

Jonathan D Hauenstein

List of Publications by Year in descending order

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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	Using Monodromy to Statistically Estimate the Number of Solutions. Springer Proceedings in Advanced Robotics, 2022, , 37-46.	0.9	1
2	On the Equations Defining Some Hilbert Schemes. Vietnam Journal of Mathematics, 2022, 50, 487-500.	0.4	1
3	Binomiality Testing and Computing Sparse Polynomials via Witness Sets. Vietnam Journal of Mathematics, 2022, 50, 653-678.	0.4	3
4	On Computing the Nonlinearity Interval in Parametric Semidefinite Optimization. Mathematics of Operations Research, 2022, 47, 2989-3009.	0.8	2
5	Computing saddle graphs via homotopy continuation for the approximate synthesis of mechanisms. Mechanism and Machine Theory, 2022, 176, 104932.	2.7	1
6	A singular value homotopy for finding critical parameter values. Applied Numerical Mathematics, 2021, 161, 233-243.	1.2	1
7	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
8	A General Method for Constructing Planar Cognate Mechanisms. Journal of Mechanisms and Robotics, 2021, 13, .	1.5	2
9	On some configurations of oppositely charged trapped vortices in the plane. Advances in Applied Mathematics, 2021, 124, 102099.	0.4	0
10	Numerical algebraic geometry and semidefinite programming. Results in Applied Mathematics, 2021, 11, 100166.	0.5	4
11	A numerical toolkit for multiprojective varieties. Mathematics of Computation, 2021, 90, 413-440.	1.1	4
12	Designing Rotary Linkages for Polar Motions. , 2021, , .		3
13	Excess intersections and numerical irreducible decompositions. , 2021, , .		0
14	Probabilistic Saturations and Alt's Problem. Experimental Mathematics, 2020, , 1-13.	0.5	2
15	TRPLP " Trifocal Relative Pose From Lines at Points. , 2020, , .		9
16	Real monodromy action. Applied Mathematics and Computation, 2020, 373, 124983.	1.4	1
17	Decomposing the Parameter Space of Biological Networks via a Numerical Discriminant Approach. Communications in Computer and Information Science, 2020, , 114-131.	0.4	1
18	Multiprojective witness sets and a trace test. Advances in Geometry, 2020, 20, 297-318.	0.2	14

#	ARTICLE	IF	CITATIONS
19	Evaluating and Differentiating a Polynomial Using a Pseudo-witness Set. Lecture Notes in Computer Science, 2020, , 61-69.	1.0	0
20	Smooth points on semi-algebraic sets. ACM Communications in Computer Algebra, 2020, 54, 105-108.	0.2	4
21	Computing complex and real tropical curves using monodromy. Journal of Pure and Applied Algebra, 2019, 223, 5232-5250.	0.3	0
22	Using Numerical Insights to Improve Symbolic Computations. , 2019, , .		0
23	Solving Critical Point Conditions for the Hamming and Taxicab Distances to Solution Sets of Polynomial Equations. , 2019, , .		0
24	Sampling Real Algebraic Varieties for Topological Data Analysis. , 2019, , .		7
25	Identifiability and numerical algebraic geometry. PLoS ONE, 2019, 14, e0226299.	1.1	8
26	Homotopy techniques for tensor decomposition and perfect identifiability. Journal Fur Die Reine Und Angewandte Mathematik, 2019, 2019, 1-22.	0.4	29
27	Identifiability and numerical algebraic geometry. , 2019, 14, e0226299.		0
28	Identifiability and numerical algebraic geometry. , 2019, 14, e0226299.		0
29	Identifiability and numerical algebraic geometry. , 2019, 14, e0226299.		0
30	Identifiability and numerical algebraic geometry. , 2019, 14, e0226299.		0
31	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
32	Adaptive strategies for solving parameterized systems using homotopy continuation. Applied Mathematics and Computation, 2018, 332, 19-34.	1.4	10
33	Certifying solutions to overdetermined and singular polynomial systems over \mathbb{Q} . Journal of Symbolic Computation, 2018, 84, 147-171.	0.5	14
34	Numerical Computation of Galois Groups. Foundations of Computational Mathematics, 2018, 18, 867-890.	1.5	13
35	Optimal Configurations in Coverage Control with Polynomial Costs. IFAC-PapersOnLine, 2018, 51, 106-111.	0.5	1
36	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

#	ARTICLE	IF	CITATIONS
37	polyTop: Software for Computing Topology of Smooth Real Surfaces. Lecture Notes in Computer Science, 2018, , 397-404.	1.0	0
38	Polynomials and the exponent of matrix multiplication. Bulletin of the London Mathematical Society, 2018, 50, 369-389.	0.4	22
39	Certifying Reality of Projections. Lecture Notes in Computer Science, 2018, , 200-208.	1.0	2
40	On deflation and multiplicity structure. Journal of Symbolic Computation, 2017, 83, 228-253.	0.5	15
41	Synthesis of three-revolute spatial chains for body guidance. Mechanism and Machine Theory, 2017, 110, 61-72.	2.7	11
42	A hybrid symbolic-numerical approach to the center-focus problem. Journal of Symbolic Computation, 2017, 82, 57-73.	0.5	10
43	Tensor decomposition and homotopy continuation. Differential Geometry and Its Applications, 2017, 55, 78-105.	0.2	13
44	Algorithm 976. ACM Transactions on Mathematical Software, 2017, 44, 1-30.	1.6	11
45	What is numerical algebraic geometry?. Journal of Symbolic Computation, 2017, 79, 499-507.	0.5	15
46	Unification and extension of intersection algorithms in numerical algebraic geometry. Applied Mathematics and Computation, 2017, 293, 226-243.	1.4	10
47	Certifying solutions to square systems of polynomial-exponential equations. Journal of Symbolic Computation, 2017, 79, 575-593.	0.5	9
48	Homotopies for Connected Components of Algebraic Sets with Application to Computing Critical Sets. Lecture Notes in Computer Science, 2017, , 107-120.	1.0	2
49	Certification Using Newton-Invariant Subspaces. Lecture Notes in Computer Science, 2017, , 34-50.	1.0	1
50	Computations and equations for Segre-Grassmann hypersurfaces. Portugaliae Mathematica, 2016, 73, 71-90.	0.4	4
51	Validating the Completeness of the Real Solution Set of a System of Polynomial Equations. , 2016, , .		8
52	The Complete Solution of Altâ€™Burmester Synthesis Problems for Four-Bar Linkages. Journal of Mechanisms and Robotics, 2016, 8, .	1.5	28
53	Algebraic Geometric Method for Calculating Phase Equilibria from Fundamental Equations of State. Industrial & Engineering Chemistry Research, 2016, 55, 11363-11370.	1.8	0
54	A Primal-Dual Formulation for Certifiable Computations in Schubert Calculus. Foundations of Computational Mathematics, 2016, 16, 941-963.	1.5	4

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55	Software for the Gale transform of fewnomial systems and a Descartes rule for fewnomials. Numerical Algorithms, 2016, 73, 281-304.	1.1	1
56	Numerically deciding the arithmetically Cohen-Macaulayness of a projective scheme. Journal of Symbolic Computation, 2016, 72, 128-146.	0.5	16
57	Complexity of Linear Circuits and Geometry. Foundations of Computational Mathematics, 2016, 16, 599-635.	1.5	6
58	Certified predictor-corrector tracking for Newton homotopies. Journal of Symbolic Computation, 2016, 74, 239-254.	0.5	13
59	Numerical Local Irreducible Decomposition. Lecture Notes in Computer Science, 2016, , 124-129.	1.0	1
60	Decomposing Solution Sets of Polynomial Systems Using Derivatives. Lecture Notes in Computer Science, 2016, , 127-135.	1.0	5
61	Real solutions to systems of polynomial equations and parameter continuation. Advances in Geometry, 2015, 15, 173-187.	0.2	13
62	Experiments on the Zeros of Harmonic Polynomials Using Certified Counting. Experimental Mathematics, 2015, 24, 133-141.	0.5	12
63	Algebraic geometrization of the Kuramoto model: Equilibria and stability analysis. Chaos, 2015, 25, 053103.	1.0	45
64	Global structure of curves from generalized unitarity cut of three-loop diagrams. Journal of High Energy Physics, 2015, 2015, 1.	1.6	9
65	Energy landscape of the finite-size mean-field 2-spin spherical model and topology trivialization. Physical Review E, 2015, 91, 022133.	0.8	7
66	A hybrid symbolic-numeric approach to exceptional sets of generically zero-dimensional systems. , 2015, , .		1
67	Certifying Isolated Singular Points and their Multiplicity Structure. , 2015, , .		6
68	Maximum Likelihood for Matrices with Rank Constraints. Journal of Algebraic Statistics, 2015, 5, .	0.6	20
69	Ana posteriori certification algorithm for Newton homotopies. , 2014, , .		7
70	Gauge-fixing on the lattice via orbifolding. Physical Review D, 2014, 90, .	1.6	2
71	Communication: Newton homotopies for sampling stationary points of potential energy landscapes. Journal of Chemical Physics, 2014, 141, 121104.	1.2	15
72	Certification and the potential energy landscape. Journal of Chemical Physics, 2014, 140, 224114.	1.2	5

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73	Newton Polytopes and Witness Sets. <i>Mathematics in Computer Science</i> , 2014, 8, 235-251.	0.2	6
74	Comparison of probabilistic algorithms for analyzing the components of an affine algebraic variety. <i>Applied Mathematics and Computation</i> , 2014, 231, 619-633.	1.4	9
75	A bootstrapping approach for computing multiple solutions of differential equations. <i>Journal of Computational and Applied Mathematics</i> , 2014, 258, 181-190.	1.1	28
76	Numerical Computation of the Hilbert Function and Regularity of a Zero Dimensional Scheme. <i>Springer Proceedings in Mathematics and Statistics</i> , 2014, , 235-250.	0.1	7
77	Bertini_real: Software for One- and Two-Dimensional Real Algebraic Sets. <i>Lecture Notes in Computer Science</i> , 2014, , 175-182.	1.0	7
78	On Computing a Cell Decomposition of a Real Surface Containing Infinitely Many Singularities. <i>Lecture Notes in Computer Science</i> , 2014, , 246-252.	1.0	5
79	A Note on Global Newton Iteration Over Archimedean and Non-Archimedean Fields. <i>Lecture Notes in Computer Science</i> , 2014, , 202-217.	1.0	1
80	Cell decomposition of almost smooth real algebraic surfaces. <i>Numerical Algorithms</i> , 2013, 63, 645-678.	1.1	27
81	A homotopy method based on WENO schemes for solving steady state problems of hyperbolic conservation laws. <i>Journal of Computational Physics</i> , 2013, 250, 332-346.	1.9	32
82	Numerical elimination and moduli space of vacua. <i>Journal of High Energy Physics</i> , 2013, 2013, 1.	1.6	12
83	Isosingular Sets and Deflation. <i>Foundations of Computational Mathematics</i> , 2013, 13, 371-403.	1.5	47
84	Numerically Computing Real Points on Algebraic Sets. <i>Acta Applicandae Mathematicae</i> , 2013, 125, 105-119.	0.5	51
85	Equations for Lower Bounds on Border Rank. <i>Experimental Mathematics</i> , 2013, 22, 372-383.	0.5	36
86	Membership tests for images of algebraic sets by linear projections. <i>Applied Mathematics and Computation</i> , 2013, 219, 6809-6818.	1.4	27
87	Numerically intersecting algebraic varieties via witness sets. <i>Applied Mathematics and Computation</i> , 2013, 219, 5730-5742.	1.4	5
88	Communication: Certifying the potential energy landscape. <i>Journal of Chemical Physics</i> , 2013, 138, 171101.	1.2	16
89	Computing steady-state solutions for a free boundary problem modeling tumor growth by Stokes equation. <i>Journal of Computational and Applied Mathematics</i> , 2013, 237, 326-334.	1.1	28
90	Recovering Exact Results from Inexact Numerical Data in Algebraic Geometry. <i>Experimental Mathematics</i> , 2013, 22, 38-50.	0.5	23

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91	Algorithm 921. ACM Transactions on Mathematical Software, 2012, 38, 1-20.	1.6	84
92	Energy-landscape analysis of the two-dimensional nearest-neighbor $\langle \text{mml:math} \text{xmlns:mml}=\text{"http://www.w3.org/1998/Math/MathML"} \text{display}=\text{"inline"} \rangle \langle \text{mml:msup} \rangle \langle \text{mml:mi} \rangle \text{†} \langle \text{mml:mi} \rangle \langle \text{mml:mn} \rangle 4 \langle \text{mml:mn} \rangle \langle \text{mml:msup} \rangle \langle \text{mml:math} \rangle \text{model}$. Physical Review E, 2012, 85, 061103.	0.8	33
93	Continuation Along Bifurcation Branches for a Tumor Model with a Necrotic Core. Journal of Scientific Computing, 2012, 53, 395-413.	1.1	33
94	Algebraic boundaries of Hilbert's SOS cones. Compositio Mathematica, 2012, 148, 1717-1735.	0.5	26
95	Numerical algebraic geometry: a new perspective on gauge and string theories. Journal of High Energy Physics, 2012, 2012, 1.	1.6	35
96	Classification and complete solution of the kinetostatics of a compliant Stewart-Gough platform. Mechanism and Machine Theory, 2012, 49, 177-186.	2.7	10
97	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
98	Regenerative cascade homotopies for solving polynomial systems. Applied Mathematics and Computation, 2011, 218, 1240-1246.	1.4	29
99	A three-dimensional steady-state tumor system. Applied Mathematics and Computation, 2011, 218, 2661-2669.	1.4	31
100	Efficient path tracking methods. Numerical Algorithms, 2011, 58, 451-459.	1.1	30
101	Mechanism mobility and a local dimension test. Mechanism and Machine Theory, 2011, 46, 1193-1206.	2.7	38
102	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
103	Witness sets of projections. Applied Mathematics and Computation, 2010, 217, 3349-3354.	1.4	55
104	Regeneration homotopies for solving systems of polynomials. Mathematics of Computation, 2010, 80, 345-377.	1.1	72
105	A counter example to an ideal membership test. Advances in Geometry, 2010, 10, 557-559.	0.2	1
106	One-dimensional slow invariant manifolds for spatially homogenous reactive systems. Journal of Chemical Physics, 2009, 131, 024118.	1.2	43
107	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
108	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

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109	Adaptive Multiprecision Path Tracking. <i>SIAM Journal on Numerical Analysis</i> , 2008, 46, 722-746.	1.1	81
110	Software for Numerical Algebraic Geometry: A Paradigm and Progress Towards its Implementation. <i>The IMA Volumes in Mathematics and Its Applications</i> , 2008, , 1-14.	0.5	25
111	Advances in the Theory of Planar Curve Cognates. <i>Journal of Mechanisms and Robotics</i> , 0, , 1-12.	1.5	0