Clark W Barrett

List of Publications by Citations

115 papers	2,752 citations	24 h-index	49 g-index
117 ext. papers	3,222 ext. citations	0.9 avg, IF	5.51 L-index

#	Paper	IF	Citations
115	CVC4. *Lecture Notes in Computer Science*, **2011**, 171-177	0.9	413
114	Reluplex: An Efficient SMT Solver for Verifying Deep Neural Networks. *Lecture Notes in Computer Science*, **2017**, 97-117	0.9	333
113	CVC3 **2007**, 298-302		173
112	CVC Lite: A New Implementation of the Cooperating Validity Checker. *Lecture Notes in Computer Science*, **2004**, 515-518	0.9	130
111	Satisfiability Modulo Theories **2018**, 305-343		128
110	The Marabou Framework for Verification and Analysis of Deep Neural Networks. *Lecture Notes in Computer Science*, **2019**, 443-452	0.9	99
109	CVC: A Cooperating Validity Checker. *Lecture Notes in Computer Science*, **2002**, 500-504	0.9	77
108	Validity checking for combinations of theories with equality. *Lecture Notes in Computer Science*, **1996**, 187-201	0.9	76
107	A DPLL(T) Theory Solver for a Theory of Strings and Regular Expressions. *Lecture Notes in Computer Science*, **2014**, 646-662	0.9	73
106	Checking Satisfiability of First-Order Formulas by Incremental Translation to SAT. *Lecture Notes in Computer Science*, **2002**, 236-249	0.9	64
105	Counterexample-Guided Quantifier Instantiation for Synthesis in SMT. *Lecture Notes in Computer Science*, **2015**, 198-216	0.9	63
104	Splitting on Demand in SAT Modulo Theories. *Lecture Notes in Computer Science*, **2006**, 512-526	0.9	51
103	Solving Quantified Verification Conditions Using Satisfiability Modulo Theories. *Lecture Notes in Computer Science*, **2007**, 167-182	0.9	40
102	DeepSafe: A Data-Driven Approach for Assessing Robustness of Neural Networks. *Lecture Notes in Computer Science*, **2018**, 3-19	0.9	38
101	TVOC: A Translation Validator for Optimizing Compilers. *Lecture Notes in Computer Science*, **2005**, 291-295	0.9	35
100	Towards Proving the Adversarial Robustness of Deep Neural Networks. *Electronic Proceedings in Theoretical Computer Science, EPTCS*,257, 19-26		35
99	Translation and Run-Time Validation of Loop Transformations. *Formal Methods in System Design*, **2005**, 27, 335-360	1.4	32

98	6 Years of SMT-COMP. *Journal of Automated Reasoning*, **2013**, 50, 243-277	1	31
97	SMTCoq: A Plug-In for Integrating SMT Solvers into Coq. *Lecture Notes in Computer Science*, **2017**, 126-133	0.9	30
96	Into the Loops: Practical Issues in Translation Validation for Optimizing Compilers. *Electronic Notes in Theoretical Computer Science*, **2005**, 132, 53-71	0.7	30
95	An Abstract Decision Procedure for a Theory of Inductive Data Types. *Journal of Satisfiability, Boolean Modeling and Computation*, **2007**, 3, 21-46	1.2	28
94	Cooperating Theorem Provers: A Case Study Combining HOL-Light and CVC Lite. *Electronic Notes in Theoretical Computer Science*, **2006**, 144, 43-51	0.7	28
93	Quantifier Instantiation Techniques for Finite Model Finding in SMT. *Lecture Notes in Computer Science*, **2013**, 377-391	0.9	28
92	cvc5: A Versatile and Industrial-Strength SMT Solver. *Lecture Notes in Computer Science*, **2022**, 415-442	0.9	24
91	Verifying Deep-RL-Driven Systems **2019**,		23
90	An efficient SMT solver for string constraints. *Formal Methods in System Design*, **2016**, 48, 206-234	1.4	23
89	cvc4sy: Smart and Fast Term Enumeration for Syntax-Guided Synthesis. *Lecture Notes in Computer Science*, **2019**, 74-83	0.9	23
88	Design and Results of the First Satisfiability Modulo Theories Competition (SMT-COMP 2005). *Journal of Automated Reasoning*, **2005**, 35, 373-390	1	22
87	Scaling Up DPLL(T) String Solvers Using Context-Dependent Simplification. *Lecture Notes in Computer Science*, **2017**, 453-474	0.9	21
86	DESIGN AND RESULTS OF THE 3RD ANNUAL SATISFIABILITY MODULO THEORIES COMPETITION (SMT-COMP 2007). *International Journal on Artificial Intelligence Tools*, **2008**, 17, 569-606	0.9	19
85	A Generalization of Shostak#x2019;s Method for Combining Decision Procedures. *Lecture Notes in Computer Science*, **2002**, 132-146	0.9	19
84	A Tale of Two Solvers: Eager and Lazy Approaches to Bit-Vectors. *Lecture Notes in Computer Science* , **2014**, 680-695	0.9	19
83	Polite Theories Revisited. *Lecture Notes in Computer Science*, **2010**, 402-416	0.9	18
82	p4pktgen **2018**,		18
81	An Abstract Decision Procedure for Satisfiability in the Theory of Recursive Data Types. *Electronic Notes in Theoretical Computer Science*, **2007**, 174, 23-37	0.7	17

80	A New Decision Procedure for Finite Sets and Cardinality Constraints in SMT. *Lecture Notes in Computer Science*, **2016**, 82-98	0.9	17
79	Solving quantified verification conditions using satisfiability modulo theories. *Annals of Mathematics and Artificial Intelligence*, **2009**, 55, 101-122	0.8	16
78	A Decision Procedure for Regular Membership and Length Constraints over Unbounded Strings. *Lecture Notes in Computer Science*, **2015**, 135-150	0.9	16
77	Algorithms for Verifying Deep Neural Networks. *Foundations and Trends in Optimization*, **2021**, 4, 244-404	1.5	16
76	Leveraging linear and mixed integer programming for SMT **2014**,		15
75	The design and implementation of the model constructing satisfiability calculus **2013**,		14
74	Extending SMT Solvers to Higher-Order Logic. *Lecture Notes in Computer Science*, **2019**, 35-54	0.9	14
73	Refutation-based synthesis in SMT. *Formal Methods in System Design*, **2019**, 55, 73-102	1.4	14
72	Solving Quantified Bit-Vectors Using Invertibility Conditions. *Lecture Notes in Computer Science*, **2018**, 236-255	0.9	13
71	Automatic generation of invariants in processor verification. *Lecture Notes in Computer Science*, **1996**, 377-388	0.9	13
70	Lazy proofs for DPLL(T)-based SMT solvers **2016**,		12
69	A Decision Procedure for Bit-Vector Arithmetic **1998**,		12
68	CoSA: Integrated Verification for Agile Hardware Design **2018**,		12
67	Relational Constraint Solving in SMT. *Lecture Notes in Computer Science*, **2017**, 148-165	0.9	11
66	Chapter 33. Satisfiability Modulo Theories. *Frontiers in Artificial Intelligence and Applications*, **2021**,	1.1	11
65	A Framework for Cooperating Decision Procedures. *Lecture Notes in Computer Science*, **2000**, 79-98	0.9	11
64	Verifying Recurrent Neural Networks Using Invariant Inference. *Lecture Notes in Computer Science*, **2020**, 57-74	0.9	10
63	Partitioned Memory Models for Program Analysis. *Lecture Notes in Computer Science*, **2017**, 539-558	0.9	10

62	Reluplex: a calculus for reasoning about deep neural networks. *Formal Methods in System Design*,1	1.4	10
61	Designing Theory Solvers with Extensions. *Lecture Notes in Computer Science*, **2017**, 22-40	0.9	9
60	A Practical Approach to Partial Functions in CVC Lite. *Electronic Notes in Theoretical Computer Science*, **2005**, 125, 13-23	0.7	9
59	Simplifying Neural Networks Using Formal Verification. *Lecture Notes in Computer Science*, **2020**, 85-93	0.9	9
58	Deciding Local Theory Extensions via E-matching. *Lecture Notes in Computer Science*, **2015**, 87-105	0.9	9
57	Fine Grained SMT Proofs for the Theory of Fixed-Width Bit-Vectors. *Lecture Notes in Computer Science*, **2015**, 340-355	0.9	9
56	The Move Prover. *Lecture Notes in Computer Science*, **2020**, 137-150	0.9	8
55	The SMT-LIB Initiative and the Rise of SMT. *Lecture Notes in Computer Science*, **2011**, 3-3	0.9	8
54	Cascade 2.0. *Lecture Notes in Computer Science*, **2014**, 142-160	0.9	8
53	An SMT-Based Approach for Verifying Binarized Neural Networks. *Lecture Notes in Computer Science*, **2021**, 203-222	0.9	8
52	Processor Hardware Security Vulnerabilities and their Detection by Unique Program Execution Checking **2019**,		7
51	**2015**,		7
50	Syntax-Guided Rewrite Rule Enumeration for SMT Solvers. *Lecture Notes in Computer Science*, **2019**, 279-297	0.9	7
49	Theory-aided model checking of concurrent transition systems **2015**,		6
48	Simplex with sum of infeasibilities for SMT **2013**,		6
47	Pointer Analysis, Conditional Soundness, and Proving the Absence of Errors. *Lecture Notes in Computer Science*, **2008**, 62-77	0.9	6
46	Towards Bit-Width-Independent Proofs in SMT Solvers. *Lecture Notes in Computer Science*, **2019**, 366-384	0.9	6
45	Sharing Is Caring: Combination of Theories. *Lecture Notes in Computer Science*, **2011**, 195-210	0.9	6

44	Decision Procedures: An Algorithmic Point of View, by Daniel Kroening and Ofer Strichman, Springer-Verlag, 2008. *Journal of Automated Reasoning*, **2013**, 51, 453-456	1	5
43	Global optimization of objective functions represented by ReLU networks. *Machine Learning*,	4	5
42	Datatypes with Shared Selectors. *Lecture Notes in Computer Science*, **2018**, 591-608	0.9	5
41	cascade: C Assertion Checker and Deductive Engine. *Lecture Notes in Computer Science*, **2006**, 166-169	0.9	5
40	Design and results of the 2nd annual satisfiability modulo theories competition (SMT-COMP 2006). *Formal Methods in System Design*, **2007**, 31, 221-239	1.4	4
39	Combining SAT Methods with Non-Clausal Decision Heuristics. *Electronic Notes in Theoretical Computer Science*, **2005**, 125, 3-12	0.7	4
38	High-Level Abstractions for Simplifying Extended String Constraints in SMT. *Lecture Notes in Computer Science*, **2019**, 23-42	0.9	4
37	DeepCert: Verification of Contextually Relevant Robustness for Neural Network Image Classifiers. *Lecture Notes in Computer Science*, **2021**, 3-17	0.9	4
36	Pono: A Flexible and Extensible SMT-Based Model Checker. *Lecture Notes in Computer Science*, **2021** , 461-474	0.9	4
35	Algorithms for Verifying Deep Neural Networks **2021**,		4
34	Symbolic quick error detection using symbolic initial state for pre-silicon verification **2018**,		3
33	E-QED: Electrical Bug Localization During Post-silicon Validation Enabled by Quick Error Detection and Formal Methods. *Lecture Notes in Computer Science*, **2017**, 104-125	0.9	3
32	Bit-Precise Reasoning via Int-Blasting. *Lecture Notes in Computer Science*, **2022**, 496-518	0.9	3
31	Invertibility Conditions for Floating-Point Formulas. *Lecture Notes in Computer Science*, **2019**, 116-136	0.9	3
30	Politeness for the Theory of Algebraic Datatypes. *Lecture Notes in Computer Science*, **2020**, 238-255	0.9	3
29	Smt-Switch: A Solver-Agnostic C++ API for SMT Solving. *Lecture Notes in Computer Science*, **2021**, 377-386	0.9	3
28	On solving quantified bit-vector constraints using invertibility conditions. *Formal Methods in System Design*, **2021**, 57, 87	1.4	3
27	Counterexample-Guided Prophecy for Model Checking Modulo the Theory of Arrays. *Lecture Notes in Computer Science*, **2021**, 113-132	0.9	3

26	Efficient Neural Network Analysis with Sum-of-Infeasibilities. *Lecture Notes in Computer Science*, **2022**, 143-163	0.9	3
25	Efficient solving of string constraints for security analysis **2016**,		2
24	Being careful about theory combination. *Formal Methods in System Design*, **2013**, 42, 67-90	1.4	2
23	Validating More Loop Optimizations. *Electronic Notes in Theoretical Computer Science*, **2005**, 141, 69-84	0.7	2
22	DRAT-based Bit-Vector Proofs in CVC4. *Lecture Notes in Computer Science*, **2019**, 298-305	0.9	2
21	Verifying Low-Level Implementations of High-Level Datatypes. *Lecture Notes in Computer Science*, **2010**, 306-320	0.9	2
20	Cascade. *Lecture Notes in Computer Science*, **2015**, 420-422	0.9	2
19	Syntax-Guided Quantifier Instantiation. *Lecture Notes in Computer Science*, **2021**, 145-163	0.9	2
18	Politeness and Stable Infiniteness: Stronger Together. *Lecture Notes in Computer Science*, **2021**, 148-165	0.9	2
17	Producing Proofs from an Arithmetic Decision Procedure in Elliptical LF. *Electronic Notes in Theoretical Computer Science*, **2002**, 70, 29-41	0.7	1
16	Run-Time Validation of Speculative Optimizations using CVC.1 1This research was supported in by NSF grant CCR-0098299.. *Electronic Notes in Theoretical Computer Science*, **2003**, 89, 89-107	0.7	1
15	A Decision Procedure for String to Code Point Conversion. *Lecture Notes in Computer Science*, **2020**, 218-237	0.9	1
14	fault: A Python Embedded Domain-Specific Language for Metaprogramming Portable Hardware Verification Components. *Lecture Notes in Computer Science*, **2020**, 403-414	0.9	1
13	Verifying Bit-vector Invertibility Conditions in Coq (Extended Abstract). *Electronic Proceedings in Theoretical Computer Science, EPTCS*,301, 18-26		1
12	Partial Order Reduction for Deep Bug Finding in Synchronous Hardware. *Lecture Notes in Computer Science*, **2020**, 367-386	0.9	1
11	Witness Runs for Counter Machines. *Lecture Notes in Computer Science*, **2013**, 120-150	0.9	1
10	Towards Verification of Neural Networks for Small Unmanned Aircraft Collision Avoidance **2020**,		1
9	Integration and Flight Test of Small UAS Detect and Avoid on A Miniaturized Avionics Platform **2019**,		1

8	Selected Extended Papers of NFM 2017: Preface. *Journal of Automated Reasoning*, **2019**, 63, 1003-1004	1
7	Symbolic Quick Error Detection for Pre-Silicon and Post-Silicon Validation: Frequently Asked Questions. *IEEE Design and Test*, **2016**, 33, 55-62	1.4
6	Constraint solving for finite model finding in SMT solvers*. *Theory and Practice of Logic Programming*, **2017**, 17, 516-558	0.8
5	G2SAT: Learning to Generate SAT Formulas. *Advances in Neural Information Processing Systems*, **2019**, 32, 10552-10563	2.2
4	EMME: A Formal Tool for ECMAScript Memory Model Evaluation. *Lecture Notes in Computer Science*, **2018**, 55-71	0.9
3	Witness Runs for Counter Machines. *Lecture Notes in Computer Science*, **2013**, 1-4	0.9
2	Towards Satisfiability Modulo Parametric Bit-vectors. *Journal of Automated Reasoning*, **2021**, 65, 1001-1025	1
1	Polite Combination of Algebraic Datatypes. *Journal of Automated Reasoning*,1	1