

Lukas Sekanina

List of Publications by Year in descending order

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Version: 2024-02-01

185
papers

2,756
citations

313897

21
h-index

356229

35
g-index

189
all docs

189
docs citations

189
times ranked

1474
citing authors

#	ARTICLE	IF	CITATIONS
1	Semantic mutation operator for a fast and efficient design of bent Boolean functions. Genetic Programming and Evolvable Machines, 2024, 25, .	2.6	0
2	Acceleration Techniques for Automated Design of Approximate Convolutional Neural Networks. IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2023, 13, 212-224.	4.2	4
3	GPAM: Genetic Programming with Associative Memory. Lecture Notes in Computer Science, 2023, , 68-83.	1.0	1
4	Evolution of Editing Scripts From Examples. , 2023, , .		0
5	SagTree: Towards efficient mutation in evolutionary circuit approximation. Swarm and Evolutionary Computation, 2022, 69, 100986.	8.3	1
6	Evolutionary Design of Reduced Precision Levodopa-Induced Dyskinesia Classifiers. Lecture Notes in Computer Science, 2022, , 85-101.	1.0	1
7	Design, Verification, Test, and In-Field Implications of Approximate Digital Integrated Circuits. , 2022, , 349-385.		0
8	Inexact Arithmetic Operators. , 2022, , 81-107.		1
9	Interpreting Plato's Geometrical Elements in Renaissance Aristotle Commentaries. , 2022, , 149-171.		0
10	Evolutionary approximation and neural architecture search. Genetic Programming and Evolvable Machines, 2022, 23, 351-374.	2.6	11
11	Evolutionary Neural Architecture Search Supporting Approximate Multipliers. Lecture Notes in Computer Science, 2021, , 82-97.	1.0	8
12	Neural Architecture Search and Hardware Accelerator Co-Search: A Survey. IEEE Access, 2021, 9, 151337-151362.	4.4	26
13	Exploring the experiences of operating room health care professionals' from the challenges of the COVID-19 pandemic. BMC Surgery, 2021, 21, 434.	1.4	14
14	Improving the Accuracy and Hardware Efficiency of Neural Networks Using Approximate Multipliers. IEEE Transactions on Very Large Scale Integration (VLSI) Systems, 2020, 28, 317-328.	3.2	99
15	Evolving Cryptographic Boolean Functions with Minimal Multiplicative Complexity. , 2020, , .		3
16	Evolutionary Design of Hash Functions for IPv6 Network Flow Hashing. , 2020, , .		2
17	Dynamic modeling and operation strategy of natural gas fueled SOFC-Engine hybrid power system with hydrogen addition by metal hydride for vehicle applications. ETransportation, 2020, 5, 100074.	14.9	29
18	Adaptive verifiability-driven strategy for evolutionary approximation of arithmetic circuits. Applied Soft Computing Journal, 2020, 95, 106466.	7.4	3

#	ARTICLE	IF	CITATIONS
19	TFApprox: Towards a Fast Emulation of DNN Approximate Hardware Accelerators on GPU. , 2020, , .		27
20	Libraries of Approximate Circuits: Automated Design and Application in CNN Accelerators. IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2020, 10, 406-418.	4.2	42
21	Using Libraries of Approximate Circuits in Design of Hardware Accelerators of Deep Neural Networks. , 2020, , .		12
22	Special issue on highlights of genetic programming 2019 events. Genetic Programming and Evolvable Machines, 2020, 21, 283-285.	2.6	0
23	ApproxFPGAs: Embracing ASIC-Based Approximate Arithmetic Components for FPGA-Based Systems. , 2020, , .		23
24	Adaptive Fitness Predictors in Coevolutionary Cartesian Genetic Programming. Evolutionary Computation, 2019, 27, 497-523.	3.1	4
25	Efficient On-Chip Randomness Testing Utilizing Machine Learning Techniques. IEEE Transactions on Very Large Scale Integration (VLSI) Systems, 2019, 27, 2734-2744.	3.2	1
26	Automated Circuit Approximation Method Driven by Data Distribution. , 2019, , .		13
27	autoAx. , 2019, , .		55
28	TypeCNN: CNN Development Framework With Flexible Data Types. , 2019, , .		8
29	Discrimination between Asian populations of the parasitoid wasp <i>Ganaspis cf. brasiliensis</i> using a simple MALDI-TOF MS-based method for use with insects. Biology Methods and Protocols, 2019, 4, bpz002.	2.1	10
30	Cartesian Genetic Programming as an Optimizer of Programs Evolved with Geometric Semantic Genetic Programming. Lecture Notes in Computer Science, 2019, , 98-113.	1.0	3
31	International Symposium on Design and Diagnostics of Electronic Circuits and Systems. , 2019, , .		0
32	ALWANN: Automatic Layer-Wise Approximation of Deep Neural Network Accelerators without Retraining. , 2019, , .		81
33	Automated Search-Based Functional Approximation for Digital Circuits. , 2019, , 175-203.		16
34	Optimizing Convolutional Neural Networks for Embedded Systems by Means of Neuroevolution. Lecture Notes in Computer Science, 2019, , 109-121.	1.0	2
35	Cooperative Coevolutionary Approximation in HOG-based Human Detection Embedded System. , 2018, , .		2
36	Fast Reconfigurable Hash Functions for Network Flow Hashing in FPGAs. , 2018, , .		5

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37	Design Space Exploration for Approximate Implementations of Arithmetic Data Path Primitives. , 2018, , .		0
38	Design of Quality-Configurable Approximate Multipliers Suitable for Dynamic Environment. , 2018, , .		15
39	Scalable Construction of Approximate Multipliers With Formally Guaranteed Worst Case Error. IEEE Transactions on Very Large Scale Integration (VLSI) Systems, 2018, 26, 2572-2576.	3.2	39
40	ADAC: Automated Design of Approximate Circuits. Lecture Notes in Computer Science, 2018, , 612-620.	1.0	5
41	Mapping Grain Iron and Zinc Content Quantitative Trait Loci in an Inbred-Derived Immortal Population of Pearl Millet. Genes, 2018, 9, 248.	2.4	67
42	Evolving boolean functions for fast and efficient randomness testing. , 2018, , .		2
43	Approximate Computing: An Old Job for Cartesian Genetic Programming?. Emergence, Complexity and Computation, 2018, , 195-212.	0.0	3
44	Multi-objective Evolution of Ultra-Fast General-Purpose Hash Functions. Lecture Notes in Computer Science, 2018, , 187-202.	1.0	1
45	EvoApprox: Library of Approximate Adders and Multipliers for Circuit Design and Benchmarking of Approximation Methods. , 2017, , .		208
46	Comparison of Parallel Linear Genetic Programming Implementations. Advances in Intelligent Systems and Computing, 2017, , 64-76.	0.0	1
47	Evolutionary design of hash function pairs for network filters. Applied Soft Computing Journal, 2017, 56, 173-181.	7.4	7
48	Adaptive and Energy-Efficient Architectures for Machine Learning: Challenges, Opportunities, and Research Roadmap. , 2017, , .		36
49	Data Stream Processing in Networks-on-Chip. , 2017, , .		4
50	Chronic constrictive pericarditis with right ventricular outflow tract obstruction. IHJ Cardiovascular Case Reports (CVCR), 2017, 1, 48-50.	0.1	0
51	Multi-objective evolution of hash functions for high speed networks. , 2017, , .		4
52	Modular framework for detection of inter-ictal spikes in iEEG. , 2017, 2017, 418-421.		1
53	Evolutionary approximation of gradient orientation module in HOG-based human detection system. , 2017, , .		3
54	Approximating complex arithmetic circuits with formal error guarantees: 32-bit multipliers accomplished. , 2017, , .		29

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55	On Evolutionary Approximation of Sigmoid Function for HW/SW Embedded Systems. Lecture Notes in Computer Science, 2017, , 343-358.	1.0	0
56	<i><sc>NLRP</sc>3</i> gene polymorphisms in Iranian patients with recurrent aphthous stomatitis. Journal of Oral Pathology and Medicine, 2016, 45, 136-140.	2.7	17
57	Adaptive development of hash functions in FPGA-based network routers. , 2016, , .		3
58	Evolving component library for approximate high level synthesis. , 2016, , .		14
59	Evolutionary functional approximation of circuits implemented into FPGAs. , 2016, , .		8
60	Design of power-efficient approximate multipliers for approximate artificial neural networks. , 2016, , .		116
61	Evolutionary Design of Fast High-quality Hash Functions for Network Applications. , 2016, , .		9
62	Evolutionary Approximation of Edge Detection Circuits. Lecture Notes in Computer Science, 2016, , 19-34.	1.0	0
63	Metal ion displacements in noncentrosymmetric chalcogenides La ₃ Ga _{1.67} S ₇ , La ₃ Ag _{0.6} GaCh ₇ (Ch=S, Se), and La ₃ MGaSe ₇ (M=Zn, Cd). Journal of Solid State Chemistry, 2016, 243, 221-231.	3.0	12
64	Search-based synthesis of approximate circuits implemented into FPGAs. , 2016, , .		9
65	Error Mitigation Using Approximate Logic Circuits: A Comparison of Probabilistic and Evolutionary Approaches. IEEE Transactions on Reliability, 2016, 65, 1871-1883.	5.3	31
66	Visualisation and Analysis of Genetic Records Produced by Cartesian Genetic Programming. , 2016, , .		3
67	Introduction to approximate computing: Embedded tutorial. , 2016, , .		12
68	Evolutionary design of complex approximate combinational circuits. Genetic Programming and Evolvable Machines, 2016, 17, 169-192.	2.6	27
69	Towards Robust and Accurate Traffic Prediction Using Parallel Multiobjective Genetic Algorithms and Support Vector Regression. , 2015, , .		2
70	Evolutionary Approximation of Complex Digital Circuits. , 2015, , .		2
71	Low-Level Flexible Architecture with Hybrid Reconfiguration for Evolvable Hardware. ACM Transactions on Reconfigurable Technology and Systems, 2015, 8, 1-24.	2.7	19
72	Evolutionary Approximation of Software for Embedded Systems. , 2015, , .		17

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73	Evolutionary Approach to Approximate Digital Circuits Design. IEEE Transactions on Evolutionary Computation, 2015, 19, 432-444.	11.4	113
74	Indirectly Encoded Fitness Predictors Coevolved with Cartesian Programs. Lecture Notes in Computer Science, 2015, , 113-125.	1.0	2
75	Circuit Approximation Using Single- and Multi-objective Cartesian GP. Lecture Notes in Computer Science, 2015, , 217-229.	1.0	9
76	Principles and Applications of Polymorphic Circuits. Natural Computing Series, 2015, , 209-224.	0.0	2
77	Functional Equivalence Checking for Evolution of Complex Digital Circuits. Natural Computing Series, 2015, , 175-189.	0.0	1
78	A Fast FPGA-Based Classification of Application Protocols Optimized Using Cartesian GP. Lecture Notes in Computer Science, 2015, , 67-78.	1.0	0
79	How to evolve complex combinational circuits from scratch?. , 2014, , .		18
80	Towards highly optimized cartesian genetic programming. , 2014, , .		23
81	Towards compositional coevolution in evolutionary circuit design. , 2014, , .		5
82	Multiobjective selection of input sensors for travel times forecasting using support vector regression. , 2014, , .		1
83	Evolutionary digital circuit design with fast candidate solution establishment in field programmable gate arrays. , 2014, , .		2
84	Cartesian genetic programming as local optimizer of logic networks. , 2014, , .		7
85	Evolutionary design of approximate multipliers under different error metrics. , 2014, , .		16
86	Exploring the Search Space of Hardware / Software Embedded Systems by Means of GP. Lecture Notes in Computer Science, 2014, , 112-123.	1.0	1
87	On Evolutionary Approximation of Logic Circuits. Lecture Notes in Computer Science, 2014, , 367-378.	1.0	0
88	Multiobjective Selection of Input Sensors for SVR Applied to Road Traffic Prediction. Lecture Notes in Computer Science, 2014, , 802-811.	1.0	6
89	Self-Reconfigurable Evolvable Hardware System for Adaptive Image Processing. IEEE Transactions on Computers, 2013, 62, 1481-1493.	3.6	42
90	Evolution of efficient real-time non-linear image filters for FPGAs. Soft Computing, 2013, 17, 2163-2180.	3.8	13

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91	Image filter evolution on the Xilinx Zynq Platform. , 2013, , .		21
92	Approximate circuit design by means of evolvable hardware. , 2013, , .		34
93	Concurrent evolution of hardware and software for application-specific microprogrammed systems. , 2013, , .		2
94	Multiobjective evolution of approximate multiple constant multipliers. , 2013, , .		5
95	Towards evolvable systems based on the Xilinx Zynq platform. , 2013, , .		32
96	Foreword to the 16th IEEE DDECS Symposium. , 2013, , .		0
97	Ubiquity symposium: Evolutionary computation and the processes of life. Ubiquity, 2013, 2013, 1-7.	0.6	1
98	Implementing A Unique Chip Id On A Reconfigurable Polymorphic Circuit. Information Technology and Control, 2013, 42, .	2.1	9
99	Estimation of missing values in traffic density maps. , 2012, , .		0
100	On area minimization of complex combinational circuits using cartesian genetic programming. , 2012, , .		9
101	Towards new applications of multi-function logic: Image multi-filtering. , 2012, , .		1
102	Two-step evolution of polymorphic circuits for image multi-filtering. , 2012, , .		9
103	Cellular automata-based systems with fault-tolerance. Natural Computing, 2012, 11, 673-685.	2.8	2
104	Implementation techniques for evolvable HW systems: virtual VS. dynamic reconfiguration. , 2012, , .		9
105	Evolutionary approach to calibration of cellular automaton based traffic simulation models. , 2012, , .		3
106	Accelerating FPGA-based evolution of wavelet transform filters by optimized task scheduling. Microprocessors and Microsystems, 2012, 36, 427-438.	3.3	4
107	Evolvable Hardware. , 2012, , 1657-1705.		15
108	A SAT-based fitness function for evolutionary optimization of polymorphic circuits. , 2012, , .		5

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109	Calibration of Traffic Simulation Models Using Vehicle Travel Times. Lecture Notes in Computer Science, 2012, , 807-816.	1.0	1
110	Coevolution in Cartesian Genetic Programming. Lecture Notes in Computer Science, 2012, , 182-193.	1.0	7
111	Acceleration of Evolutionary Image Filter Design Using Coevolution in Cartesian GP. Lecture Notes in Computer Science, 2012, , 163-172.	1.0	5
112	Evolutionary Design of Message Efficient Secrecy Amplification Protocols. Lecture Notes in Computer Science, 2012, , 194-205.	1.0	5
113	Evolvable 2D computing matrix model for intrinsic evolution in commercial FPGAs with native reconfiguration support. , 2011, , .		11
114	Evolutionary design of efficient and robust switching image filters. , 2011, , .		11
115	Evolution of Iterative Formulas Using Cartesian Genetic Programming. Lecture Notes in Computer Science, 2011, , 11-20.	1.0	4
116	Evolution of Electronic Circuits. Natural Computing Series, 2011, , 125-179.	0.0	11
117	Image Processing and CGP. Natural Computing Series, 2011, , 181-215.	0.0	23
118	CGP Acceleration Using Field-Programmable Gate Arrays. Natural Computing Series, 2011, , 217-230.	0.0	1
119	A scalable cellular automata based microscopic traffic simulation. , 2011, , .		5
120	Bio-inspired FPGA architecture for self-calibration of an image compression core based on wavelet transforms in embedded systems. Proceedings of SPIE, 2011, , .	1.0	1
121	Evolutionary Approach to Improve Wavelet Transforms for Image Compression in Embedded Systems. Eurasip Journal on Advances in Signal Processing, 2011, 2011, .	1.9	10
122	Formal verification of candidate solutions for post-synthesis evolutionary optimization in evolvable hardware. Genetic Programming and Evolvable Machines, 2011, 12, 305-327.	2.6	44
123	Fault Tolerance Analysis and Self-Healing Strategy of Autonomous, Evolvable Hardware Systems. , 2011, , .		29
124	A fast Reconfigurable 2D HW core architecture on FPGAs for evolvable Self-Adaptive Systems. , 2011, , .		14
125	A global postsynthesis optimization method for combinational circuits. , 2011, , .		15
126	Evolutionary hardware design. Proceedings of SPIE, 2011, , .	1.0	6

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127	Behavior of CMOS polymorphic circuits in high temperature environment. , 2011, , .		3
128	Evolution of digital circuits. , 2011, , .		0
129	Increasing Fault-Tolerance in Cellular Automata-Based Systems. Lecture Notes in Computer Science, 2011, , 234-245.	1.0	3
130	When does Cartesian genetic programming minimize the phenotype size implicitly?. , 2010, , .		1
131	A method for design of impulse bursts noise filters optimized for FPGA implementations. , 2010, , .		11
132	On logic synthesis of conventionally hard to synthesize circuits using genetic programming. , 2010, , .		17
133	Evolutionary design and optimization of Wavelet Transforms for image compression in embedded systems. , 2010, , .		5
134	High Level Validation of an Optimization Algorithm for the Implementation of Adaptive Wavelet Transforms in FPGAs. , 2010, , .		2
135	Evolutionary circuit design: Tutorial. , 2010, , .		0
136	On analysis of fabricated polymorphic circuits. , 2010, , .		3
137	An Efficient Selection Strategy for Digital Circuit Evolution. Lecture Notes in Computer Science, 2010, , 13-24.	1.0	10
138	Evolutionary Design of Reconfiguration Strategies to Reduce the Test Application Time. Lecture Notes in Computer Science, 2010, , 214-225.	1.0	0
139	GPU Accelerators for Evolvable Cellular Automata. , 2009, , .		7
140	REPOMO32 - New reconfigurable polymorphic integrated circuit for adaptive hardware. , 2009, , .		28
141	Gate-level optimization of polymorphic circuits using Cartesian Genetic Programming. , 2009, , .		13
142	Evolution of Impulse Bursts Noise Filters. , 2009, , .		8
143	Polymorphic FIR Filters with Backup Mode Enabling Power Savings. , 2009, , .		11
144	Evolvable Hardware: From Applications to Implications for the Theory of Computation. Lecture Notes in Computer Science, 2009, , 24-36.	1.0	2

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145	Evolutionary design of secrecy amplification protocols for wireless sensor networks. , 2009, , .		17
146	Transistor-Level Evolution of Digital Circuits Using a Special Circuit Simulator. Lecture Notes in Computer Science, 2008, , 320-331.	1.0	11
147	On Evolutionary Synthesis of Linear Transforms in FPGA. Lecture Notes in Computer Science, 2008, , 141-152.	1.0	10
148	Physical Demonstration of Polymorphic Self-Checking Circuits. , 2008, , .		34
149	Analysis of Reconfiguration Options for a Reconfigurable Polymorphic Circuit. , 2008, , .		3
150	Novel Hardware Implementation of Adaptive Median Filters. , 2008, , .		36
151	Reduction of Test Vectors Volume by Means of Gate-Level Reconfiguration. , 2008, , .		6
152	Evolution of synthetic RTL benchmark circuits with predefined testability. ACM Transactions on Design Automation of Electronic Systems, 2008, 13, 1-21.	2.7	15
153	Hardware Accelerators for Cartesian Genetic Programming. Lecture Notes in Computer Science, 2008, , 230-241.	1.0	20
154	Analysis of Reconfigurable Logic Blocks for Evolvable Digital Architectures. Lecture Notes in Computer Science, 2008, , 144-153.	1.0	0
155	Adaptive and Evolvable Hardware and Systems: The State of the Art and the Prospectus for Future Development. Lecture Notes in Computer Science, 2008, , 310-318.	1.0	3
156	Evolutionary functional recovery in virtual reconfigurable circuits. ACM Journal on Emerging Technologies in Computing Systems, 2007, 3, 8.	2.4	22
157	Evolvable hardware. , 2007, , .		3
158	Reducing the number of transistors in digital circuits using gate-level evolutionary design. , 2007, , .		15
159	An evolvable hardware system in Xilinx Virtex II Pro FPGA. International Journal of Innovative Computing and Applications, 2007, 1, 63.	0.3	49
160	Evolution of Polymorphic Self-checking Circuits. Lecture Notes in Computer Science, 2007, , 186-197.	1.0	8
161	An Area-Efficient Alternative to Adaptive Median Filtering in FPGAs. , 2007, , .		24
162	Design and Analysis of a New Self-Testing Adder Which Utilizes Polymorphic Gates. , 2007, , .		13

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163	On Some Directions in Security-Oriented Research. , 2007, , .		8
164	Evaluation of a New Platform For Image Filter Evolution. , 2007, , .		23
165	Evolved Computing Devices and the Implementation Problem. Minds and Machines, 2007, 17, 311-329.	4.7	4
166	Fitness Landscape Analysis and Image Filter Evolution Using Functional-Level CGP. Lecture Notes in Computer Science, 2007, , 311-320.	1.0	24
167	On dependability of FPGA-based evolvable hardware systems that utilize virtual reconfigurable circuits. , 2006, , .		5
168	Characterization and Synthesis of Circuits at Extreme Low Temperatures. , 2006, , 161-172.		1
169	On the Practical Limits of the Evolutionary Digital Filter Design at the Gate Level. Lecture Notes in Computer Science, 2006, , 344-355.	1.0	10
170	An Evolvable Image Filter: Experimental Evaluation of a Complete Hardware Implementation in FPGA. Lecture Notes in Computer Science, 2005, , 76-85.	1.0	29
171	Evolutionary Design of Arbitrarily Large Sorting Networks Using Development. Genetic Programming and Evolvable Machines, 2005, 6, 319-347.	2.6	34
172	Evolvable Hardware System at Extreme Low Temperatures. Lecture Notes in Computer Science, 2005, , 37-45.	1.0	8
173	Intrinsic Evolution of Sorting Networks: A Novel Complete Hardware Implementation for FPGAs. Lecture Notes in Computer Science, 2005, , 46-55.	1.0	11
174	Evolutionary Design of Gate-Level Polymorphic Digital Circuits. Lecture Notes in Computer Science, 2005, , 185-194.	1.0	35
175	Recognizing Speed Limit Sign Numbers by Evolvable Hardware. Lecture Notes in Computer Science, 2004, , 682-691.	1.0	10
176	Evolvable computing by means of evolvable components. Natural Computing, 2004, 3, 253-292.	2.8	3
177	Photomodulation of ionic current through hemithioindigo-modified gramicidin channels. Organic and Biomolecular Chemistry, 2004, 2, 2798-2801.	2.9	88
178	Towards Evolvable Components. Natural Computing Series, 2004, , 67-78.	0.0	1
179	Evolving Constructors for Infinitely Growing Sorting Networks and Medians. Lecture Notes in Computer Science, 2004, , 314-323.	1.0	2
180	Evolutionary Design Space Exploration for Median Circuits. Lecture Notes in Computer Science, 2004, , 240-249.	1.0	10

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181	Virtual Reconfigurable Circuits for Real-World Applications of Evolvable Hardware. Lecture Notes in Computer Science, 2003, , 186-197.	1.0	76
182	From Implementations to a General Concept of Evolvable Machines. Lecture Notes in Computer Science, 2003, , 424-433.	1.0	1
183	Image Filter Design with Evolvable Hardware. Lecture Notes in Computer Science, 2002, , 255-266.	1.0	43
184	The Concept of Pseudo Evolvable Hardware. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2000, 33, 117-122.	0.4	1
185	The Present-day Value of Maps Illustrating the Archaeological Surveys of Sir Aurel Stein in Xinjiang and Gansu. Journal of the Royal Asiatic Society, 1993, 3, 233-243.	0.2	0