Desmond J Higham

List of Publications by Year
in descending order

56 papers	4,263 citations	257429 24 h-index	182417 51 g-index
57 all docs	57 docs citations	57 times ranked	3046 citing authors

#	Article	IF	Citations
1	An Algorithmic Introduction to Numerical Simulation of Stochastic Differential Equations. SIAM Review, 2001, 43, 525-546.	8.4	2,307
2	Numerical methods for nonlinear stochastic differential equations with jumps. Numerische Mathematik, 2005, 101, 101-119.	1.9	174
3	A weighted communicability measure applied to complex brain networks. Journal of the Royal Society Interface, 2009, 6, 411-414.	3.4	148
4	Deep Learning: An Introduction for Applied Mathematicians. SIAM Review, 2019, 61, 860-891.	8.4	137
5	Exponential Mean-Square Stability of Numerical Solutions to Stochastic Differential Equations. LMS Journal of Computation and Mathematics, 2003, 6, 297-313.	0.9	110
6	Fitting a geometric graph to a protein–protein interaction network. Bioinformatics, 2008, 24, 1093-1099.	4.1	109
7	Backward Error and Condition of Structured Linear Systems. SIAM Journal on Matrix Analysis and Applications, 1992, 13, 162-175.	1.4	103
8	Spectral clustering and its use in bioinformatics. Journal of Computational and Applied Mathematics, 2007, 204, 25-37.	2.0	103
9	Structured Backward Error and Condition of Generalized Eigenvalue Problems. SIAM Journal on Matrix Analysis and Applications, 1998, 20, 493-512.	1.4	91
10	Numerical simulation of a strongly nonlinear Ait-Sahalia-type interest rate model. BIT Numerical Mathematics, 2011, 51, 405-425.	2.0	71
11	A-Stability and Stochastic Mean-Square Stability. BIT Numerical Mathematics, 2000, 40, 404-409.	2.0	65
12	CONTEST. ACM Transactions on Mathematical Software, 2009, 35, 1-17.	2.9	61
13	Dynamic network centrality summarizes learning in the human brain. Journal of Complex Networks, 2013, 1, 83-92.	1.8	60
14	A dynamical systems view of network centrality. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2014, 470, 20130835.	2.1	59
15	Large Growth Factors in Gaussian Elimination with Pivoting. SIAM Journal on Matrix Analysis and Applications, 1989, 10, 155-164.	1.4	58
16	Analysing multi-level Monte Carlo for options with non-globally Lipschitz payoff. Finance and Stochastics, 2009, 13, 403-413.	1.1	58
17	Evolving graphs: dynamical models, inverse problems and propagation. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2010, 466, 753-770.	2.1	58
18	On the Boundedness of Asymptotic Stability Regions for the Stochastic Theta Method. BIT Numerical Mathematics, 2003, 43, 1-6.	2.0	44

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19	Accurately computing the log-sum-exp and softmax functions. IMA Journal of Numerical Analysis, 2021, 41, 2311-2330.	2.9	34
20	Subanesthetic Ketamine Treatment Promotes Abnormal Interactions between Neural Subsystems and Alters the Properties of Functional Brain Networks. Neuropsychopharmacology, 2014, 39, 1786-1798.	5.4	31
21	Unravelling small world networks. Journal of Computational and Applied Mathematics, 2003, 158, 61-74.	2.0	29
22	Discovering and validating influence in a dynamic online social network. Social Network Analysis and Mining, 2013, 3, 1311-1323.	2.8	28
23	Time-stepping and preserving orthonormality. BIT Numerical Mathematics, 1997, 37, 24-36.	2.0	26
24	A Nonlinear Spectral Method for Core--Periphery Detection in Networks. SIAM Journal on Mathematics of Data Science, 2019, 1, 269-292.	1.8	26
25	Preserving exponential mean-square stability in the simulation of hybrid stochastic differential equations. Numerische Mathematik, 2007, 108, 295-325.	1.9	23
26	Node and edge nonlinear eigenvector centrality for hypergraphs. Communications Physics, 2021, 4, .	5.3	23
27	Non-backtracking walk centrality for directed networks. Journal of Complex Networks, 2018, 6, 54-78.	1.8	21
28	Matching exponential-based and resolvent-based centrality measures. Journal of Complex Networks, 2016, 4, 157-176.	1.8	20
29	The Deformed Graph Laplacian and Its Applications to Network Centrality Analysis. SIAM Journal on Matrix Analysis and Applications, 2018, 39, 310-341.	1.4	19
30	On Adversarial Examples and Stealth Attacks in Artificial Intelligence Systems. , 2020, , .		18
31	Epidemics on hypergraphs: spectral thresholds for extinction. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2021, 477, 20210232.	2.1	17
32	An overview of city analytics. Royal Society Open Science, 2017, 4, 161063.	2.4	14
33	A model for dynamic communicators. European Journal of Applied Mathematics, 2012, 23, 659-668.	2.9	13
34	Spectral analysis of two-signed microarray expression data. Mathematical Medicine and Biology, 2007, 24, 131-148.	1.2	10
35	First and second moment reversion for a discretized square root process with jumps. Journal of Difference Equations and Applications, 2010, 16, 143-156.	1.1	10
36	An introduction to multilevel Monte Carlo for option valuation. International Journal of Computer Mathematics, 2015, 92, 2347-2360.	1.8	9

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37	A framework for second-order eigenvector centralities and clustering coefficients. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2020, 476, 20190724.	2.1	9
38	Periodic reordering. IMA Journal of Numerical Analysis, 2010, 30, 195-207.	2.9	8
39	Non-backtracking PageRank. Journal of Scientific Computing, 2019, 80, 1419-1437.	2.3	6
40	Beyond non-backtracking: non-cycling network centrality measures. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2020, 476, 20190653.	2.1	6
41	Random Matrices Generating Large Growth in LU Factorization with Pivoting. SIAM Journal on Matrix Analysis and Applications, 2021, 42, 185-201.	1.4	6
42	Multidimensional partitioning and bi-partitioning: analysis and application to gene expression data sets. International Journal of Computer Mathematics, 2008, 85, 475-485.	1.8	5
43	Directed network Laplacians and random graph models. Royal Society Open Science, 2021, 8, 211144.	2.4	5
44	Theta Method Dynamics. LMS Journal of Computation and Mathematics, 2000, 3, 27-43.	0.9	4
45	Discovering bipartite substructure in directed networks. LMS Journal of Computation and Mathematics, 2011, 14, 72-86.	0.9	4
46	Asymmetry through time dependency. European Physical Journal B, 2016, 89, 1.	1.5	4
47	High Modularity Creates Scaling Laws. Scientific Reports, 2018, 8, 9737.	3.3	4
48	Hybrid simulation of autoregulation withinÂtranscription and translation. BIT Numerical Mathematics, 2011, 51, 177-196.	2.0	3
49	A network model for polarization of political opinion. Chaos, 2020, 30, 043109.	2.5	3
50	Publisher Correction: Node and edge nonlinear eigenvector centrality for hypergraphs. Communications Physics, 2021, 4, .	5.3	3
51	Inverse network sampling to explore online brand allegiance. European Journal of Applied Mathematics, 2016, 27, 958-970.	2.9	2
52	Consistency of anchor-based spectral clustering. Information and Inference, 2022, 11, 801-822.	1.6	2
53	Computing mean first exit times for stochastic processes using multi-level Monte Carlo. , 2012, , .		0
54	Commentary on Dehmer and Mowshowitz. Complexity, 2016, 21, 19-19.	1.6	0

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55	Hierarchical dynamic walks. Security Science and Technology, 2016, , 171-180.	0.5	0
56	Modelling Burglary in Chicago using a self-exciting point process with isotropic triggering. European Journal of Applied Mathematics, 0, , 1-23.	2.9	0