Jonathan D Hauenstein

List of Publications by Year
in descending order

111 papers	1,810 citations	236612 25 h-index	360668 35 g-index
116 all docs	116 docs citations	116 times ranked	571 citing authors

#	Article	IF	Citations
1	Algorithm 921. ACM Transactions on Mathematical Software, 2012, 38, 1-20.	1.6	84
2	Adaptive Multiprecision Path Tracking. SIAM Journal on Numerical Analysis, 2008, 46, 722-746.	1.1	81
3	Regeneration homotopies for solving systems of polynomials. Mathematics of Computation, 2010, 80, 345-377.	1.1	72
4	Witness sets of projections. Applied Mathematics and Computation, 2010, 217, 3349-3354.	1.4	55
5	Numerically Computing Real Points on Algebraic Sets. Acta Applicandae Mathematicae, 2013, 125, 105-119.	0.5	51
6	Bifurcation for a free boundary problem modeling the growth of a tumor with a necrotic core. Nonlinear Analysis: Real World Applications, 2012, 13, 694-709.	0.9	47
7	Isosingular Sets and Deflation. Foundations of Computational Mathematics, 2013, 13, 371-403.	1.5	47
8	Algebraic geometrization of the Kuramoto model: Equilibria and stability analysis. Chaos, 2015, 25, 053103.	1.0	45
9	One-dimensional slow invariant manifolds for spatially homogenous reactive systems. Journal of Chemical Physics, 2009, 131, 024118.	1.2	43
10	Mechanism mobility and a local dimension test. Mechanism and Machine Theory, 2011, 46, 1193-1206.	2.7	38
11	A Numerical Local Dimension Test for Points on the Solution Set of a System of Polynomial Equations. SIAM Journal on Numerical Analysis, 2009, 47, 3608-3623.	1.1	36
12	Equations for Lower Bounds on Border Rank. Experimental Mathematics, 2013, 22, 372-383.	0.5	36
13	Numerical algebraic geometry: a new perspective on gauge and string theories. Journal of High Energy Physics, 2012, 2012, 1.	1.6	35
14	Energy-landscape analysis of the two-dimensional nearest-neighbor ϕ^4 model. Physical Review E, 2012, 85, 061103.	0.8	33
15	Continuation Along Bifurcation Branches for a Tumor Model with a Necrotic Core. Journal of Scientific Computing, 2012, 53, 395-413.	1.1	33
16	A homotopy method based on WENO schemes for solving steady state problems of hyperbolic conservation laws. Journal of Computational Physics, 2013, 250, 332-346.	1.9	32
17	A three-dimensional steady-state tumor system. Applied Mathematics and Computation, 2011, 218, 2661-2669.	1.4	31
18	Efficient path tracking methods. Numerical Algorithms, 2011, 58, 451-459.	1.1	30

#	Article	IF	Citations
19	Regenerative cascade homotopies for solving polynomial systems. Applied Mathematics and Computation, 2011, 218, 1240-1246.	1.4	29
20	Homotopy techniques for tensor decomposition and perfect identifiability. Journal Fur Die Reine Und Angewandte Mathematik, 2019, 2019, 1-22.	0.4	29
21	Computing steady-state solutions for a free boundary problem modeling tumor growth by Stokes equation. Journal of Computational and Applied Mathematics, 2013, 237, 326-334.	1.1	28
22	A bootstrapping approach for computing multiple solutions of differential equations. Journal of Computational and Applied Mathematics, 2014, 258, 181-190.	1.1	28
23	The Complete Solution of Altâ€"Burmester Synthesis Problems for Four-Bar Linkages. Journal of Mechanisms and Robotics, 2016, 8, .	1.5	28
24	Cell decomposition of almost smooth real algebraic surfaces. Numerical Algorithms, 2013, 63, 645-678.	1.1	27
25	Membership tests for images of algebraic sets by linear projections. Applied Mathematics and Computation, 2013, 219, 6809-6818.	1.4	27
26	Algebraic boundaries of Hilbertâ€™s SOS cones. Compositio Mathematica, 2012, 148, 1717-1735.	0.5	26
27	Software for Numerical Algebraic Geometry: A Paradigm and Progress Towards its Implementation. The IMA Volumes in Mathematics and Its Applications, 2008, , 1-14.	0.5	25
28	Recovering Exact Results from Inexact Numerical Data in Algebraic Geometry. Experimental Mathematics, 2013, 22, 38-50.	0.5	23
29	Polynomials and the exponent of matrix multiplication. Bulletin of the London Mathematical Society, 2018, 50, 369-389.	0.4	22
30	Maximum Likelihood for Matrices with Rank Constraints. Journal of Algebraic Statistics, 2015, 5, .	0.6	20
31	Communication: Certifying the potential energy landscape. Journal of Chemical Physics, 2013, 138, 171101.	1.2	16
32	Numerically deciding the arithmetically Cohenâ€"Macaulayness of a projective scheme. Journal of Symbolic Computation, 2016, 72, 128-146.	0.5	16
33	Communication: Newton homotopies for sampling stationary points of potential energy landscapes. Journal of Chemical Physics, 2014, 141, 121104.	1.2	15
34	On deflation and multiplicity structure. Journal of Symbolic Computation, 2017, 83, 228-253.	0.5	15
35	What is numerical algebraic geometry?. Journal of Symbolic Computation, 2017, 79, 499-507.	0.5	15
36	Certifying solutions to overdetermined and singular polynomial systems over $\mathbb{Q}$. Journal of Symbolic Computation, 2018, 84, 147-171.	0.5	14

#	Article	IF	Citations
37	Multiprojective witness sets and a trace test. Advances in Geometry, 2020, 20, 297-318.	0.2	14
38	Real solutions to systems of polynomial equations and parameter continuation. Advances in Geometry, 2015, 15, 173-187.	0.2	13
39	Certified predictor–corrector tracking for Newton homotopies. Journal of Symbolic Computation, 2016, 74, 239-254.	0.5	13
40	Tensor decomposition and homotopy continuation. Differential Geometry and Its Applications, 2017, 55, 78-105.	0.2	13
41	Numerical Computation of Galois Groups. Foundations of Computational Mathematics, 2018, 18, 867-890.	1.5	13
42	Numerical elimination and moduli space of vacua. Journal of High Energy Physics, 2013, 2013, 1.	1.6	12
43	Experiments on the Zeros of Harmonic Polynomials Using Certified Counting. Experimental Mathematics, 2015, 24, 133-141.	0.5	12
44	Synthesis of three-revolute spatial chains for body guidance. Mechanism and Machine Theory, 2017, 110, 61-72.	2.7	11
45	Algorithm 976. ACM Transactions on Mathematical Software, 2017, 44, 1-30.	1.6	11
46	Locating and Counting Equilibria of the Kuramoto Model with Rank-One Coupling. SIAM Journal on Applied Algebra and Geometry, 2018, 2, 45-71.	0.9	11
47	Classification and complete solution of the kinetostatics of a compliant Stewart–Gough platform. Mechanism and Machine Theory, 2012, 49, 177-186.	2.7	10
48	A hybrid symbolic-numerical approach to the center-focus problem. Journal of Symbolic Computation, 2017, 82, 57-73.	0.5	10
49	Unification and extension of intersection algorithms in numerical algebraic geometry. Applied Mathematics and Computation, 2017, 293, 226-243.	1.4	10
50	Adaptive strategies for solving parameterized systems using homotopy continuation. Applied Mathematics and Computation, 2018, 332, 19-34.	1.4	10
51	Comparison of probabilistic algorithms for analyzing the components of an affine algebraic variety. Applied Mathematics and Computation, 2014, 231, 619-633.	1.4	9
52	Global structure of curves from generalized unitarity cut of three-loop diagrams. Journal of High Energy Physics, 2015, 2015, 1.	1.6	9
53	Certifying solutions to square systems of polynomial-exponential equations. Journal of Symbolic Computation, 2017, 79, 575-593.	0.5	9
54	TRPLP – Trifocal Relative Pose From Lines at Points. , 2020, , .		9

#	ARTICLE	IF	CITATIONS
55	Validating the Completeness of the Real Solution Set of a System of Polynomial Equations. , 2016, , .		8
56	Identifiability and numerical algebraic geometry. PLoS ONE, 2019, 14, e0226299.	1.1	8
57	Numerical Decomposition of the Rank-Deficiency Set of a Matrix of Multivariate Polynomials. Texts and Monographs in Symbolic Computation, 2009, , 55-77.	0.4	8
58	Ana posterioricertification algorithm for Newton homotopies. , 2014, , .		7
59	Energy landscape of the finite-size mean-field 2-spin spherical model and topology trivialization. Physical Review E, 2015, 91, 022133.	0.8	7
60	Sampling Real Algebraic Varieties for Topological Data Analysis. , 2019, , .		7
61	Numerical Computation of the Hilbert Function and Regularity of a Zero Dimensional Scheme. Springer Proceedings in Mathematics and Statistics, 2014, , 235-250.	0.1	7
62	Bertini_real: Software for One- and Two-Dimensional Real Algebraic Sets. Lecture Notes in Computer Science, 2014, , 175-182.	1.0	7
63	Multiple stable steady states of a reaction-diffusion model on zebrafish dorsal-ventral patterning. Discrete and Continuous Dynamical Systems - Series S, 2011, 4, 1413-1428.	0.6	7
64	Newton Polytopes and Witness Sets. Mathematics in Computer Science, 2014, 8, 235-251.	0.2	6
65	Certifying Isolated Singular Points and their Multiplicity Structure. , 2015, , .		6
66	Complexity of Linear Circuits and Geometry. Foundations of Computational Mathematics, 2016, 16, 599-635.	1.5	6
67	The Loss Surface Of Deep Linear Networks Viewed Through The Algebraic Geometry Lens. IEEE Transactions on Pattern Analysis and Machine Intelligence, 2021, PP, 1-1.	9.7	6
68	Numerically intersecting algebraic varieties via witness sets. Applied Mathematics and Computation, 2013, 219, 5730-5742.	1.4	5
69	Certification and the potential energy landscape. Journal of Chemical Physics, 2014, 140, 224114.	1.2	5
70	Decomposing Solution Sets of Polynomial Systems Using Derivatives. Lecture Notes in Computer Science, 2016, , 127-135.	1.0	5
71	On Computing a Cell Decomposition of a Real Surface Containing Infinitely Many Singularities. Lecture Notes in Computer Science, 2014, , 246-252.	1.0	5
72	Computations and equations for Segre-Grassmann hypersurfaces. Portugaliae Mathematica, 2016, 73, 71-90.	0.4	4

#	Article	IF	Citations
73	A Primal-Dual Formulation for Certifiable Computations in Schubert Calculus. Foundations of Computational Mathematics, 2016, 16, 941-963.	1.5	4
74	Numerical algebraic geometry and semidefinite programming. Results in Applied Mathematics, 2021, 11, 100166.	0.5	4
75	A numerical toolkit for multiprojective varieties. Mathematics of Computation, 2021, 90, 413-440.	1.1	4
76	Smooth points on semi-algebraic sets. ACM Communications in Computer Algebra, 2020, 54, 105-108.	0.2	4
77	Designing Rotary Linkages for Polar Motions. , 2021, , .		3
78	Binomiality Testing and Computing Sparse Polynomials via Witness Sets. Vietnam Journal of Mathematics, 2022, 50, 653-678.	0.4	3
79	Gauge-fixing on the lattice via orbifolding. Physical Review D, 2014, 90, .	1.6	2
80	Exceptional Stewart--Gough Platforms, Segre Embeddings, and the Special Euclidean Group. SIAM Journal on Applied Algebra and Geometry, 2018, 2, 179-205.	0.9	2
81	Probabilistic Saturations and Altâ€™s Problem. Experimental Mathematics, 2020, , 1-13.	0.5	2
82	A General Method for Constructing Planar Cognate Mechanisms. Journal of Mechanisms and Robotics, 2021, 13, .	1.5	2
83	Certifying Reality of Projections. Lecture Notes in Computer Science, 2018, , 200-208.	1.0	2
84	Homotopies for Connected Components of Algebraic Sets with Application to Computing Critical Sets. Lecture Notes in Computer Science, 2017, , 107-120.	1.0	2
85	On Computing the Nonlinearity Interval in Parametric Semidefinite Optimization. Mathematics of Operations Research, 2022, 47, 2989-3009.	0.8	2
86	A counter example to an ideal membership test. Advances in Geometry, 2010, 10, 557-559.	0.2	1
87	A hybrid symbolic-numeric approach to exceptional sets of generically zero-dimensional systems. , 2015, , .		1
88	Software for the Gale transform of fewnomial systems and a Descartes rule for fewnomials. Numerical Algorithms, 2016, 73, 281-304.	1.1	1
89	Optimal Configurations in Coverage Control with Polynomial Costs. IFAC-PapersOnLine, 2018, 51, 106-111.	0.5	1
90	Real monodromy action. Applied Mathematics and Computation, 2020, 373, 124983.	1.4	1

#	Article	IF	Citations
91	A singular value homotopy for finding critical parameter values. Applied Numerical Mathematics, 2021, 161, 233-243.	1.2	1
92	Decomposing the Parameter Space of Biological Networks via a Numerical Discriminant Approach. Communications in Computer and Information Science, 2020, , 114-131.	0.4	1
93	Numerical Local Irreducible Decomposition. Lecture Notes in Computer Science, 2016, , 124-129.	1.0	1
94	A Note on Global Newton Iteration Over Archimedean and Non-Archimedean Fields. Lecture Notes in Computer Science, 2014, , 202-217.	1.0	1
95	Certification Using Newton-Invariant Subspaces. Lecture Notes in Computer Science, 2017, , 34-50.	1.0	1
96	Using Monodromy to Statistically Estimate the Number of Solutions. Springer Proceedings in Advanced Robotics, 2022, , 37-46.	0.9	1
97	On the Equations Defining Some Hilbert Schemes. Vietnam Journal of Mathematics, 2022, 50, 487-500.	0.4	1
98	Computing saddle graphs via homotopy continuation for the approximate synthesis of mechanisms. Mechanism and Machine Theory, 2022, 176, 104932.	2.7	1
99	Algebraic Geometric Method for Calculating Phase Equilibria from Fundamental Equations of State. Industrial & Engineering Chemistry Research, 2016, 55, 11363-11370.	1.8	0
100	polyTop: Software for Computing Topology of Smooth Real Surfaces. Lecture Notes in Computer Science, 2018, , 397-404.	1.0	0
101	Computing complex and real tropical curves using monodromy. Journal of Pure and Applied Algebra, 2019, 223, 5232-5250.	0.3	0
102	Using Numerical Insights to Improve Symbolic Computations. , 2019, , .		0
103	Solving Critical Point Conditions for the Hamming and Taxicab Distances to Solution Sets of Polynomial Equations. , 2019, , .		0
104	On some configurations of oppositely charged trapped vortices in the plane. Advances in Applied Mathematics, 2021, 124, 102099.	0.4	0
105	Advances in the Theory of Planar Curve Cognates. Journal of Mechanisms and Robotics, 0, , 1-12.	1.5	0
106	Evaluating and Differentiating a Polynomial Using a Pseudo-witness Set. Lecture Notes in Computer Science, 2020, , 61-69.	1.0	0
107	Excess intersections and numerical irreducible decompositions. , 2021, , .		0
108	Identifiability and numerical algebraic geometry. , 2019, 14, e0226299.		0

#	Article	IF	Citations
109	Identifiability and numerical algebraic geometry. , 2019, 14, e0226299.		0
110	Identifiability and numerical algebraic geometry. , 2019, 14, e0226299.		0
111	Identifiability and numerical algebraic geometry. , 2019, 14, e0226299.		0