Mauro Birattari

List of Publications by Year
in descending order

141 papers	11,464 citations	125106 35 h-index	35168 102 g-index
158 all docs	158 docs citations	158 times ranked	8415 citing authors

#	Article	IF	Citations
1	AutoMoDe-Cedrata: Automatic Design of Behavior Trees for Controlling a Swarm of Robots with Communication Capabilities. SN Computer Science, 2022, 3, 1.	2.3	6
2	AutoMoDe-Mate: Automatic off-line design of spatially-organizing behaviors for robot swarms. Swarm and Evolutionary Computation, 2022, 74, 101118.	4.5	5
3	Automatic Modular Design of Behavior Trees for Robot Swarms with Communication Capabilites. Lecture Notes in Computer Science, 2021, , 130-145.	1.0	4
4	Swarm SLAM: Challenges and Perspectives. Frontiers in Robotics and AI, 2021, 8, 618268.	2.0	31
5	Off-Policy Evaluation of the Performance of a Robot Swarm: Importance Sampling to Assess Potential Modifications to the Finite-State Machine That Controls the Robots. Frontiers in Robotics and AI, 2021, 8, 625125.	2.0	1
6	Empirical assessment and comparison of neuro-evolutionary methods for the automatic off-line design of robot swarms. Nature Communications, 2021, 12, 4345.	5.8	20
7	AutoMoDe: A Modular Approach to the Automatic Off-Line Design and Fine-Tuning of Control Software for Robot Swarms. Natural Computing Series, 2021, , 73-90.	2.2	10
8	Simulation-only experiments to mimic the effects of the reality gap in the automatic design of robot swarms. Swarm Intelligence, 2020, 14, 1-24.	1.3	29
9	Disentangling automatic and semi-automatic approaches to the optimization-based design of control software for robot swarms. Nature Machine Intelligence, 2020, 2, 494-499.	8.3	24
10	Automatic Design of Collective Behaviors for Robots that Can Display and Perceive Colors. Applied Sciences (Switzerland), 2020, 10, 4654.	1.3	13
11	Phormica: Photochromic Pheromone Release and Detection System for Stigmergic Coordination in Robot Swarms. Frontiers in Robotics and AI, 2020, 7, 591402.	2.0	14
12	Evaluation of Alternative Exploration Schemes in the Automatic Modular Design of Robot Swarms. Communications in Computer and Information Science, 2020, , 18-33.	0.4	6
13	Modular automatic design of collective behaviors for robots endowed with local communication capabilities. PeerJ Computer Science, 2020, 6, e291.	2.7	11
14	Automatic modular design of robot swarms using behavior trees as a control architecture. PeerJ Computer Science, 2020, 6, e314.	2.7	12
15	Iterative improvement in the automatic modular design of robot swarms. PeerJ Computer Science, 2020, 6, e322.	2.7	5
16	AutoMoDe-IcePop: Automatic Modular Design of Control Software for Robot Swarms Using Simulated Annealing. Communications in Computer and Information Science, 2020, , 3-17.	0.4	2
17	Invention Versus Discovery. , 2020, , 1485-1492.		0
18	AutoMoDe-Arlequin: Neural Networks as Behavioral Modules for the Automatic Design of Probabilistic Finite-State Machines. Lecture Notes in Computer Science, 2020, , 271-281.	1.0	6

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19	Automatic Off-Line Design of Robot Swarms: A Manifesto. Frontiers in Robotics and AI, 2019, 6, 59.	2.0	49
20	ANTS 2018 special issue: Editorial. Swarm Intelligence, 2019, 13, 169-172.	1.3	0
21	Complexity Measures: Open Questions and Novel Opportunities in the Automatic Design and Analysis of Robot Swarms. Frontiers in Robotics and AI, 2019, 6, 130.	2.0	3
22	Random Walk Exploration for Swarm Mapping. Lecture Notes in Computer Science, 2019, , 211-222.	1.0	25
23	Concurrent design of control software and configuration of hardware for robot swarms under economic constraints. PeerJ Computer Science, 2019, 5, e221.	2.7	12
24	Complexity Measures in Automatic Design of Robot Swarms: An Exploratory Study. Communications in Computer and Information Science, 2018, , 243-256.	0.4	1
25	Behavior Trees as a Control Architecture in the Automatic Modular Design of Robot Swarms. Lecture Notes in Computer Science, 2018, , 30-43.	1.0	31
26	Automatic Design of Communication-Based Behaviors for Robot Swarms. Lecture Notes in Computer Science, 2018, , 16-29.	1.0	18
27	On Mimicking the Effects of the Reality Gap with Simulation-Only Experiments. Lecture Notes in Computer Science, 2018, , 109-122.	1.0	10
28	Autonomous task sequencing in a robot swarm. Science Robotics, 2018, 3, .	9.9	59
29	Designing control software for robot swarms. , 2018, , .		9
30	ANTS 2016 special issue: Editorial. Swarm Intelligence, 2017, 11, 181-183.	1.3	0
31	Automatic Design of Robot Swarms: Achievements and Challenges. Frontiers in Robotics and AI, 2016, 3, .	2.0	66
32	Observing the Effects of Overdesign in the Automatic Design of Control Software for Robot Swarms. Lecture Notes in Computer Science, 2016, , 149-160.	1.0	10
33	The irace package: Iterated racing for automatic algorithm configuration. Operations Research Perspectives, 2016, 3, 43-58.	1.2	918
34	Analysis of long-term swarm performance based on short-term experiments. Soft Computing, 2016, 20, 37-48.	2.1	13
35	Estimation-based metaheuristics for the single vehicle routing problem with stochastic demands and customers. Computational Optimization and Applications, 2015, 61, 463-487.	0.9	23
36	AutoMoDe-Chocolate: automatic design of control software for robot swarms. Swarm Intelligence, 2015, 9, 125-152.	1.3	69

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37	ANTS 2014 special issue: Editorial. Swarm Intelligence, 2015, 9, 71-73.	1.3	1
38	The TAM: abstracting complex tasks in swarm robotics research. Swarm Intelligence, 2015, 9, 1-22.	1.3	28
39	Property-Driven Design for Robot Swarms. ACM Transactions on Autonomous and Adaptive Systems, 2015, 9, 1-28.	0.4	48
40	Augmented reality for robots: Virtual sensing technology applied to a swarm of e-pucks. , 2015, , .		21
41	Dynamical Properties of Artificially Evolved Boolean Network Robots. Lecture Notes in Computer Science, 2015, , 45-57.	1.0	5
42	An analysis of parameter adaptation in reactive tabu search. International Transactions in Operational Research, 2014, 21, 127-152.	1.8	9
43	On the sensitivity of reactive tabu search to its meta-parameters. Soft Computing, 2014, 18, 2177-2190.	2.1	4
44	Task Partitioning in a Robot Swarm: Object Retrieval as a Sequence of Subtasks with Direct Object Transfer. Artificial Life, 2014, 20, 291-317.	1.0	22
45	Self-organized task allocation to sequentially interdependent tasks in swarm robotics. Autonomous Agents and Multi-Agent Systems, 2014, 28, 101-125.	1.3	82
46	AutoMoDe: A novel approach to the automatic design of control software for robot swarms. Swarm Intelligence, 2014, 8, 89-112.	1.3	122
47	A self-adaptive communication strategy for flocking in stationary and non-stationary environments. Natural Computing, 2014, 13, 225-245.	1.8	54
48	A Swarm Robotics Approach to Task Allocation under Soft Deadlines and Negligible Switching Costs. Lecture Notes in Computer Science, 2014, , 270-279.	1.0	8
49	Swarm robotics. Scholarpedia Journal, 2014, 9, 1463.	0.3	115
50	Temporal Task Allocation in Periodic Environments. Lecture Notes in Computer Science, 2014, , 182-193.	1.0	4
51	Socially-Mediated Negotiation for Obstacle Avoidance in Collective Transport. Springer Tracts in Advanced Robotics, 2013, , 571-583.	0.3	18
52	ANTS 2012 special issue. Swarm Intelligence, 2013, 7, 79-81.	1.3	0
53	Task partitioning in a robot swarm: a study on the effect of communication. Swarm Intelligence, 2013, 7, 173-199.	1.3	16
54	On the use of Bio-PEPA for modelling and analysing collective behaviours in swarm robotics. Swarm Intelligence, 2013, 7, 201-228.	1.3	32

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55	Swarmanoid: A Novel Concept for the Study of Heterogeneous Robotic Swarms. IEEE Robotics and Automation Magazine, 2013, 20, 60-71.	2.2	254
56	Autonomous task partitioning in robot foraging: an approach based on cost estimation. Adaptive Behavior, 2013, 21, 118-136.	1.1	32
57	Dynamical regimes and learning properties of evolved Boolean networks. Neurocomputing, 2013, 99, 111-123.	3.5	25
58	Swarm robotics: a review from the swarm engineering perspective. Swarm Intelligence, 2013, 7, 1-41.	1.3	1,207
59	An analysis of post-selection in automatic configuration. , 2013, , .		13
60	Invention Versus Discovery. , 2013, , 1139-1146.		2
61	Majority Rule with Differential Latency: An Absorbing Markov Chain to Model Consensus. Springer Proceedings in Complexity, 2013, , 651-658.	0.2	10
62	Probabilistic Analysis of Long-Term Swarm Performance under Spatial Interferences. Lecture Notes in Computer Science, 2013, , 121-132.	1.0	6
63	Identification of Dynamical Structures in Artificial Brains: An Analysis of Boolean Network Controlled Robots. Lecture Notes in Computer Science, 2013, , 324-335.	1.0	2
64	“Can ants inspire robots?” Self-organized decision making in robotic swarms. , 2012, , .		11
65	Costs and benefits of behavioral specialization. Robotics and Autonomous Systems, 2012, 60, 1408-1420.	3.0	17
66	ARGoS: a modular, parallel, multi-engine simulator for multi-robot systems. Swarm Intelligence, 2012, 6, 271-295.	1.3	399
67	A critical analysis of parameter adaptation in ant colony optimization. Swarm Intelligence, 2012, 6, 23-48.	1.3	36
68	Continuous optimization algorithms for tuning real and integer parameters of swarm intelligence algorithms. Swarm Intelligence, 2012, 6, 49-75.	1.3	56
69	Multi-armed Bandit Formulation of the Task Partitioning Problem in Swarm Robotics. Lecture Notes in Computer Science, 2012, , 109-120.	1.0	13
70	Analysing Robot Swarm Decision-Making with Bio-PEPA. Lecture Notes in Computer Science, 2012, , 25-36.	1.0	8
71	Analysing an Evolved Robotic Behaviour Using a Biological Model of Collegial Decision Making. Lecture Notes in Computer Science, 2012, , 381-390.	1.0	34
72	Towards a Formal Verification Methodology for Collective Robotic Systems. Lecture Notes in Computer Science, 2012, , 54-70.	1.0	20

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73	Task partitioning in swarms of robots: an adaptive method for strategy selection. Swarm Intelligence, 2011, 5, 283-304.	1.3	49
74	Majority-rule opinion dynamics with differential latency: a mechanism for self-organized collective decision-making. Swarm Intelligence, 2011, 5, 305-327.	1.3	89
75	ANTS 2010 special issue. Swarm Intelligence, 2011, 5, 143-147.	1.3	2
76	Parameter Adaptation in Ant Colony Optimization. , 2011, , 191-215.		64
77	Task Partitioning in Swarms of Robots: Reducing Performance Losses Due to Interference at Shared Resources. Lecture Notes in Electrical Engineering, 2011, , 217-228.	0.3	17
78	Off-line and On-line Tuning: A Study on Operator Selection for a Memetic Algorithm Applied to the QAP. Lecture Notes in Computer Science, 2011, , 203-214.	1.0	7
79	On the Design of Boolean Network Robots. Lecture Notes in Computer Science, 2011, , 43-52.	1.0	35
80	Costs and Benefits of Behavioral Specialization. Lecture Notes in Computer Science, 2011, , 90-101.	1.0	3
81	Out-of-the-Box and Custom Implementation of Metaheuristics. A Case Study: The Vehicle Routing Problem with Stochastic Demand. Studies in Computational Intelligence, 2011, , 273-295.	0.7	1
82	A Critique of the Constitutive Role of Truthlikeness in the Similarity Approach. Erkenntnis, 2010, 72, 379-386.	0.6	12
83	Estimation-based metaheuristics for the probabilistic traveling salesman problem. Computers and Operations Research, 2010, 37, 1939-1951.	2.4	32
84	An analysis of communication policies for homogeneous multi-colony ACO algorithms. Information Sciences, 2010, 180, 2390-2404.	4.0	70
85	A multi-objective ant colony optimization method applied to switch engine scheduling in railroad yards. Pesquisa Operacional, 2010, 30, 486-514.	0.1	8
86	Modern Continuous Optimization Algorithms for Tuning Real and Integer Algorithm Parameters. Lecture Notes in Computer Science, 2010, , 203-214.	1.0	5
87	Engineering self-coordinating software intensive systems. , 2010, , .		1
88	Incremental Social Learning Applied to a Decentralized Decision-Making Mechanism: Collective Learning Made Faster. , 2010, , .		3
89	F-Race and Iterated F-Race: An Overview. , 2010, , 311-336.		207
90	MADS/F-Race: Mesh Adaptive Direct Search Meets F-Race. Lecture Notes in Computer Science, 2010, , 41-50.	1.0	4

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91	Off-line vs. On-line Tuning: A Study on $mathcal{MAX–MIN}$ Ant System for the TSP. Lecture Notes in Computer Science, 2010, , 239-250.	1.0	8
92	Self-organized Task Partitioning in a Swarm of Robots. Lecture Notes in Computer Science, 2010, , 287-298.	1.0	9
93	Flocking in Stationary and Non-stationary Environments: A Novel Communication Strategy for Heading Alignment. , 2010, , 331-340.		26
94	Opinion Dynamics for Decentralized Decision-Making in a Robot Swarm. Lecture Notes in Computer Science, 2010, , 251-262.	1.0	5
95	Frankenstein's PSO: A Composite Particle Swarm Optimization Algorithm. IEEE Transactions on Evolutionary Computation, 2009, 13, 1120-1132.	7.5	297
96	Adaptive sample size and importance sampling in estimation-based local search for the probabilistic traveling salesman problem. European Journal of Operational Research, 2009, 199, 98-110.	3.5	29
97	Estimation-based ant colony optimization and local search for the probabilistic traveling salesman problem. Swarm Intelligence, 2009, 3, 223-242.	1.3	53
98	Tuning Metaheuristics. Studies in Computational Intelligence, 2009, , .	0.7	143
99	Background and State-of-the-Art. Studies in Computational Intelligence, 2009, , 11-67.	0.7	0
100	Experiments and Applications. Studies in Computational Intelligence, 2009, , 117-169.	0.7	0
101	The Metaphysical Character of the Criticisms Raised Against the Use of Probability for Dealing with Uncertainty in Artificial Intelligence. Minds and Machines, 2008, 18, 273-288.	2.7	4
102	Fault detection in autonomous robots based on fault injection andÂlearning. Autonomous Robots, 2008, 24, 49-67.	3.2	77
103	Self-Organizing and Scalable Shape Formation for a Swarm of Pico Satellites. , 2008, , .		30
104	Estimation-Based Local Search for Stochastic Combinatorial Optimization Using Delta Evaluations: A Case Study on the Probabilistic Traveling Salesman Problem. INFORMS Journal on Computing, 2008, 20, 644-658.	1.0	37
105	Reactive Stochastic Local Search Algorithms for the Genomic Median Problem. Lecture Notes in Computer Science, 2008, , 266-276.	1.0	16
106	Enhancing the Cooperative Transport of Multiple Objects. Lecture Notes in Computer Science, 2008, , 307-314.	1.0	2
107	The ACO/F-Race Algorithm for Combinatorial Optimization Under Uncertainty. , 2007, , 189-203.		14
108	On the Invariance of Ant Colony Optimization. IEEE Transactions on Evolutionary Computation, 2007, 11, 732-742.	7.5	77

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109	Automatic Synthesis of Fault Detection Modules for Mobile Robots. , 2007, , .		9
110	How to assess and report the performance of a stochastic algorithm on a benchmark problem: mean or best result on a number of runs?. Optimization Letters, 2007, 1, 309-311.	0.9	33
111	Implementation Effort and Performance. Lecture Notes in Computer Science, 2007, , 31-45.	1.0	7
112	Improvement Strategies for the F-Race Algorithm: Sampling Design and Iterative Refinement. , 2007, , 108-122.		114
113	Swarm intelligence. Scholarpedia Journal, 2007, 2, 1462.	0.3	112
114	Exogenous Fault Detection in a Collective Robotic Task. , 2007, , 555-564.		3
115	Negotiation of Goal Direction for Cooperative Transport. Lecture Notes in Computer Science, 2006, , 191-202.	1.0	29
116	Towards a theory of practice inÂmetaheuristics design: A machine learning perspective. RAIRO - Theoretical Informatics and Applications, 2006, 40, 353-369.	0.5	23
117	Ant Colony Optimization. IEEE Computational Intelligence Magazine, 2006, 1, 28-39.	3.4	906
118	An effective hybrid algorithm for university course timetabling. Journal of Scheduling, 2006, 9, 403-432.	1.3	110
119	Hybrid Metaheuristics for the Vehicle Routing Problem with Stochastic Demands. Mathematical Modelling and Algorithms, 2006, 5, 91-110.	0.5	103
120	Ant colony optimization. IEEE Computational Intelligence Magazine, 2006, 1, 28-39.	3.4	3,284
121	A Comparison of Particle Swarm Optimization Algorithms Based on Run-Length Distributions. Lecture Notes in Computer Science, 2006, , 1-12.	1.0	18
122	Incremental Local Search in Ant Colony Optimization: Why It Fails for the Quadratic Assignment Problem. Lecture Notes in Computer Science, 2006, , 156-166.	1.0	6
123	On the Invariance of Ant System. Lecture Notes in Computer Science, 2006, , 215-223.	1.0	4
124	ACO Applied to Switch Engine Scheduling in a Railroad Yard. Lecture Notes in Computer Science, 2006, , 502-503.	1.0	0
125	Combining Lazy Learning, Racing and Subsampling for Effective Feature Selection. , 2005, , 393-396.		1
126	The Role of Learning Methods in the Dynamic Assessment of Power Components Loading Capability. IEEE Transactions on Industrial Electronics, 2005, 52, 280-290.	5.2	44

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127	Metaheuristics for the Vehicle Routing Problem with Stochastic Demands. Lecture Notes in Computer Science, 2004, , 450-460.	1.0	27
128	Model-Based Search for Combinatorial Optimization: A Critical Survey. Annals of Operations Research, 2004, 131, 373-395.	2.6	193
129	A Comparison of the Performance of Different Metaheuristics on the Timetabling Problem. Lecture Notes in Computer Science, 2003, , 329-351.	1.0	71
130	Lazy Learning: A Logical Method for Supervised Learning. Studies in Fuzziness and Soft Computing, 2002, , 97-136.	0.6	7
131	Data-driven techniques for direct adaptive control: the lazy and the fuzzy approaches. Fuzzy Sets and Systems, 2002, 128, 3-14.	1.6	16
132	Toward the Formal Foundation of Ant Programming. Lecture Notes in Computer Science, 2002, , 188-201.	1.0	37
133	Updating ACO Pheromones Using Stochastic Gradient Ascent and Cross-Entropy Methods. Lecture Notes in Computer Science, 2002, , 21-30.	1.0	15
134	The local paradigm for modeling and control: from neuro-fuzzy to lazy learning. Fuzzy Sets and Systems, 2001, 121, 59-72.	1.6	70
135	Data-Driven Techniques for Divide and Conquer Adaptive Control. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2000, 33, 59-64.	0.4	0
136	Lazy learning for local modelling and control design. International Journal of Control, 1999, 72, 643-658.	1.2	226
137	Recursive lazy learning for modeling and control. Lecture Notes in Computer Science, 1998, , 292-303.	1.0	20
138	Local Learning for Nonlinear Control. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 1998, 31, 351-356.	0.4	0
139	Adaptive memory based regression methods. , 0, , .		4
140	Towards an integrated automatic design process for robot swarms. Open Research Europe, 0, 1, 112.	2.0	4
141	Boolean Network Robotics as an Intermediate Step in the Synthesis of Finite State Machines for Robot Control. , 0, , .		3