

# Luca Manzoni

## Personal Details

Date of birth

Work address

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## Education and Work Experience

- 2022–now **Associate Professor**, *Dipartimento di Matematica e Geoscienze, Università di Trieste, Trieste, Italy*
- 2019–2022 **Assistant Professor, tenure track (RTDb)**, *Dipartimento di Matematica e Geoscienze, Università di Trieste, Trieste, Italy*
- 2018–2019 **Assistant Professor (RTDa)**, *Dipartimento di Informatica, Sistemistica e Comunicazione, Università degli Studi di Milano-Bicocca, Milan, Italy*
- 2018–2018 **Postdoc (senior, 2 years contract)**, *Dipartimento di Informatica, Sistemistica e Comunicazione, Università degli Studi di Milano-Bicocca, Milan, Italy*  
Under the supervision of Prof. Claudio Zandron.
- 2014–2018 **Postdoc (4 years contract)**, *Dipartimento di Informatica, Sistemistica e Comunicazione, Università degli Studi di Milano-Bicocca, Milan, Italy*  
Under the supervision of Prof. Claudio Zandron.
- 2013–2014 **Postdoc**, *Laboratoire I3S, Université Nice Sophia Antipolis, Nice, France*  
Under the supervision of Prof. Enrico Formenti.
- 2010–2012 **Ph.D. in Computer Science**, *Università degli Studi di Milano-Bicocca, Milan, Italy*  
Under the direction of Dr. Leonardo Vanneschi, the Ph.D. was obtained on February 22, 2013.  
Title: *Dynamics of Bioinspired Computation*
- 2007–2009 **M.Sc. in Computer Science**, *Università degli Studi di Milano-Bicocca, Milan, Italy*  
Under the supervision of Prof. Enrico Formenti and Dr. Alberto Dennunzio. Mark: 110/110 cum laude.
- 2004–2007 **B.Sc. in Computer Science**, *Università degli Studi di Milano-Bicocca, Milan, Italy*  
Under the supervision of Dr. Leonardo Vanneschi and Dr. Sara Manzoni. Mark: 110/110 cum laude.

## Awards, Fellowships, and Certifications

- 2022 **SIGEVO Impact Award**, for the paper "McDermott, J., White, D.R., Luke, S., Manzoni, L., Castelli, M., Vanneschi, L., Jaśkowski, W., Krawiec, K., Harper, R., De Jong, K., O'Reilly, U.-M. Genetic programming needs better benchmarks (2012)". The SIGEVO Impact Award recognizes that were published in the GECCO conference 10 years earlier and which are both highly cited and deemed to be seminal by the SIGEVO Executive Committee

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- 2020 **Nomination to the CEC-IEEE 2020 best paper award**, at the conference *IEEE WCCI 2020* for the paper *"Which random is the best random? A study on sampling methods in Fourier surrogate modeling"*
- 2019 **Best theoretical result of the year 2018**, awarded by the *International Membrane Computing Society (IMCS)* for the best theoretical results in the areas of membrane computing (*IMCS-2018-THR-02*)
- 2018 **Best paper award at CMC19**, for the paper *"Solving QSAT in sublinear depth"*
- 2017 **Award "Giovani Talenti" (young talents), first position**, for the area *"AMBITO 1 - AREA 01 (Scienze Matematiche e Informatiche) + AREA 09 (Ingegneria Industriale e dell'Informazione)"* (Mathematics and Computer Science + Industrial and Information engineering) of the *Università degli Studi di Milano-Bicocca* under the auspices of the *Accademia Nazionale dei Lincei*. The prize consisted of research funds for a total of 5000 euros
- 2014 **Best paper award at CMC15**, for the paper *"Simulating Elementary Active Membranes - with an Application to the P Conjecture"*
- 2014 **Qualification**, to the function of maître de conférences (MCF) to allow the participation to public competitions for MCF positions in France
- 2013 **Best paper award at EuroGP 2013**, for the paper *"A new implementation of geometric semantic GP and its application to problems in pharmacokinetics"*
- 2012 **JSPS Postdoctoral Fellowship For Foreign Researchers**, postdoctoral fellowship *"JSPS (Japanese Society for the Promotion of Science) Postdoctoral Fellowship Program (Short-term) for North American and European Researchers"* (about 60 fellowship/year are awarded for all disciplines)
- 2009 **Project EXTRA scholarship**, *Project EXTRA (Fondazione Cariplo) scholarship*, to spend up to six months in another European country to work on the Master thesis (in this case the hosting institution was the *Université Nice Sophia Antipolis in Nice, France*)

## Projects and Grants

- 2024 **Copernicus Marine Service Evolution**, PI of the project *"Bridging Global and Local Scales for Biogeochemical Profiles Prediction (GLOBIO)"*, amount financed: 151,000€
- 2023 **PRIN-PNRR 2022**, PI of the PRIN project *"Cellular Automata Synthesis for Cryptography Applications (CASCA)"*, amount financed: 257,248€
- 2023 **MSCA-SE**, Unit leader for the MSCA Staff Exchanges 2022 project *"Application-driven Challenges for Automata Networks and Complex Systems (ACANOS)"*, amount financed: 437,000€
- 2022 **Microgrant of the University of Trieste**
- 2022 **Donation from CRT**, Recipient with prof. Marco Confalonieri, head of the pneumology department at the *Cattinara Hospital in Trieste* of a donation of 80.000€ from the *"Fondazione Cassa di Risparmio di Trieste"* for a project on the topic *"Supporto alla attività clinica personalizzata di medicina respiratoria tramite metodi di intelligenza artificiale e machine learning"*
- 2020 **Erasmus+**, Unit leader for the Erasmus+ project *"Digital Empowering Trough HPC Education - HiPowerEd"* (project code 2020-1-HR01-KA226-HE-094780), amount financed: 160,695€
- 2020 **Microgrant of the University of Trieste**, project *" $\partial$ GSGP Differentiable Geometric Semantic Genetic Programming"*
- 2020 **HPC resources**, 10000 core processor hours on the supercomputer *Marconi 100* (grant internal to the *University of Trieste*)

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- 2019 **Acceleration of Geometric Semantic Genetic Programming on GPU, NVIDIA GPU Grant Program "Accelerate Data Science", consisting of a Titan V GPU**
- 2019 **PI of the IS CRA class C project *IsC73-GADgET*, 10000 core processor hours awarded by CINECA through IS CRA (Italian SuperComputing Resource Allocation) on the supercomputer MARCONI-A2**

## Research Abroad

- 2015 **Laboratoire I3S, Université Nice Sophia Antipolis, (France), Length: 1 month**  
*Supervisor: Prof. Enrico Formenti*
- 2012 **Osaka Electro-Communication University, (Japan), Length: 2 months**  
*Position: JPSP Postdoctoral Fellow. Supervisor: Prof. Hiroshi Umeo*
- 2012 **School of Computer Science, University of Birmingham, (UK), Length: 1 month**  
*Supervisor: Dr. Alberto Moraglio*
- 2011 **Istituto Superior Técnico, Universidade Técnica de Lisboa, (Portugal), Length: 2 months**  
*Supervisor: Dr. Sara Silva*
- 2009 **Laboratoire I3S, Université Nice Sophia Antipolis, (France), Length: 6 months**  
*Position: master student (projet EXTRA), Supervisor: Prof. Enrico Formenti*

## Schools

- November 12-14, 2018. *Introduction to Parallel Computing with MPI and OpenMP*. Milan, Italy.
- July 23-27, 2018. *2nd International Summer School on Deep Learning 2018*. Genoa, Italy.
- September 20-24, 2010. *Ageing Society and Technology: Systems, Theories, Practices*. Ascoli Piceno, Italy.

## Participation to the scientific life

Reviewer for the following international journals: Applied Soft Computing, Biochemical Engineering Journal, Fundamenta Informaticae, Genetic Programming and Evolvable Machines, International Journal of Systems, Control and Communications, Journal of Cellular Automata, Natural Computing, Soft Computing, Swarm and Evolutionary Computation, Theoretical Computer Science, Transactions on Evolutionary Computation, and others.

Reviewer for the following international conferences: AAIM, ACRI, Automata, CANDAR, CCIA, CiE, CMC, ECAL, ECIS, EPIA, FOGA, GECCO, NCMA, PPSN, UCNC, and others.

## Committees and Editorial Boards

Member of the program committee of the following conferences:

- 2013, 2015, 2017, 2019, 2021. Artificial Life and Evolutionary Algorithms (ALEA) thematic track, part of EPIA Conference on Artificial Intelligence
- 2014-2021. GECCO - The Genetic and Evolutionary Computation Conference, GA (Genetic Algorithms) track.
- 2022-2023. GECCO - The Genetic and Evolutionary Computation Conference, GP (Genetic Programming) track.
- 2021-2023. ECTA - International Conference on Evolutionary Computation Theory and Applications
- 2016-2018. AFCA International Workshop on Applications and Fundamentals of Cellular Automata (part of CANDAR).
- 2018. ACRI. 13th International Conference and School "Cellular Automata for Research and Industry"
- 2018. WMC - Workshop on Membrane Computing (part of UCNC 2018).
- 2019-2021. CANDAR - International Symposium on Computing and Networking.
- 2019-2021. PDAA - International Workshop on Parallel and Distributed Algorithms and Applications (part

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of CANDAR).

- 2020-2021. LOD - The Sixth International Conference on Machine Learning, Optimization, and Data Science.
- 2020-2021. APDCM - Workshop on Advances in Parallel and Distributed Computational Models.
- 2021. Didamatica.

Chair of the following conferences:

- CMC 2022 - 23rd Conference on Membrane Computing, Trieste, 2022
- Automata 2023 - The 29th International Workshop on Cellular Automata and Discrete Complex Systems, Trieste, 2023

Co-chair of the following conferences:

- ACRI 2020 - 14th International Conference and School "Cellular Automata for Research and Industry"
- DIDAMATICA 2020.

Organizer of the following conferences and workshops:

- Organizer of the 2nd Workshop on Evolutionary and Population-based Optimization (WEPO 2021), part of AlxIA 2021, The 20th International Conference of the Italian Association for Artificial Intelligence.
- Organizer of the Workshop on Evolutionary and Population-based Optimization (WEPO 2020), part of AlxIA 2020 (reboot) The 19th International Conference of the Italian Association for Artificial Intelligence.
- Organizer of the Artificial Life and Evolutionary Algorithms (ALEA) thematic track, part of EPIA 2019 Conference on Artificial Intelligence.
- Proceedings Chair of CIBB 2019 - Computational Intelligence methods for Bioinformatics and Biostatistics
- Organizer of the Special Session on candidate solutions representation and fitness landscape manipulation, part of WCCI 2020 - IEEE World Congress on Computational Intelligence.

Member of the local organizing committee of the following conferences:

- ACRI 2010 - International Conference "Cellular Automata for Research and Industry";
- UCNC 2013 - Unconventional Computation & Natural Computation;
- CMC17 - Conference on Membrane Computing;
- Automata 2017;
- ACRI 2018 - International Conference and School "Cellular Automata for Research and Industry";
- Chair of the first Workshop on Reaction Systems (WRS 2018).

Member of the following editorial boards:

- Swarm and Evolutionary Computation
- Applied Sciences, Section "Biomedical Engineering"

## Publications

### International Journals (peer reviewed)

- [1] Lorenzo Bonin, Luigi Rovito, Andrea De Lorenzo, and Luca Manzoni. Cellular geometric semantic genetic programming. *Genetic Programming and Evolvable Machines*, 25(1):1–32, 2024.
- [2] Rocco Ascone, Giulia Bernardini, and Luca Manzoni. Fixed points and attractors of reactantless and inhibitorless reaction systems. *Theoretical Computer Science*, 984:114322, 2024.
- [3] Alberto Bartoli, Luca Manzoni, and Eric Medvet. Commentary on "Jaws 30", by WB Langdon. *Genetic Programming and Evolvable Machines*, 24(2):23, 2023.
- [4] Alberto Dennunzio, Enrico Formenti, Luca Manzoni, Luciano Margara, and Giuliamaria Menara. A topology for P-systems with active membranes. *Journal of Membrane Computing*, pages 1–12, 2023.
- [5] Luigi Rovito, Andrea De Lorenzo, and Luca Manzoni. Discovering Non-Linear Boolean

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- Functions by Evolving Walsh Transforms with Genetic Programming. *Algorithms*, 16(11):499, 2023.
- [6] Alfredo Raglio, Enzo Grossi, and Luca Manzoni. Artificial Neural Networks for a Semantic Map of Variables in a Music Listening-Based Study. *Applied Sciences*, 13(21):11811, 2023.
- [7] Gloria Pietropolli, Luca Manzoni, Alessia Paoletti, and Mauro Castelli. On the hybridization of geometric semantic GP with gradient-based optimizers. *Genetic Programming and Evolvable Machines*, 24(2):16, 2023.
- [8] Luca Mariot and Luca Manzoni. A classification of S-boxes generated by Orthogonal Cellular Automata. *Natural Computing*, 2023.
- [9] Fabio Anselmi, Luca Manzoni, Alberto D'Onofrio, Alex Rodriguez, Giulio Caravagna, Luca Bortolussi, and Francesca Cairoli. Data symmetries and learning in fully connected neural networks. *IEEE Access*, 2023.
- [10] Gloria Pietropolli, Luca Manzoni, and Gianpiero Cossarini. Multivariate Relationship in Big Data Collection of Ocean Observing System. *Applied Sciences*, 13(9):5634, 2023.
- [11] Alberto Leporati, Luca Manzoni, Giancarlo Mauri, Gloria Pietropolli, and Claudio Zandron. Inferring P Systems From Their Computing Steps: An Evolutionary Approach. *Swarm and Evolutionary Computation*, page 101223, 2023.
- [12] Artiom Alhazov, Alberto Leporati, Luca Manzoni, Giancarlo Mauri, and Claudio Zandron. Evaluating Space Measures in P Systems. *Journal of Membrane Computing*, 4:251–260, 2022.
- [13] Marco S Nobile, Daniele M Papetti, Simone Spolaor, Paolo Cazzaniga, and Luca Manzoni. Shaping and dilating the fitness landscape for parameter estimation in stochastic biochemical models. *Applied Sciences*, 12(13):6671, 2022.
- [14] Ibrahim Kandel, Mauro Castelli, and Luca Manzoni. Brightness as an augmentation technique for image classification. *Emerging Science Journal*, 6(4):881–892, 2022.
- [15] Mauro Castelli, Luca Manzoni, Luca Mariot, Giuliamaria Menara, and Gloria Pietropolli. The effect of multi-generational selection in geometric semantic genetic programming. *Applied Sciences*, 12(10):4836, 2022.
- [16] Luca Mariot, Martina Saletta, Alberto Leporati, and Luca Manzoni. Heuristic search of (semi-) bent functions based on cellular automata. *Natural Computing*, pages 1–15, 2022.
- [17] Alberto Leporati, Luca Manzoni, Giancarlo Mauri, and Claudio Zandron. Depth-two p systems can simulate turing machines with np oracles. *Theoretical Computer Science*, 908:43–55, 2022.
- [18] Luigi Rovito, Lorenzo Bonin, Luca Manzoni, and Andrea De Lorenzo. An evolutionary computation approach for twitter bot detection. *Applied Sciences*, 12(12):5915, 2022.
- [19] Mauro Castelli, Luca Manzoni, Tatiane Espindola, Aleš Popovič, and Andrea De Lorenzo. Generative adversarial networks for generating synthetic features for wi-fi signal quality. *PLoS one*, 16(11):e0260308, 2021.
- [20] Mauro Castelli, Luca Manzoni, Luca Mariot, Marco S. Nobile, and Andrea Tangherloni. Salp swarm optimization: A critical review. *Expert Systems with Applications*, page 116029, 2021.
- [21] Alfredo Raglio, Paola Baiardi, Giuseppe Vizzari, Marcello Imbriani, Mauro Castelli, Sara Manzoni, Francisco Vico, and Luca Manzoni. Algorithmic music for therapy: effectiveness and perspectives. *Applied Sciences*, 11(19):8833, 2021.

- [22] Artiom Alhazov, Alberto Leporati, Luca Manzoni, Giancarlo Mauri, and Claudio Zandron. Alternative space definitions for p systems with active membranes. *Journal of Membrane Computing*, 3(2):87–96, 2021.
- [23] Fernando Peres, Enrico Fallacara, Luca Manzoni, Mauro Castelli, Aleš Popovič, Miguel Rodrigues, and Pedro Estevens. Time series clustering of online gambling activities for addicted users' detection. *Applied Sciences*, 11(5):2397, 2021.
- [24] Marco S Nobile, Federico Fontana, Luca Manzoni, Paolo Cazzaniga, Giancarlo Mauri, Gloria AA Saracino, Daniela Besozzi, and Fabrizio Gelain. Hyperbeta: characterizing the structural dynamics of proteins and self-assembling peptides. *Scientific reports*, 11(1):1–10, 2021.
- [25] Alfredo Raglio, Daniele Bellandi, Luca Manzoni, and Enzo Grossi. Communication improvement reduces bpsd: a music therapy study based on artificial neural networks. *Neurological Sciences*, 42(5):2103–2106, 2021.
- [26] Alberto Leporati, Luca Manzoni, Giancarlo Mauri, Antonio E Porreca, and Claudio Zandron. Simulating counting oracles with cooperation. *Journal of Membrane Computing*, 2(4):303–310, 2020.
- [27] Luca Manzoni, Antonio E Porreca, and Grzegorz Rozenberg. Facilitation in reaction systems. *Journal of Membrane Computing*, 2(3):149–161, 2020.
- [28] Luca Mariot, Luca Manzoni, and Alberto Dennunzio. Search space reduction of asynchrony immune cellular automata. *Natural Computing*, 19:287—293, 2020.
- [29] Luca Manzoni, Alberto Bartoli, Mauro castelli, Ivo Gonçalves, and Eric Medvet. Specializing context-free grammars with a  $(1 + 1)$ -ea. *Transactions on Evolutionary Computation*, 24(5):960–973, 2020.
- [30] Alberto Leporati, Luca Manzoni, Giancarlo Mauri, Antonio E. Porreca, and Claudio Zandron. A turing machine simulation by p systems without charges. *Journal of Membrane Computing*, 2:71–79, 2020.
- [31] Alberto Leporati, Luca Manzoni, Giancarlo Mauri, Antonio E. Porreca, and Claudio Zandron. Shallow laconic p systems can count. *Journal of Membrane Computing*, 2:49—58, 2020.
- [32] Luca Manzoni, Daniele M. Papetti, Paolo Cazzaniga, Simone Spolaor, Giancarlo Mauri, Daniela Besozzi, and Marco S. Nobile. Surfing on fitness landscapes: A boost on optimization by fourier surrogate modeling. *Entropy*, 22(3):285, 2020.
- [33] Luca Manzoni, Luca Mariot, and Eva Tuba. Balanced crossover operators in genetic algorithms. *Swarm and Evolutionary Computation*, 54:100646, 2020.
- [34] Alfredo Raglio, Marcello Imbriani, Chiara Imbriani, Paola Baiardi, Sara Manzoni, Marta Gianotti, Mauro Castelli, Leonardo Vanneschi, Francisco Vico, and Luca Manzoni. Machine learning techniques to predict the effectiveness of music therapy: A randomized controlled trial. *Computer Methods and Programs in Biomedicine*, 185:105160, 2020.
- [35] Daniela Besozzi, Mauro Castelli, Paolo Cazzaniga, Luca Manzoni, Marco S. Nobile, Stefano Ruberto, Leonardo Rundo, Simone Spolaor, Andrea Tangherloni, and Leonardo Vanneschi. Computational Intelligence for Life Sciences. *Fundamenta Informaticae*, 171(1–4):57–80, 2020.
- [36] Claudio Ferretti, Alberto Leporati, Luca Manzoni, and Antonio E. Porreca. The Many Roads to the Simulation of Reaction Systems. *Fundamenta Informaticae*, 171(1–4):175–188, 2020.

- [37] Mauro Castelli and Luca Manzoni. GSGP-C++ 2.0: A geometric semantic genetic programming framework. *SoftwareX*, 10:100313, 2019.
- [38] Alberto Dennunzio, Enrico Formenti, Luca Manzoni, and Antonio E. Porreca. Complexity of the dynamics of reaction systems. *Information and Computation*, 267:96–109, 2019.
- [39] Alberto Leporati, Luca Manzoni, Giancarlo Mauri, Antonio E. Porreca, and Claudio Zandron. Characterizing PSPACE with Shallow Non-Confluent P Systems. *Journal Of Membrane Computing*, 1(2):75–84, 2019.
- [40] Alberto Dennunzio, Enrico Formenti, Luca Manzoni, Luciano Margara, and Antonio E. Porreca. On the dynamical behaviour of linear higher-order cellular automata and its decidability. *Information Sciences*, 446:73–97, 2019.
- [41] Mauro Castelli, Gianpiero Cattaneo, Luca Manzoni, and Leonardo Vanneschi. A distance between populations for n-points crossover in genetic algorithms. *Swarm and Evolutionary Computation*, 44:639–645, 2019.
- [42] Alberto Leporati, Luca Manzoni, Giancarlo Mauri, Antonio E. Porreca, and Claudio Zandron. A survey on space complexity of P systems with active membranes. *International Journal of Advances in Engineering Sciences and Applied Mathematics*, 10:221–229, 2018.
- [43] Alberto Leporati, Luca Manzoni, Giancarlo Mauri, Antonio E. Porreca, and Claudio Zandron. Subroutines in P systems and closure properties of their complexity classes. *Theoretical Computer Science*, 805:193–205, 2020.
- [44] Alberto Leporati, Luca Manzoni, Giancarlo Mauri, Antonio E. Porreca, and Claudio Zandron. Characterising the complexity of tissue P systems with fission rules. *Journal of Computer and System Sciences*, 90:115–128, 2017.
- [45] Marco Nobile, Antonio E. Porreca, Simone Spolaor, Luca Manzoni, Paolo Cazzaniga, Giancarlo Mauri, and Daniela Besozzi. Efficient Simulation of Reaction Systems on Graphics Processing Units. *Fundamenta Informaticae*, 154:307–321, 2017.
- [46] Alberto Leporati, Luca Manzoni, Giancarlo Mauri, Antonio E. Porreca, and Claudio Zandron. Tissue P Systems with Small Cell Volume. *Fundamenta Informaticae*, 154:261–275, 2017.
- [47] Mauro Castelli, Luca Manzoni, Leonardo Vanneschi, and Aleš Popovič. An Expert System for Extracting Knowledge from Customers' Reviews: The Case of Amazon.com, Inc. *Expert Systems with Applications*, 84:117–126, 2017.
- [48] Alberto Leporati, Luca Manzoni, Giancarlo Mauri, Antonio E. Porreca, and Claudio Zandron. The counting power of P systems with antimatter. *Theoretical Computer Science*, 701:161–173, 2017.
- [49] Alberto Leporati, Luca Manzoni, Giancarlo Mauri, Antonio E. Porreca, and Claudio Zandron. A toolbox for simpler active membrane algorithms. *Theoretical Computer Science*, 673:42–57, 2017.
- [50] Mauro Castelli, Luca Manzoni, Sara Silva, Leonardo Vanneschi, and Aleš Popovič. The influence of population size in geometric semantic GP. *Swarm and Evolutionary Computation*, 32:110–120, 2017.
- [51] Alberto Dennunzio, Enrico Formenti, Luca Manzoni, and Antonio E. Porreca. Computational Complexity of Finite Asynchronous Cellular Automata. *Theoretical Computer Science*, 664:131–143, 2017.

- [52] Alberto Leporati, Luca Manzoni, Giancarlo Mauri, Antonio E. Porreca, and Claudio Zandron. Trading Geometric Realism for Efficiency in Tissue P Systems. *Romanian Journal of Information Science and Technology (ROMJIST)*, 19(1–2):17–30, 2016.
- [53] Alberto Leporati, Luca Manzoni, Giancarlo Mauri, Antonio E. Porreca, and Claudio Zandron. Monodirectional P Systems. *Natural Computing*, 15(4):551–564, 2016.
- [54] Mauro Castelli, Luca Manzoni, and Ales Popovic. An artificial intelligence system to predict quality of service in banking organizations. *Comp. Int. and Neurosc.*, 2016:9139380:1–9139380:7, 2016.
- [55] Mauro Castelli, Luca Manzoni, Leonardo Vanneschi, Sara Silva, and Ales Popovic. Self-tuning geometric semantic Genetic Programming. *Genetic Programming and Evolvable Machines*, 17(1):55–74, 2016.
- [56] Mauro Castelli, Leonardo Vanneschi, Luca Manzoni, and Ales Popovic. Semantic genetic programming for fast and accurate data knowledge discovery. *Swarm and Evolutionary Computation*, 26:1–7, 2016.
- [57] Sepinoud Azimi, Cristian Gratie, Sergiu Ivanov, Luca Manzoni, Ion Petre, and Antonio E. Porreca. Complexity of Model Checking for Reaction Systems. *Theoretical Computer Science*, 623:103–113, 2015.
- [58] Alberto Dennunzio, Enrico Formenti, Luca Manzoni, and Antonio E. Porreca. Ancestors, descendants, and gardens of Eden in reaction systems. *Theoretical Computer Science*, 608:16–26, 2015.
- [59] Alberto Dennunzio, Enrico Formenti, and Luca Manzoni. Reaction systems and extremal combinatorics properties. *Theoretical Computer Science*, 598:138–149, 2015.
- [60] Alberto Leporati, Luca Manzoni, Giancarlo Mauri, Antonio E. Porreca, and Claudio Zandron. Membrane Division, Oracles, and the Counting Hierarchy. *Fundamenta Informaticae*, 138(1–2):97–111, 2015.
- [61] Enrico Formenti, Luca Manzoni, and Antonio E. Porreca. On the complexity of occurrence and convergence problems in reaction systems. *Natural Computing*, 14(1):185–191, 2015.
- [62] Alberto Leporati, Luca Manzoni, Giancarlo Mauri, Antonio E. Porreca, and Claudio Zandron. Constant-Space P Systems with Active Membranes. *Fundamenta Informaticae*, 134(1–2):111–128, 2014.
- [63] Luca Manzoni, Diogo Poças, and Antonio E. Porreca. Simple Reaction Systems and their Classification. *International Journal of Foundations of Computer Science*, 25(4):441–458, 2014.
- [64] Mauro Castelli, Sara Silva, Luca Manzoni, and Leonardo Vanneschi. Geometric Selective Harmony Search. *Information Sciences*, 279:468–482, 2014.
- [65] Luca Manzoni and Hiroshi Umeo. The firing squad synchronization problem on CA with multiple updating cycles. *Theoretical Computer Science*, 559:108–117, 2014.
- [66] Alberto Dennunzio, Enrico Formenti, and Luca Manzoni. Limit Properties of Doubly Quiescent m-Asynchronous Elementary Cellular Automata. *Journal of Cellular Automata*, 9(5–6):341–355, 2014.
- [67] Alberto Dennunzio, Enrico Formenti, Luca Manzoni, and Giancarlo Mauri. m-Asynchronous Cellular Automata: from fairness to quasi-fairness. *Natural Computing*, 12(4):561–572, 2013.

- [68] Luca Manzoni, Mauro Castelli, and Leonardo Vanneschi. A New Genetic Programming Framework based on Reaction Systems. *Genetic Programming and Evolvable Machines*, 14(4):457–471, 2013.
- [69] David R. White, James McDermott, Mauro Castelli, Luca Manzoni, Brian W. Goldman, Gabriel Kronberger, Wojciech Jaskowski, Una-May O'Reilly, and Sean Luke. Better GP Benchmarks: Community Survey Results and Proposals. *Genetic Programming and Evolvable Machines*, 14(1):3–29, 2013.
- [70] Alberto Dennunzio, Enrico Formenti, and Luca Manzoni. Computing Issues of Asynchronous CA. *Fundamenta Informaticae*, 120(2):165–180, 2012.
- [71] Luca Manzoni, Leonardo Vanneschi, and Giancarlo Mauri. A Distance Between Populations for One-Point Crossover in Genetic Algorithms. *Theoretical Computer Science*, 429:213–222, 2012.
- [72] Luca Manzoni. Asynchronous Cellular Automata and Dynamical Properties. *Natural Computing*, 11(2):269–276, 2012.

### International Conferences (peer reviewed)

- [1] Chiara Gallese, Teresa Scantamburlo, Luca Manzoni, and Marco S. Nobile. Investigating Semi-Automatic Assessment of Data Sets Fairness by Means of Fuzzy Logic. In *2023 IEEE Conference on Computational Intelligence in Bioinformatics and Computational Biology (CIBCB)*, pages 1–10. IEEE, 2023.
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