

Eric F Darve

List of Publications by Year in descending order

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95
papers

4,786
citations

201575

27
h-index

95218

68
g-index

97
all docs

97
docs citations

97
times ranked

3751
citing authors

#	ARTICLE	IF	CITATIONS
1	Physics constrained learning for data-driven inverse modeling from sparse observations. Journal of Computational Physics, 2022, 453, 110938.	1.9	19
2	Hierarchical Orthogonal Factorization: Sparse Square Matrices. SIAM Journal on Matrix Analysis and Applications, 2022, 43, 94-123.	0.7	3
3	On the fractional Laplacian of variable order. Fractional Calculus and Applied Analysis, 2022, 25, 15-28.	1.2	6
4	Hierarchical Orthogonal Factorization: Sparse Least Squares Problems. Journal of Scientific Computing, 2022, 91, 1.	1.1	4
5	Linear solvers for power grid optimization problems: A review of GPU-accelerated linear solvers. Parallel Computing, 2022, 111, 102870.	1.3	8
6	Learning generative neural networks with physics knowledge. Research in Mathematical Sciences, 2022, 9, .	0.5	1
7	Scalable low-rank factorization using a task-based runtime system with distributed memory. , 2022, , .		0
8	Deep learning technique for fast inference of large-scale riverine bathymetry. Advances in Water Resources, 2021, 147, 103715.	1.7	12
9	Application of deep learning to large scale riverine flow velocity estimation. Stochastic Environmental Research and Risk Assessment, 2021, 35, 1069-1088.	1.9	16
10	Learning constitutive relations using symmetric positive definite neural networks. Journal of Computational Physics, 2021, 428, 110072.	1.9	65
11	A general approach to seismic inversion with automatic differentiation. Computers and Geosciences, 2021, 151, 104751.	2.0	30
12	A task-based distributed parallel sparsified nested dissection algorithm. , 2021, , .		3
13	PBBFMM3D: A parallel black-box algorithm for kernel matrix-vector multiplication. Journal of Parallel and Distributed Computing, 2021, 154, 64-73.	2.7	7
14	Solving inverse problems in stochastic models using deep neural networks and adversarial training. Computer Methods in Applied Mechanics and Engineering, 2021, 384, 113976.	3.4	14
15	Learning viscoelasticity models from indirect data using deep neural networks. Computer Methods in Applied Mechanics and Engineering, 2021, 387, 114124.	3.4	28
16	Parallelization of the inverse fast multipole method with an application to boundary element method. Computer Physics Communications, 2020, 247, 106975.	3.0	6
17	Recent developments in fast and scalable inverse modeling and data assimilation methods in hydrology. Journal of Hydrology, 2020, 591, 125266.	2.3	32
18	An Algebraic Sparsified Nested Dissection Algorithm Using Low-Rank Approximations. SIAM Journal on Matrix Analysis and Applications, 2020, 41, 715-746.	0.7	18

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19	Coupled Time-Elastic Full-Waveform Inversion for Subsurface Flow Problems Using Intrusive Automatic Differentiation. <i>Water Resources Research</i> , 2020, 56, e2019WR027032.	1.7	28
20	Learning constitutive relations from indirect observations using deep neural networks. <i>Journal of Computational Physics</i> , 2020, 416, 109491.	1.9	86
21	Isogeometric collocation method for the fractional Laplacian in the 2D bounded domain. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2020, 364, 112936.	3.4	13
22	Sparse Hierarchical Preconditioners Using Piecewise Smooth Approximations of Eigenvectors. <i>SIAM Journal of Scientific Computing</i> , 2020, 42, A3907-A3931.	1.3	3
23	Sparse hierarchical solvers with guaranteed convergence. <i>International Journal for Numerical Methods in Engineering</i> , 2019, 120, 964-986.	1.5	6
24	A robust hierarchical solver for ill-conditioned systems with applications to ice sheet modeling. <i>Journal of Computational Physics</i> , 2019, 396, 819-836.	1.9	10
25	Fast Low-Rank Kernel Matrix Factorization Using Skeletonized Interpolation. <i>SIAM Journal of Scientific Computing</i> , 2019, 41, A1652-A1680.	1.3	7
26	The multi-dimensional generalized Langevin equation for conformational motion of proteins. <i>Journal of Chemical Physics</i> , 2019, 150, 174113.	1.2	24
27	Novel Data Assimilation Algorithm for Nearshore Bathymetry. <i>Journal of Atmospheric and Oceanic Technology</i> , 2019, 36, 699-715.	0.5	7
28	A distributed-memory hierarchical solver for general sparse linear systems. <i>Parallel Computing</i> , 2018, 74, 49-64.	1.3	16
29	Riverine Bathymetry Imaging With Indirect Observations. <i>Water Resources Research</i> , 2018, 54, 3704-3727.	1.7	14
30	An efficient preconditioner for the fast simulation of a 2D Stokes flow in porous media. <i>International Journal for Numerical Methods in Engineering</i> , 2018, 113, 561-580.	1.5	5
31	Low-Rank Factorizations in Data Sparse Hierarchical Algorithms for Preconditioning Symmetric Positive Definite Matrices. <i>SIAM Journal on Matrix Analysis and Applications</i> , 2018, 39, 1701-1725.	0.7	3
32	Sparse supernodal solver using block low-rank compression: Design, performance and analysis. <i>Journal of Computational Science</i> , 2018, 27, 255-270.	1.5	21
33	Investigating the role of non-covalent interactions in conformation and assembly of triazine-based sequence-defined polymers. <i>Journal of Chemical Physics</i> , 2018, 149, 072330.	1.2	7
34	Computing the non-Markovian coarse-grained interactions derived from the Mori-Zwanzig formalism in molecular systems: Application to polymer melts. <i>Journal of Chemical Physics</i> , 2017, 146, 014104.	1.2	73
35	The Inverse Fast Multipole Method: Using a Fast Approximate Direct Solver as a Preconditioner for Dense Linear Systems. <i>SIAM Journal of Scientific Computing</i> , 2017, 39, A761-A796.	1.3	37
36	Fast Hierarchical Solvers For Sparse Matrices Using Extended Sparsification and Low-Rank Approximation. <i>SIAM Journal of Scientific Computing</i> , 2017, 39, A797-A830.	1.3	24

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37	Application of the inverse fast multipole method as a preconditioner in a 3D Helmholtz boundary element method. <i>Journal of Computational Physics</i> , 2017, 341, 406-428.	1.9	15
38	Efficiently sampling conformations and pathways using the concurrent adaptive sampling (CAS) algorithm. <i>Journal of Chemical Physics</i> , 2017, 147, 074115.	1.2	7
39	Optimal estimation and scheduling in aquifer management using the rapid feedback control method. <i>Advances in Water Resources</i> , 2017, 110, 310-318.	1.7	8
40	Smoothing-based compressed state Kalman filter for joint state-parameter estimation: Applications in reservoir characterization and CO ₂ storage monitoring. <i>Water Resources Research</i> , 2017, 53, 7190-7207.	1.7	10
41	Sparse Supernodal Solver Using Block Low-Rank Compression. , 2017, , .		6
42	A fast, memory efficient and robust sparse preconditioner based on a multifrontal approach with applications to finite-element matrices. <i>International Journal for Numerical Methods in Engineering</i> , 2016, 107, 520-540.	1.5	15
43	Task-based FMM for heterogeneous architectures. <i>Concurrency Computation Practice and Experience</i> , 2016, 28, 2608-2629.	1.4	27
44	Efficient mesh deformation based on radial basis function interpolation by means of the inverse fast multipole method. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2016, 308, 286-309.	3.4	21
45	A fast block low-rank dense solver with applications to finite-element matrices. <i>Journal of Computational Physics</i> , 2016, 304, 170-188.	1.9	67
46	Transition Pathways, Rare Events and Related Questions. , 2015, , 1500-1504.		0
47	A comparison of weighted ensemble and Markov state model methodologies. <i>Journal of Chemical Physics</i> , 2015, 142, 214113.	1.2	12
48	The compressed state Kalman filter for nonlinear state estimation: Application to large-scale reservoir monitoring. <i>Water Resources Research</i> , 2015, 51, 9942-9963.	1.7	24
49	A new sparse matrix vector multiplication graphics processing unit algorithm designed for finite element problems. <i>International Journal for Numerical Methods in Engineering</i> , 2015, 102, 1784-1814.	1.5	20
50	Building a Coarse-Grained Model Based on the Mori-Zwanzig Formalism. <i>Materials Research Society Symposia Proceedings</i> , 2015, 1753, 90.	0.1	5
51	Optimizing the Adaptive Fast Multipole Method for Fractal Sets. <i>SIAM Journal of Scientific Computing</i> , 2015, 37, A1040-A1066.	1.3	6
52	Real-time data assimilation for large-scale systems: The spectral Kalman filter. <i>Advances in Water Resources</i> , 2015, 86, 260-272.	1.7	24
53	Task-Based FMM for Multicore Architectures. <i>SIAM Journal of Scientific Computing</i> , 2014, 36, C66-C93.	1.3	43
54	Cauchy Fast Multipole Method for General Analytic Kernels. <i>SIAM Journal of Scientific Computing</i> , 2014, 36, A396-A426.	1.3	3

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55	Method and advantages of genetic algorithms in parameterization of interatomic potentials: Metal oxides. Computational Materials Science, 2014, 81, 453-465.	1.4	13
56	AWE-WQ: Fast-Forwarding Molecular Dynamics Using the Accelerated Weighted Ensemble. Journal of Chemical Information and Modeling, 2014, 54, 3033-3043.	2.5	29
57	A Kalman filter powered by H2-matrices for quasi-continuous data assimilation problems. Water Resources Research, 2014, 50, 3734-3749.	1.7	26
58	Large-scale stochastic linear inversion using hierarchical matrices. Computational Geosciences, 2013, 17, 913-927.	1.2	34
59	An $\mathcal{O}(N \log N)$ Fast Direct Solver for Partial Hierarchically Semi-Separable Matrices. Journal of Scientific Computing, 2013, 57, 477-501.	1.1	154
60	The accuracy of the CHARMM22/CMAP and AMBER ff99SB force fields for modelling the antimicrobial peptide cecropin P1. Molecular Simulation, 2013, 39, 922-936.	0.9	5
61	Fourier-Based Fast Multipole Method for the Helmholtz Equation. SIAM Journal of Scientific Computing, 2013, 35, A79-A103.	1.3	23
62	Fast Algorithms for Bayesian Inversion. The IMA Volumes in Mathematics and Its Applications, 2013, , 101-142.	0.5	6
63	Optimization of the parallel black-box fast multipole method on CUDA. , 2012, , .		3
64	Folding proteins at 500 ns/hour with Work Queue. , 2012, 2012, 1-8.		11
65	Application of Assembly of Finite Element Methods on Graphics Processors for Real-Time Elastodynamics. , 2012, , 187-205.		7
66	Extension and optimization of the FIND algorithm: Computing Green's functions and less-than Green's functions. Journal of Computational Physics, 2012, 231, 1121-1139.	1.9	16
67	Fast directional multilevel summation for oscillatory kernels based on Chebyshev interpolation. Journal of Computational Physics, 2012, 231, 1175-1196.	1.9	48
68	Time integrators based on approximate discontinuous Hamiltonians. International Journal for Numerical Methods in Engineering, 2012, 89, 71-104.	1.5	1
69	Optimizing the multipole-to-local operator in the fast multipole method for graphical processing units. International Journal for Numerical Methods in Engineering, 2012, 89, 105-133.	1.5	20
70	Fast Multipole Method Using the Cauchy Integral Formula. Lecture Notes in Computational Science and Engineering, 2012, , 127-144.	0.1	1
71	The fast multipole method on parallel clusters, multicore processors, and graphics processing units. Comptes Rendus - Mecanique, 2011, 339, 185-193.	2.1	21
72	Generalized fast multipole method. IOP Conference Series: Materials Science and Engineering, 2010, 10, 012230.	0.3	4

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73	Introduction to assembly of finite element methods on graphics processors. IOP Conference Series: Materials Science and Engineering, 2010, 10, 012009.	0.3	7
74	Computing generalized Langevin equations and generalized Fokker-Planck equations. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 10884-10889.	3.3	104
75	High-ionic-strength electroosmotic flows in uncharged hydrophobic nanochannels. Journal of Colloid and Interface Science, 2009, 330, 194-200.	5.0	19
76	A hybrid method for the parallel computation of Green's functions. Journal of Computational Physics, 2009, 228, 5020-5039.	1.9	30
77	The black-box fast multipole method. Journal of Computational Physics, 2009, 228, 8712-8725.	1.9	174
78	Stability of asynchronous variational integrators. Journal of Computational Physics, 2008, 227, 8367-8394.	1.9	26
79	Fast electrostatic force calculation on parallel computer clusters. Journal of Computational Physics, 2008, 227, 8551-8567.	1.9	11
80	Computing entries of the inverse of a sparse matrix using the FIND algorithm. Journal of Computational Physics, 2008, 227, 9408-9427.	1.9	50
81	Large calculation of the flow over a hypersonic vehicle using a GPU. Journal of Computational Physics, 2008, 227, 10148-10161.	1.9	199
82	Adaptive biasing force method for scalar and vector free energy calculations. Journal of Chemical Physics, 2008, 128, 144120.	1.2	683
83	Hydrodynamic interactions in the induced-charge electrophoresis of colloidal rod dispersions. Journal of Fluid Mechanics, 2006, 563, 223.	1.4	106
84	Effect of flexibility on the shear-induced migration of short-chain polymers in parabolic channel flow. Journal of Fluid Mechanics, 2006, 557, 297.	1.4	49
85	The growth of concentration fluctuations in dilute dispersions of orientable and deformable particles under sedimentation. Journal of Fluid Mechanics, 2006, 553, 347.	1.4	44
86	The effect of stratification on the wave number selection in the instability of sedimenting spheroids. Physics of Fluids, 2006, 18, 121503.	1.6	18
87	Stabilization of a suspension of sedimenting rods by induced-charge electrophoresis. Physics of Fluids, 2006, 18, 121701.	1.6	26
88	A fast multipole method for Maxwell equations stable at all frequencies. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2004, 362, 603-628.	1.6	73
89	Efficient fast multipole method for low-frequency scattering. Journal of Computational Physics, 2004, 197, 341-363.	1.9	93
90	Assessing the efficiency of free energy calculation methods. Journal of Chemical Physics, 2004, 120, 3563-3578.	1.2	202

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91	Calculating Free Energies Using a Scaled-Force Molecular Dynamics Algorithm. <i>Molecular Simulation</i> , 2002, 28, 113-144.	0.9	134
92	Calculating free energies using average force. <i>Journal of Chemical Physics</i> , 2001, 115, 9169-9183.	1.2	940
93	The Fast Multipole Method: Numerical Implementation. <i>Journal of Computational Physics</i> , 2000, 160, 195-240.	1.9	284
94	The Fast Multipole Method I: Error Analysis and Asymptotic Complexity. <i>SIAM Journal on Numerical Analysis</i> , 2000, 38, 98-128.	1.1	123
95	Second-order accurate hierarchical approximate factorizations for solving sparse linear systems. <i>International Journal for Numerical Methods in Engineering</i> , 0, , .	1.5	0