Arnold Neumaier

List of Publications by Citations

126 papers	5,210 citations	32 h-index	71 g-index
128 ext. papers	5,781 ext. citations	2.1 avg, IF	5.94 L-index

#	Paper	IF	Citations
126	Distance-Regular Graphs **1989**,		740
125	Solving Ill-Conditioned and Singular Linear Systems: A Tutorial on Regularization. *SIAM Review*, **1998**, 40, 636-666	7.4	386
124	A global optimization method, ɑBB, for general twice-differentiable constrained NLPs Ⅰ. Theoretical advances. *Computers and Chemical Engineering*, **1998**, 22, 1137-1158	4	365
123	Global Optimization by Multilevel Coordinate Search. *Journal of Global Optimization*, **1999**, 14, 331-355	1.5	337
122	Estimation of parameters and eigenmodes of multivariate autoregressive models. *ACM Transactions on Mathematical Software*, **2001**, 27, 27-57	2.3	312
121	Restricted maximum likelihood estimation of covariances in sparse linear models. *Genetics Selection Evolution*, **1998**, 30, 3	4.9	292
120	Algorithm 808. *ACM Transactions on Mathematical Software*, **2001**, 27, 58-65	2.3	241
119	Complete search in continuous global optimization and constraint satisfaction. *Acta Numerica*, **2004**, 13, 271-369	15.1	193
118	SNOBFIT -- Stable Noisy Optimization by Branch and Fit. *ACM Transactions on Mathematical Software*, **2008**, 35, 1-25	2.3	128
117	Molecular Modeling of Proteins and Mathematical Prediction of Protein Structure. *SIAM Review*, **1997**, 39, 407-460	7.4	120
116	Safe bounds in linear and mixed-integer linear programming. *Mathematical Programming*, **2004**, 99, 283-296		100
115	A comparison of complete global optimization solvers. *Mathematical Programming*, **2005**, 103, 335-356	2.1	92
114	Introduction to Numerical Analysis **2001**,		85
113	Taylor Forms Use and Limits. *Reliable Computing*, **2003**, 9, 43-79		79
112	Clouds, Fuzzy Sets, and Probability Intervals. *Reliable Computing*, **2004**, 10, 249-272		76
111	New techniques for the analysis of linear interval equations. *Linear Algebra and Its Applications*, **1984**, 58, 273-325	0.9	76
110	Linear Systems with Large Uncertainties, with Applications to Truss Structures. *Reliable Computing*, **2007**, 13, 149-172		75

109	A new pivoting strategy for Gaussian elimination. *Linear Algebra and Its Applications*, **1996**, 240, 131-151	0.9	70
108	Strongly regular graphs with smallest eigenvalue ïn. *Archiv Der Mathematik*, **1979**, 33, 392-400	0.4	62
107	Interval Analysis on Directed Acyclic Graphs for Global Optimization. *Journal of Global Optimization*, **2005**, 33, 541-562	1.5	58
106	The second largest eigenvalue of a tree. *Linear Algebra and Its Applications*, **1982**, 46, 9-25	0.9	57
105	Complete search in continuous global optimization and constraint satisfaction **2004**, 271-370		55
104	Gaussian resolutions for equilibrium density matrices. *Chemical Physics Letters*, **2003**, 381, 117-122	2.5	52
103	A Simple Derivation of the Hansen-Bliek-Rohn-Ning-Kearfott Enclosure for Linear Interval Equations. *Reliable Computing*, **1999**, 5, 131-136		49
102	A grid algorithm for bound constrained optimization of noisy functions. *IMA Journal of Numerical Analysis*, **1995**, 15, 585-608	1.8	43
101	Completely regular codes. *Discrete Mathematics*, **1992**, 106-107, 353-360	0.7	42
100	A New Exact Penalty Function. *SIAM Journal on Optimization*, **2003**, 13, 1141-1158	2	41
99	Benchmarking Global Optimization and Constraint Satisfaction Codes. *Lecture Notes in Computer Science*, **2003**, 211-222	0.9	36
98	Rigorous chaos verification in discrete dynamical systems. *Physica D: Nonlinear Phenomena*, **1993**, 67, 327-346	3.3	36
97	Interval iteration for zeros of systems of equations. *BIT Numerical Mathematics*, **1985**, 25, 256-273	1.7	36
96	PET regularization by envelope guided conjugate gradients. *IEEE Transactions on Medical Imaging*, **1996**, 15, 385-9	11.7	32
95	Solving minimax problems by interval methods. *BIT Numerical Mathematics*, **1990**, 30, 742-751	1.7	32
94	Exclusion Regions for Systems of Equations. *SIAM Journal on Numerical Analysis*, **2004**, 42, 383-408	2.4	30
93	t12-Designs. *Journal of Combinatorial Theory - Series A*, **1980**, 28, 226-248	1	27
92	Discrete hyperbolic geometry. *Combinatorica*, **1983**, 3, 219-237	0.9	26

91	On Graphs Whose Spectral Radius is Bounded by ($\frac{3}{2}\sqrt{2}$). *Graphs and Combinatorics*, **2007**, 23, 713-726	0.5	25
90	Rigorous verification of chaos in a molecular model. *Physical Review E*, **1994**, 50, 2682-2688	2.4	24
89	Rigorous sensitivity analysis for parameter-dependent systems of equations. *Journal of Mathematical Analysis and Applications*, **1989**, 144, 16-25	1.1	24
88	Distances, Graphs and Designs. *European Journal of Combinatorics*, **1980**, 1, 163-174	0.7	24
87	Constraint propagation on quadratic constraints. *Constraints*, **2010**, 15, 404-429	0.3	23
86	Fuzzy modeling in terms of surprise. *Fuzzy Sets and Systems*, **2003**, 135, 21-38	3.7	23
85	Global Optimization with Nonfactorable Constraints. *Industrial & Engineering Chemistry Research*, **2002**, 41, 6413-6424	3.9	23
84	Screening by conference designs. *Biometrika*, **1995**, 82, 589-602	2	23
83	Exact convergence and divergence domains for the symmetric successive overrelaxation iterative (SSOR) method applied to H-matrices. *Linear Algebra and Its Applications*, **1984**, 58, 261-272	0.9	23
82	Existence Verification for Singular Zeros of Complex Nonlinear Systems. *SIAM Journal on Numerical Analysis*, **2000**, 38, 360-379	2.4	22
81	Pseudotime Schrödinger equation with absorbing potential for quantum scattering calculations. *Physical Review Letters*, **2001**, 86, 5031-4	7.4	22
80	Global Attractivity of the Zero Solution for Wright's Equation. *SIAM Journal on Applied Dynamical Systems*, **2014**, 13, 537-563	2.8	20
79	Second-order sufficient optimality conditions for local and global nonlinear programming. *Journal of Global Optimization*, **1996**, 9, 141-151	1.5	17
78	Exceptional graphs with smallest eigenvalue -2 and related problems. *Mathematics of Computation*, **1992**, 59, 583-583	1.6	17
77	Distance matrices, dimension, and conference graphs. *Proceedings of the Koninklijke Nederlandse Akademie Van Wetenschappen Series A, Indagationes Mathematicae*, **1981**, 84, 385-391		17
76	The Krawczyk operator and Kantorovich's theorem. *Journal of Mathematical Analysis and Applications*, **1990**, 149, 437-443	1.1	16
75	Enclosing clusters of zeros of polynomials. *Journal of Computational and Applied Mathematics*, **2003**, 156, 389-401	2.4	14
74	On graphs whose smallest eigenvalue is at least $-1-\sqrt{2}$. *Linear Algebra and Its Applications*, **1995**, 226-228, 577-591	0.9	14

73	Convexity and Concavity Detection in Computational Graphs: Tree Walks for Convexity Assessment. *INFORMS Journal on Computing*, **2010**, 22, 26-43	2.4	13
72	Potential Based Clouds in Robust Design Optimization. *Journal of Statistical Theory and Practice*, **2009**, 3, 225-238	0.5	13
71	FURTHER GENERALIZATION AND NUMERICAL IMPLEMENTATION OF PSEUDO-TIME SCHRÖDINGER EQUATIONS FOR QUANTUM SCATTERING CALCULATIONS. *Journal of Theoretical and Computational Chemistry*, **2002**, 01, 1-15	1.8	13
70	VXQR: derivative-free unconstrained optimization based on QR factorizations. *Soft Computing*, **2011**, 15, 2287-2298	3.5	12
69	An optimality criterion for global quadratic optimization. *Journal of Global Optimization*, **1992**, 2, 201-208.	.5	12
68	Krein conditions and near polygons. *Journal of Combinatorial Theory - Series A*, **1990**, 54, 201-209	1	12
67	Computer Simulation of the Characteristic Curves of Pure Fluids. *Journal of Chemical & Engineering Data*, **2016**, 61, 2720-2728	2.8	12
66	The optimization test environment. *Optimization and Engineering*, **2014**, 15, 443-468	2.1	11
65	On the comparison of H-matrices with M-matrices. *Linear Algebra and Its Applications*, **1986**, 83, 135-141	0.9	11
64	Further results on linear interval equations. *Linear Algebra and Its Applications*, **1987**, 87, 155-179	0.9	11
63	Quasi-residual 2-designs, (1tfrac{1}{2})-designs, and strongly regular multigraphs. *Geometriae Dedicata*, **1982**, 12, 351	0.5	11
62	OSGA: a fast subgradient algorithm with optimal complexity. *Mathematical Programming*, **2016**, 158, 1-21	2.1	10
61	Rigorous Enclosures of Ellipsoids and Directed Cholesky Factorizations. *SIAM Journal on Matrix Analysis and Applications*, **2011**, 32, 262-285	1.5	10
60	Black box optimization benchmarking of the GLOBAL method. *Evolutionary Computation*, **2012**, 20, 609-39	4.3	10
59	Autonomous robust design optimisation with potential clouds. *International Journal of Reliability and Safety*, **2009**, 3, 23	0.9	10
58	An improved interval Newton operator. *Journal of Mathematical Analysis and Applications*, **1986**, 118, 194-207	1.1	10
57	Rigorous verification of feasibility. *Journal of Global Optimization*, **2015**, 61, 255-278	1.5	8
56	MINQ8: general definite and bound constrained indefinite quadratic programming. *Computational Optimization and Applications*, **2018**, 69, 351-381	1.4	8

55	Regularization of Ill-Posed Problems by Envelope Guided Conjugate Gradients. *Journal of Computational and Graphical Statistics*, **1997**, 6, 451-463	1.4	8
54	On norm three vectors in integral Euclidean lattices. I. *Mathematische Zeitschrift*, **1983**, 183, 565-574	0.7	8
53	Rigorous filtering using linear relaxations. *Journal of Global Optimization*, **2012**, 53, 441-473	1.5	7
52	Solving Overdetermined Eigenvalue Problems. *SIAM Journal of Scientific Computing*, **2013**, 35, A541-A560	1.6	7
51	Optimal subgradient algorithms for large-scale convex optimization in simple domains. *Numerical Algorithms*, **2017**, 76, 1071-1097	2.1	6
50	Constraint aggregation for rigorous global optimization. *Mathematical Programming*, **2016**, 155, 375-401	2.1	6
49	Bounding basis reduction properties. *Designs, Codes, and Cryptography*, **2017**, 84, 237-259	1.2	6
48	Exclusion regions for optimization problems. *Journal of Global Optimization*, **2014**, 59, 569-595	1.5	6
47	Transposition Theorems and Qualification-Free Optimality Conditions. *SIAM Journal on Optimization*, **2007**, 17, 1035-1055	2	6
46	The extremal case of some matrix inequalities. *Archiv Der Mathematik*, **1984**, 43, 137-141	0.4	6
45	An optimal subgradient algorithm for large-scale bound-constrained convex optimization. *Mathematical Methods of Operations Research*, **2017**, 86, 123-147	1	5
44	A scaling algorithm for polynomial constraint satisfaction problems. *Journal of Global Optimization*, **2008**, 42, 327-345	1.5	5
43	Uncertainty modeling in autonomous robust spacecraft system design. *Proceedings in Applied Mathematics and Mechanics*, **2007**, 7, 2060041-2060042	0.2	5
42	Robust and Automated Space System Design **2008**, 251-271		5
41	Faster LLL-type Reduction of Lattice Bases **2016**,		5
40	A globally convergent method for finding all steady-state solutions of distillation columns. *AICHE Journal*, **2014**, 60, 410-414	3.6	4
39	A tree-based statistical classification algorithm (CHAID) for identifying variables responsible for the occurrence of faecal indicator bacteria during waterworks operations. *Journal of Hydrology*, **2014**, 519, 909-917	6	4
38	A robust approach for finding all well-separated solutions of sparse systems of nonlinear equations. *Numerical Algorithms*, **2017**, 76, 163-189	2.1	4

37	Grand Challenges and Scientific Standards in Interval Analysis. *Reliable Computing*, **2002**, 8, 313-320		4
36	Rational Functions with Prescribed Global and Local Minimizers. *Journal of Global Optimization*, **2003**, 25, 175-181	1.5	4
35	Generalized Lyapunov-Schmidt reduction for parametrized equations at near singular points. *Linear Algebra and Its Applications*, **2001**, 324, 119-131	0.9	4
34	Inklusions- und Abstimmungssysteme. *Mathematische Zeitschrift*, **1975**, 141, 147-158	0.7	4
33	A computational study of global optimization solvers on two trust region subproblems. *Journal of Global Optimization*, **2018**, 71, 915-934	1.5	3
32	Using interval unions to solve linear systems of equations with uncertainties. *BIT Numerical Mathematics*, **2017**, 57, 901-926	1.7	3
31	Scaling and structural condition numbers. *Linear Algebra and Its Applications*, **1997**, 263, 157-165	0.9	3
30	New bounds for Morse clusters. *Journal of Global Optimization*, **2007**, 39, 483-494	1.5	3
29	Rectagraphs, Diagrams, and Suzuki's Sporadic Simple Group. *North-Holland Mathematics Studies*, **1982**, 65, 305-318		3
28	DynGenPar – A Dynamic Generalized Parser for Common Mathematical Language. *Lecture Notes in Computer Science*, **2012**, 386-401	0.9	3
27	Certificates of infeasibility via nonsmooth optimization. *Journal of Global Optimization*, **2017**, 69, 157-182	2.5	2
26	Solving structured nonsmooth convex optimization with complexity (mathcal {O}(varepsilon ^{-1/2})). *Top*, **2017**, 26, 110	1.3	2
25	Verified global optimization with GloptLab. *Proceedings in Applied Mathematics and Mechanics*, **2007**, 7, 1020101-1020102	0.2	2
24	Certified error bounds for uncertain elliptic equations. *Journal of Computational and Applied Mathematics*, **2008**, 218, 125-136	2.4	2
23	Handling Uncertainty in Higher Dimensions with Potential Clouds towards Robust Design Optimization. *Advances in Soft Computing*, **2008**, 376-382		2
22	Discrete Search in Design Optimization **2010**, 113-122		2
21	Towards a Self-Reflective, Context-Aware Semantic Representation of Mathematical Specifications. *Applied Optimization*, **2012**, 11-32		2
20	Linear and parabolic relaxations for quadratic constraints. *Journal of Global Optimization*, **2016**, 65, 457-486	1.5	1

19	Rigorous packing of unit squares into a circle. *Journal of Global Optimization*, **2019**, 73, 547-565	1.5	1
18	Analytic Representation of Critical Equations of State. *Journal of Statistical Physics*, **2014**, 155, 603-624	1.5	1
17	Error bounds for initial value problems by optimization. *Soft Computing*, **2013**, 17, 1345-1356	3.5	1
16	Ensembles and Experiments in Classical and Quantum Physics. *International Journal of Modern Physics B*, **2003**, 17, 2937-2980	1.1	1
15	Hybrid norms and bounds for overdetermined linear systems. *Linear Algebra and Its Applications*, **1995**, 216, 257-265	0.9	1
14	Cliques and claws in edge-transitive strongly regular graphs. *Mathematische Zeitschrift*, **1980**, 174, 197-202	0.7	1
13	Rigorous Global Filtering Methods with Interval Unions. *Studies in Computational Intelligence*, **2020**, 249-267	0.6	1
12	The Characteristic Curves of Water. *International Journal of Thermophysics*, **2016**, 37, 1	2.1	1
11	An Optimal Subgradient Algorithm with Subspace Search for Costly Convex Optimization Problems **2019**, 45, 883-910		1
10	Efficient unconstrained black box optimization. *Mathematical Programming Computation*,1	7.8	0
9	Worst case error bounds for the solution of uncertain Poisson equations with mixed boundary conditions. *Journal of Computational and Applied Mathematics*, **2016**, 303, 40-55	2.4	
8	A manifold-based approach to sparse global constraint satisfaction problems. *Journal of Global Optimization*, **2019**, 75, 949-971	1.5	
7	Integral Approximation of Rays and Verification of Feasibility. *Reliable Computing*, **2004**, 10, 195-207		
6	Dual polar spaces as extremal distance-regular graphs. *European Journal of Combinatorics*, **2004**, 25, 269-274	0.7	
5	Eigenwertabschätzungen für Matrizen.. *Journal Fur Die Reine Und Angewandte Mathematik*, **1984**, 1984, 206-212	1.2	
4	Taktische Konfigurationen und die Gleichungat x+bt y=c in kommutativen Ringen mit Eins. *Archiv Der Mathematik*, **1976**, 27, 267-275	0.4	
3	On transitive commutative idempotent quasigroups. *Journal of the Australian Mathematical Society*, **1979**, 27, 411-429	0.5	
2	LMBOPT: a limited memory method for bound-constrained optimization. *Mathematical Programming Computation*,1	7.8	

1   On Solving Mixed-Integer Constraint Satisfaction Problems with Unbounded Variables. *Lecture Notes in Computer Science*, **2013**, 216-233   0.9

1   On Solving Mixed-Integer Constraint Satisfaction Problems with Unbounded Variables. *Lecture Notes in Computer Science*, **2013**, 216-233   0.9