, A. Paradiso, and I. E. Stan. “Multi-Models and Multi-Formulas Finite Model Checking for Modal Logic Formulas Induction”. In: *Short Paper Proceedings of the 4th Workshop on Artificial Intelligence and Formal Verification, Logic, Automata, and Synthesis hosted by the 21st International Conference of the Italian Association for Artificial Intelligence (AIxIA 2022), Udine, Italy, November 28, 2022*. Ed. by L. Geatti,

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[W4] G. Pagliarini, G. Sciavicco, and I. E. Stan. "Multi-Frame Modal Symbolic Learning". In: *Proceedings of the 3rd Workshop on Artificial Intelligence and Formal Verification, Logic, Automata, and Synthesis hosted by the Twelfth International Symposium on Games, Automata, Logics, and Formal Verification (GandALF 2021), Padua, Italy, September 22, 2021*. Ed. by D. D. Monica, G. L. Pozzato, and E. Scala. Vol. 2987. CEUR Workshop Proceedings. CEUR-WS.org, 2021, pp. 37–41. URL: https://ceur-ws.org/Vol-2987/paper7.pdf.

[W5] E. Lucena-Sánchez, G. Sciavicco, and I. E. Stan. "Symbolic Learning with Interval Temporal Logic: the Case of Regression". In: *Proceedings of the 2nd Workshop on Artificial Intelligence and Formal Verification, Logic, Automata, and Synthesis hosted by the Bolzano Summer of Knowledge 2020 (BOSK 2020), September 25, 2020*. Ed. by R. D. Benedictis, L. Geretti, and A. Micheli. Vol. 2785. CEUR Workshop Proceedings. CEUR-WS.org, 2020, pp. 5–9. URL: https://ceur-ws.org/Vol-2785/paper1.pdf.

[W6] D. D. Monica, A. Montanari, G. Sciavicco, and I. E. Stan. "A Note on Ultimately-Periodic Finite Interval Temporal Logic Model Checking". In: *Proceedings of the 2nd Workshop on Artificial Intelligence and Formal Verification, Logic, Automata, and Synthesis hosted by the Bolzano Summer of Knowledge 2020 (BOSK 2020), September 25, 2020*. Ed. by R. D. Benedictis, L. Geretti, and A. Micheli. Vol. 2785. CEUR Workshop Proceedings. CEUR-WS.org, 2020, pp. 11–15. URL: https://ceur-ws.org/Vol-2785/paper2.pdf.

[W7] E. Lucena-Sánchez, E. Muñoz-Velasco, G. Sciavicco, I. E. Stan, and A. Vaccari. "Towards Interval Temporal Logic Rule-Based Classification". In: *Proceedings of the 1st Workshop on Artificial Intelligence and Formal Verification, Logic, Automata, and Synthesis, co-located with the 18th International Conference of the Italian Association for Artificial Intelligence, OVERLAY@AI*IA 2019, Rende, Italy, November 19-20, 2019*. Ed. by N. Gigante, F. Mari, and A. Orlandini. Vol. 2509. CEUR Workshop Proceedings. CEUR-WS.org, 2019, pp. 65–70. URL: https://ceur-ws.org/Vol-2509/paper10.pdf.

Under review

[U1] G. Badia, R. Monego, C. Noguera, A. Paparella, G. Sciavicco, and I. E. Stan. *Reasoning in Many-Valued Multi-Modal Logic: A Uniform and General Approach*. Journal of Artificial Intelligence Research (Manuscript under review). 2026.

[U2] G. Pagliarini, M. Perrotta, G. Sciavicco, and I. E. Stan. *From forests to minimal formulas: A logic-driven framework to explain ensemble models*. 35th International Joint Conference on Artificial Intelligence, IJCAI 2026 (Manuscript under review). 2026.

[U3] I. E. Stan, D. Baiardi, S. Verga, G. Galimberti, and P. Napoletano. *Towards Wearable Teleoperation for Human-to-Robot Teaching*. IEEE Transactions on Human-Machine Systems (Manuscript under review). 2026.

[U4] I. E. Stan and P. Napoletano. *A Semantics-First Contract for Neuro-Symbolic Reasoning*. International Conference on Principles of Knowledge Representation and Reasoning (Manuscript under review). 2026.

[U5] I. E. Stan, G. Sciavicco, and P. Napoletano. *Symbols and Neurons: A Review of Symbolic XAI in Deep Learning*. Journal of Artificial Intelligence Research (Manuscript under review). 2026.

[U6] P. Cavina, F. Manzella, G. Pagliarini, G. Sciavicco, and I. E. Stan. *Beyond Tabular Data: Feature Extraction and Selection for High-Dimensional Data*. Elsevier Array (Manuscript under review). 2025.

Software & artifacts

[S1] M. Milella, G. Pagliarini, G. Sciavicco, and I. E. Stan. *ModalAssociationRules.jl*. DROPS Artifacts, Oct. 2025. DOI: 10.4230/ARTIFACTS.24783.

[S2] M. Milella, G. Pagliarini, G. Sciavicco, and I. E. Stan. *Sole.jl*. DROPS Artifacts, Oct. 2025. DOI: 10.4230/ARTIFACTS.24782.

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