

# Mikhail Prokopenko

## List of Publications by Year in descending order

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Version: 2024-02-01

166  
papers

4,674  
citations

136740

32  
h-index

128067

60  
g-index

173  
all docs

173  
docs citations

173  
times ranked

4433  
citing authors

#	ARTICLE	IF	CITATIONS
1	Modelling transmission and control of the COVID-19 pandemic in Australia. Nature Communications, 2020, 11, 5710.	5.8	394
2	Revealing COVID-19 transmission in Australia by SARS-CoV-2 genome sequencing and agent-based modeling. Nature Medicine, 2020, 26, 1398-1404.	15.2	283
3	An information-theoretic primer on complexity, self-organization, and emergence. Complexity, 2009, 15, 11-28.	0.9	222
4	Global socio-economic losses and environmental gains from the Coronavirus pandemic. PLoS ONE, 2020, 15, e0235654.	1.1	218
5	Local information transfer as a spatiotemporal filter for complex systems. Physical Review E, 2008, 77, 026110.	0.8	211
6	Differentiating information transfer and causal effect. European Physical Journal B, 2010, 73, 605-615.	0.6	176
7	Multivariate information-theoretic measures reveal directed information structure and task relevant changes in fMRI connectivity. Journal of Computational Neuroscience, 2011, 30, 85-107.	0.6	165
8	Percolation Centrality: Quantifying Graph-Theoretic Impact of Nodes during Percolation in Networks. PLoS ONE, 2013, 8, e53095.	1.1	136
9	Local measures of information storage in complex distributed computation. Information Sciences, 2012, 208, 39-54.	4.0	130
10	Game theoretic modelling of infectious disease dynamics and intervention methods: a review. Journal of Biological Dynamics, 2020, 14, 57-89.	0.8	102
11	Information modification and particle collisions in distributed computation. Chaos, 2010, 20, 037109.	1.0	98
12	Relating Fisher information to order parameters. Physical Review E, 2011, 84, 041116.	0.8	89
13	Information Dynamics in Small-World Boolean Networks. Artificial Life, 2011, 17, 293-314.	1.0	83
14	Assortative mixing in directed biological networks. IEEE/ACM Transactions on Computational Biology and Bioinformatics, 2012, 9, 66-78.	1.9	82
15	Guided self-organization. HFSP Journal, 2009, 3, 287.	2.5	76
16	Local assortativeness in scale-free networks. Europhysics Letters, 2008, 84, 28002.	0.7	75
17	On Thermodynamic Interpretation of Transfer Entropy. Entropy, 2013, 15, 524-543.	1.1	70
18	Quantifying and Tracing Information Cascades in Swarms. PLoS ONE, 2012, 7, e40084.	1.1	67

#	ARTICLE	IF	CITATIONS
19	Investigating spatiotemporal dynamics and synchrony of influenza epidemics in Australia: An agent-based modelling approach. <i>Simulation Modelling Practice and Theory</i> , 2018, 87, 412-431.	2.2	62
20	Evolving Spatiotemporal Coordination in a Modular Robotic System. <i>Lecture Notes in Computer Science</i> , 2006, , 558-569.	1.0	62
21	Urbanization affects peak timing, prevalence, and bimodality of influenza pandemics in Australia: Results of a census-calibrated model. <i>Science Advances</i> , 2018, 4, eaau5294.	4.7	56
22	Transfer Entropy and Transient Limits of Computation. <i>Scientific Reports</i> , 2014, 4, 5394.	1.6	52
23	Informative and misinformative interactions in a school of fish. <i>Swarm Intelligence</i> , 2018, 12, 283-305.	1.3	44
24	Transfer entropy in continuous time, with applications to jump and neural spiking processes. <i>Physical Review E</i> , 2017, 95, 032319.	0.8	43
25	Spatiotemporal Anomaly Detection in Gas Monitoring Sensor Networks. , 2008, , 90-105.		42
26	Cohesion, order and information flow in the collective motion of mixed-species shoals. <i>Royal Society Open Science</i> , 2018, 5, 181132.	1.1	39
27	Local assortativity and growth of Internet. <i>European Physical Journal B</i> , 2009, 70, 275-285.	0.6	37
28	Fisher Information at the Edge of Chaos in Random Boolean Networks. <i>Artificial Life</i> , 2011, 17, 315-329.	1.0	37
29	Information-driven self-organization: the dynamical system approach to autonomous robot behavior. <i>Theory in Biosciences</i> , 2012, 131, 161-179.	0.6	36
30	Coherent information structure in complex computation. <i>Theory in Biosciences</i> , 2012, 131, 193-203.	0.6	35
31	Assortativeness and information in scale-free networks. <i>European Physical Journal B</i> , 2009, 67, 291-300.	0.6	34
32	The demise of Angkor: Systemic vulnerability of urban infrastructure to climatic variations. <i>Science Advances</i> , 2018, 4, eaau4029.	4.7	34
33	Comparing dynamics of cascading failures between network-centric and power flow models. <i>International Journal of Electrical Power and Energy Systems</i> , 2013, 49, 369-379.	3.3	32
34	A Framework for the Local Information Dynamics of Distributed Computation in Complex Systems. <i>Emergence, Complexity and Computation</i> , 2014, , 115-158.	0.2	32
35	How will mass-vaccination change COVID-19 lockdown requirements in Australia?. <i>The Lancet Regional Health - Western Pacific</i> , 2021, 14, 100224.	1.3	32
36	Decentralised decision making in heterogeneous teams using anonymous optimisation. <i>Robotics and Autonomous Systems</i> , 2009, 57, 310-320.	3.0	31

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37	Criticality and Information Dynamics in Epidemiological Models. <i>Entropy</i> , 2017, 19, 194.	1.1	29
38	On connectivity of reconfigurable impact networks in ageless aerospace vehicles. <i>Robotics and Autonomous Systems</i> , 2005, 53, 36-58.	3.0	26
39	Guided self-organization: perception-action loops of embodied systems. <i>Theory in Biosciences</i> , 2012, 131, 125-127.	0.6	26
40	Transfer entropy in physical systems and the arrow of time. <i>Physical Review E</i> , 2016, 94, 022135.	0.8	26
41	Slime mould evaluation of Australian motorways. <i>International Journal of Parallel, Emergent and Distributed Systems</i> , 2012, 27, 275-295.	0.7	24
42	Are motorways rational from slime mould's point of view?. <i>International Journal of Parallel, Emergent and Distributed Systems</i> , 2013, 28, 230-248.	0.7	24
43	Defining and Detecting Emergence in Complex Networks. <i>Lecture Notes in Computer Science</i> , 2005, , 573-580.	1.0	23
44	The Effects of Imitation Dynamics on Vaccination Behaviours in SIR-Network Model. <i>International Journal of Environmental Research and Public Health</i> , 2019, 16, 2477.	1.2	23
45	Self-Organizing Hierarchies in Sensor and Communication Networks. <i>Artificial Life</i> , 2005, 11, 407-426.	1.0	22
46	Phase transitions in least-effort communications. <i>Journal of Statistical Mechanics: Theory and Experiment</i> , 2010, 2010, P11025.	0.9	22
47	Quantifying Long-Range Interactions and Coherent Structure in Multi-Agent Dynamics. <i>Artificial Life</i> , 2017, 23, 34-57.	1.0	21
48	Thermodynamics and computation during collective motion near criticality. <i>Physical Review E</i> , 2018, 97, 012120.	0.8	21
49	Irreversibility and emergent structure in active matter. <i>Physical Review E</i> , 2019, 100, 042613.	0.8	21
50	Creating a surrogate commuter network from Australian Bureau of Statistics census data. <i>Scientific Data</i> , 2019, 6, 150.	2.4	21
51	Local assortativeness in scale-free networks. <i>Europhysics Letters</i> , 2010, 89, 49901.	0.7	19
52	Information thermodynamics of near-equilibrium computation. <i>Physical Review E</i> , 2015, 91, 062143.	0.8	19
53	Minimising the Kullback-Leibler Divergence for Model Selection in Distributed Nonlinear Systems. <i>Entropy</i> , 2018, 20, 51.	1.1	19
54	Thermodynamic efficiency of contagions: a statistical mechanical analysis of the SIS epidemic model. <i>Interface Focus</i> , 2018, 8, 20180036.	1.5	19

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55	Design vs. Self-organization. <i>Advanced Information and Knowledge Processing</i> , 2008, , 3-17.	0.2	18
56	Sensor Network for Structural Health Monitoring. , 0, , .		17
57	INFORMATION AND SELF-ORGANIZATION OF BEHAVIOR. <i>International Journal of Modeling, Simulation, and Scientific Computing</i> , 2013, 16, 1303001.	0.9	17
58	Evaluating Team Performance at the Edge of Chaos. <i>Lecture Notes in Computer Science</i> , 2004, , 89-101.	1.0	17
59	On congruity of nodes and assortative information content in complex networks. <i>Networks and Heterogeneous Media</i> , 2012, 7, 441-461.	0.5	17
60	Clustering Distributed Energy Resources for Large-Scale Demand Management. , 2007, , .		16
61	Entropy Methods in Guided Self-Organisation. <i>Entropy</i> , 2014, 16, 5232-5241.	1.1	16
62	Self-referential basis of undecidable dynamics: From the Liar paradox and the halting problem to the edge of chaos. <i>Physics of Life Reviews</i> , 2019, 31, 134-156.	1.5	16
63	Impact of network assortativity on epidemic and vaccination behaviour. <i>Chaos, Solitons and Fractals</i> , 2020, 140, 110143.	2.5	16
64	Using Echo State Networks for Anomaly Detection in Underground Coal Mines. , 2008, , .		15
65	Feature Selection for Chemical Sensor Arrays Using Mutual Information. <i>PLoS ONE</i> , 2014, 9, e89840.	1.1	15
66	Detecting Non-trivial Computation in Complex Dynamics. , 2007, , 895-904.		15
67	Simulating Transmission Scenarios of the Delta Variant of SARS-CoV-2 in Australia. <i>Frontiers in Public Health</i> , 2022, 10, 823043.	1.3	15
68	On critical dynamics and thermodynamic efficiency of urban transformations. <i>Royal Society Open Science</i> , 2018, 5, 180863.	1.1	14
69	Dynamic resettlement as a mechanism of phase transitions in urban configurations. <i>Physical Review E</i> , 2019, 99, 042143.	0.8	14
70	Conformity in the collective: differences in hunger affect individual and group behavior in a shoaling fish. <i>Behavioral Ecology</i> , 2019, 30, 968-974.	1.0	14
71	Flexible Synchronisation Within RoboCup Environment: a Comparative Analysis. <i>Lecture Notes in Computer Science</i> , 2001, , 119-128.	1.0	14
72	Advances in Applied Self-organizing Systems. <i>Advanced Information and Knowledge Processing</i> , 2008, , .	0.2	14

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73	Beyond COVID-19: network science and sustainable exit strategies. <i>Journal of Physics Complexity</i> , 2021, 2, 021001.	0.9	14
74	Adaptive Control of Distributed Energy Management: A Comparative Study. , 2008, , .		13
75	Zipf's Law: Balancing Signal Usage Cost and Communication Efficiency. <i>PLoS ONE</i> , 2015, 10, e0139475.	1.1	13
76	Interfering with influenza: nonlinear coupling of reactive and static mitigation strategies. <i>Journal of the Royal Society Interface</i> , 2020, 17, 20190728.	1.5	13
77	Guided self-organization. <i>HFSP Journal</i> , 2009, 3, 287-9.	2.5	13
78	An Information Criterion for Inferring Coupling of Distributed Dynamical Systems. <i>Frontiers in Robotics and AI</i> , 2016, 3, .	2.0	12
79	City structure shapes directional resettlement flows in Australia. <i>Scientific Reports</i> , 2020, 10, 8235.	1.6	12
80	Explaining herding and volatility in the cyclical price dynamics of urban housing markets using a large-scale agent-based model. <i>SN Business &amp; Economics</i> , 2021, 1, 1.	0.6	12
81	Information-Cloning of Scale-Free Networks. , 2007, , 925-935.		12
82	Measuring Information Dynamics in Swarms. <i>Emergence, Complexity and Computation</i> , 2014, , 343-364.	0.2	11
83	Population mobility induced phase separation in SIS epidemic and social dynamics. <i>Scientific Reports</i> , 2020, 10, 7646.	1.6	11
84	Phase Transitions in Spatial Connectivity during Influenza Pandemics. <i>Entropy</i> , 2020, 22, 133.	1.1	11
85	Towards Quantifying Interaction Networks in a Football Match. <i>Lecture Notes in Computer Science</i> , 2014, , 1-12.	1.0	11
86	Asynchronous gradient-based optimisation for team decision making. , 2007, , .		10
87	RoboCup Simulation Leagues: Enabling Replicable and Robust Investigation of Complex Robotic Systems. <i>IEEE Robotics and Automation Magazine</i> , 2015, 22, 140-146.	2.2	10
88	The impact of social influence in Australian real estate: market forecasting with a spatial agent-based model. <i>Journal of Economic Interaction and Coordination</i> , 2023, 18, 5-57.	0.4	10
89	Thermodynamic Efficiency of Interactions in Self-Organizing Systems. <i>Entropy</i> , 2021, 23, 757.	1.1	10
90	Disruptive Innovations in RoboCup 2D Soccer Simulation League: From Cybersoos™98 to Gliders2016. <i>Lecture Notes in Computer Science</i> , 2017, , 529-541.	1.0	10

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91	On the Cross-Disciplinary Nature of Guided Self-Organisation. Emergence, Complexity and Computation, 2014, , 3-15.	0.2	9
92	Fisher transfer entropy: quantifying the gain in transient sensitivity. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2015, 471, 20150610.	1.0	9
93	Network properties of salmonella epidemics. Scientific Reports, 2019, 9, 6159.	1.6	9
94	Self-Organising Impact Sensing Networks in Robust Aerospace Vehicles. Computational Intelligence and Its Applications Series, 2006, , 186-233.	0.2	9
95	Relating the Entropy of Joint Beliefs to Multi-agent Coordination. Lecture Notes in Computer Science, 2003, , 367-374.	1.0	8
96	Complexity Metrics for Self-monitoring Impact Sensing Networks. , 0, , .		8
97	Grand Challenges for Computational Intelligence. Frontiers in Robotics and AI, 2014, 1, .	2.0	8
98	Fisher information and criticality in the Kuramoto model of nonidentical oscillators. Physical Review E, 2018, 98, 022302.	0.8	8
99	Emergence of Genetic Coding: An Information-Theoretic Model. , 2007, , 42-52.		8
100	Gliders2d: Source Code Base for RoboCup 2D Soccer Simulation League. Lecture Notes in Computer Science, 2019, , 418-428.	1.0	8
101	Genome-wide networks reveal emergence of epidemic strains of Salmonella Enteritidis. International Journal of Infectious Diseases, 2022, 117, 65-73.	1.5	8
102	Self-organising impact boundaries in ageless aerospace vehicles. , 2003, , .		7
103	Scalable Decentralised Decision Making and Optimisation in Heterogeneous Teams. , 2006, , .		7
104	A Maximum Entropy Model of Bounded Rational Decision-Making with Prior Beliefs and Market Feedback. Entropy, 2021, 23, 669.	1.1	7
105	On Convergence of Dynamic Cluster Formation in Multi-agent Networks. Lecture Notes in Computer Science, 2005, , 884-894.	1.0	7
106	The effects of local homogeneity assumptions in metapopulation models of infectious disease. Royal Society Open Science, 2022, 9, .	1.1	7
107	Complex Networks. Artificial Life, 2011, 17, 259-261.	1.0	6
108	The social brain: scale-invariant layering of Erdős-Rényi networks in small-scale human societies. Journal of the Royal Society Interface, 2016, 13, 20160044.	1.5	6

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109	Quantifying the impact of communication on performance in multi-agent teams. <i>Artificial Life and Robotics</i> , 2017, 22, 357-373.	0.7	6
110	The Polycentric Dynamics of Melbourne and Sydney: suburb attractiveness divides a city at the home ownership level. <i>Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences</i> , 2021, 477, 20200514.	1.0	6
111	On Emergence of Scalable Tactical and Strategic Behaviour. <i>Lecture Notes in Computer Science</i> , 2001, , 357-366.	1.0	6
112	Homeotaxis: Coordination with Persistent Time-Loops. <i>Lecture Notes in Computer Science</i> , 2008, , 403-414.	1.0	6
113	Stigmergic gene transfer and emergence of universal coding. <i>HFSP Journal</i> , 2009, 3, 317-327.	2.5	5
114	Design Versus Self-Organization. <i>Advanced Information and Knowledge Processing</i> , 2013, , 3-21.	0.2	5
115	Structure-Preserving Imitation Learning With Delayed Reward: An Evaluation Within the RoboCup Soccer 2D Simulation Environment. <i>Frontiers in Robotics and AI</i> , 2020, 7, 123.	2.0	5
116	Origins of Scaling in Genetic Code. <i>Lecture Notes in Computer Science</i> , 2011, , 85-93.	1.0	5
117	Towards Adaptive Clustering in Self-monitoring Multi-agent Networks. <i>Lecture Notes in Computer Science</i> , 2005, , 796-805.	1.0	5
118	Decentralized Multi-Agent Clustering in Scale-free Sensor Networks. <i>Studies in Computational Intelligence</i> , 2008, , 485-515.	0.7	5
119	Fractals2019: Combinatorial Optimisation with Dynamic Constraint Annealing. <i>Lecture Notes in Computer Science</i> , 2019, , 616-630.	1.0	5
120	Information and Self-Organization: A Macroscopic Approach to Complex Systems, (3rd enlarged ed.). H. Haken. (2006, Springer.) â„–79.95 (hardcover), 262 pages. ISBN: 978-3-540-33021-9. <i>Artificial Life</i> , 2009, 15, 377-383.	1.0	4
121	Simulation Leagues: Analysis of Competition Formats. <i>Lecture Notes in Computer Science</i> , 2015, , 183-194.	1.0	4
122	Entropy balance and information processing in bipartite and nonbipartite composite systems. <i>Physical Review E</i> , 2018, 98, .	0.8	4
123	Functional and Structural Topologies in Evolved Neural Networks. <i>Lecture Notes in Computer Science</i> , 2011, , 140-147.	1.0	4
124	Improved Particle Filtering for Pseudo-Uniform Belief Distributions in Robot Localisation. <i>Lecture Notes in Computer Science</i> , 2014, , 385-395.	1.0	4
125	Kick Extraction for Reducing Uncertainty in RoboCup Logs. <i>Lecture Notes in Computer Science</i> , 2015, , 622-633.	1.0	4
126	Information Transfer by Particles in Cellular Automata. , 2007, , 49-60.		4



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127	Concepts for an Integrated Vehicle Health Monitoring System. AIP Conference Proceedings, 2003, , .	0.3	3
128	An Intelligent Sensor System for Detection and Evaluation of Particle Impact Damage. AIP Conference Proceedings, 2005, , .	0.3	3
129	Information dynamics at the edge of chaos: Measures, examples, and principles. , 2013, , .		3
130	Information ratchets exploiting spatially structured information reservoirs. Physical Review E, 2018, 98, 022124.	0.8	3
131	Diffusive Resettlement: Irreversible Urban Transitions in Closed Systems. Entropy, 2021, 23, 66.	1.1	3
132	Measuring Global Behaviour of Multi-agent Systems from Pair-Wise Mutual Information. Lecture Notes in Computer Science, 2005, , 587-594.	1.0	3
133	On Self-organising Diagnostics in Impact Sensing Networks. Lecture Notes in Computer Science, 2005, , 170-178.	1.0	3
134	RoboCup 2D Soccer Simulation League: Evaluation Challenges. Lecture Notes in Computer Science, 2018, , 325-337.	1.0	3
135	Inferring evolutionary pathways and directed genotype networks of foodborne pathogens. PLoS Computational Biology, 2020, 16, e1008401.	1.5	3
136	A preferential semantics for causal reasoning about action. Annals of Mathematics and Artificial Intelligence, 2006, 46, 375-413.	0.9	2
137	Optimising Sensor Layouts for Direct Measurement of Discrete Variables. , 2009, , .		2
138	Maximized directed information transfer in critical neuronal networks. BMC Neuroscience, 2011, 12, P18.	0.8	2
139	Computation by natural systems. Interface Focus, 2018, 8, 20180058.	1.5	2
140	A Unifying Semantics for Causal Ramifications. Lecture Notes in Computer Science, 2000, , 38-49.	1.0	2
141	Cyberoos™2001: "Deep Behaviour Projection" Agent Architecture. Lecture Notes in Computer Science, 2002, , 507-510.	1.0	2
142	Directed information structure in inter-regional cortical interactions in a visuomotor tracking task. BMC Neuroscience, 2009, 10, .	0.8	1
143	Spatiotemporal information transfer pattern differences in motor selection. BMC Neuroscience, 2011, 12, .	0.8	1
144	Biorationality of motorways. , 2012, , 309-325.		1

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145	Feature selection in Enose applications. Flavour, 2014, 3, .	2.3	1
146	Instability of Mixed Nash Equilibria in Generalised Hawk-Dove Game: A Project Conflict Management Scenario. Games, 2017, 8, 42.	0.4	1
147	Revealing configurational attractors in the evolution of modern Australian and US cities. Chaos, Solitons and Fractals, 2021, 148, 111079.	2.5	1
148	On Self-referential Shape Replication in Robust Aerospace Vehicles. , 2004, , 27-32.		1
149	Optimizing Potential Information Transfer with Self-referential Memory. Lecture Notes in Computer Science, 2006, , 228-242.	1.0	1
150	Modelling inertia in action languages. Lecture Notes in Computer Science, 1998, , 234-247.	1.0	1
151	On Decentralised Clustering in self-monitoring networks. , 2005, , .		0
152	Tracing historical development of Australian highways. , 2012, , 47-68.		0
153	Complexity, Criticality and Computation. Entropy, 2017, 19, 403.	1.1	0
154	Complex Systems. , 2019, , 546-552.		0
155	Cyberoosâ€™99: Tactical Agents in the RoboCup Simulation League. Lecture Notes in Computer Science, 2000, , 546-549.	1.0	0
156	Evolvable Recovery Membranes in Self-monitoring Aerospace Vehicles. , 2004, , 509-518.		0
157	Symbiotic Sensor Networks in Complex Underwater Terrains: A Simulation Framework. Lecture Notes in Computer Science, 2006, , 315-323.	1.0	0
158	Predicting Cluster Formation in Decentralized Sensor Grids. Lecture Notes in Computer Science, 2006, , 324-332.	1.0	0
159	Preferential semantics for causal fixpoints. Lecture Notes in Computer Science, 1997, , 197-206.	1.0	0
160	Relating Fisher information and thermodynamic cost of near-equilibrium computation. , 0, , .		0
161	Inferring evolutionary pathways and directed genotype networks of foodborne pathogens. , 2020, 16, e1008401.		0
162	Inferring evolutionary pathways and directed genotype networks of foodborne pathogens. , 2020, 16, e1008401.		0

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163	Inferring evolutionary pathways and directed genotype networks of foodborne pathogens. , 2020, 16, e1008401.		0
164	Inferring evolutionary pathways and directed genotype networks of foodborne pathogens. , 2020, 16, e1008401.		0
165	Inferring evolutionary pathways and directed genotype networks of foodborne pathogens. , 2020, 16, e1008401.		0
166	Inferring evolutionary pathways and directed genotype networks of foodborne pathogens. , 2020, 16, e1008401.		0