George Biros

List of Publications by Year
in descending order

72 papers	3,729 citations	147566 31 h-index	133063 59 g-index
73 all docs	73 docs citations	73 times ranked	3204 citing authors

#	Article	IF	Citations
1	Dendrite-resolved, full-melt-pool phase-field simulations to reveal non-steady-state effects and to test an approximate model. Computational Materials Science, 2022, 207, 111262.	1.4	5
2	Fast GPU 3D diffeomorphic image registration. Journal of Parallel and Distributed Computing, 2021, 149, 149-162.	2.7	14
3	Fully Automatic Calibration of Tumor-Growth Models Using a Single mpMRI Scan. IEEE Transactions on Medical Imaging, 2021, 40, 193-204.	5.4	14
4	Modeling of Glioma Growth With Mass Effect by Longitudinal Magnetic Resonance Imaging. IEEE Transactions on Biomedical Engineering, 2021, 68, 3713-3724.	2.5	14
5	Estimating Glioblastoma Biophysical Growth Parameters Using Deep Learning Regression. Lecture Notes in Computer Science, 2021, 12658, 157-167.	1.0	1
6	CLAIRE: Constrained Large Deformation Diffeomorphic Image Registration on Parallel Computing Architectures. Journal of Open Source Software, 2021, 6, 3038.	2.0	4
7	Hardware Accelerator Integration Tradeoffs for High-Performance Computing: A Case Study of GEMM Acceleration in N-Body Methods. IEEE Transactions on Parallel and Distributed Systems, 2021, 32, 2035-2048.	4.0	2
8	RCHOL: Randomized Cholesky Factorization for Solving SDD Linear Systems. SIAM Journal of Scientific Computing, 2021, 43, C411-C438.	1.3	1
9	Where did the tumor start? An inverse solver with sparse localization for tumor growth models. Inverse Problems, 2020, 36, 045006.	1.0	21
10	Optimal Control Theory for Personalized Therapeutic Regimens in Oncology: Background, History, Challenges, and Opportunities. Journal of Clinical Medicine, 2020, 9, 1314.	1.0	40
11	Integrated Biophysical Modeling and Image Analysis: Application to Neuro-Oncology. Annual Review of Biomedical Engineering, 2020, 22, 309-341.	5.7	39
12	Image-Driven Biophysical Tumor Growth Model Calibration. SIAM Journal of Scientific Computing, 2020, 42, B549-B580.	1.3	8
13	CLAIRE: A Distributed-Memory Solver for Constrained Large Deformation Diffeomorphic Image Registration. SIAM Journal of Scientific Computing, 2019, 41, C548-C584.	1.3	20
14	Coupling brain-tumor biophysical models and diffeomorphic image registration. Computer Methods in Applied Mechanics and Engineering, 2019, 347, 533-567.	3.4	28
15	Simulation of glioblastoma growth using a 3D multispecies tumor model with mass effect. Journal of Mathematical Biology, 2019, 79, 941-967.	0.8	34
16	The 2019 mathematical oncology roadmap. Physical Biology, 2019, 16, 041005.	0.8	147
17	Sorting same-size red blood cells in deep deterministic lateral displacement devices. Journal of Fluid Mechanics, 2019, 859, 433-475.	1.4	20
18	Low-resolution simulations of vesicle suspensions in 2D. Journal of Computational Physics, 2018, 357, 43-77.	1.9	11

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19	Distributed-Memory Hierarchical Compression of Dense SPD Matrices. , 2018, , .		7
20	PDE-constrained optimization in medical image analysis. Optimization and Engineering, 2018, 19, 765-812.	1.3	31
21	Algorithm 967. ACM Transactions on Mathematical Software, 2017, 43, 1-27.	1.6	19
22	Far-field compression for fast kernel summation methods in high dimensions. Applied and Computational Harmonic Analysis, 2017, 43, 39-75.	1.1	13
23	An N log N Parallel Fast Direct Solver for Kernel Matrices. , 2017, , .		4
24	A Semi-Lagrangian Two-Level Preconditioned Newton--Krylov Solver for Constrained Diffeomorphic Image Registration. SIAM Journal of Scientific Computing, 2017, 39, B1064-B1101.	1.3	18
25	Prediction of the low-velocity distribution from the pore structure in simple porous media. Physical Review Fluids, 2017, 2, .	1.0	59
26	FFT, FMM, or Multigrid? A comparative Study of State-Of-the-Art Poisson Solvers for Uniform and Nonuniform Grids in the Unit Cube. SIAM Journal of Scientific Computing, 2016, 38, C280-C306.	1.3	58
27	Imaging Surrogates of Infiltration Obtained Via Multiparametric Imaging Pattern Analysis Predict Subsequent Location of Recurrence of Glioblastoma. Neurosurgery, 2016, 78, 572-580.	0.6	116
28	Distributed-Memory Large Deformation Diffeomorphic 3D Image Registration. , 2016, , .		10
29	INV-ASKIT: A Parallel Fast Direct Solver for Kernel Matrices. , 2016, , .		8
30	Optimizing GPGPU Kernel Summation for Performance and Energy Efficiency. , 2016, , .		1
31	Constrained H^1-Regularization Schemes for Diffeomorphic Image Registration. SIAM Journal on Imaging Sciences, 2016, 9, 1154-1194.	1.3	35
32	Parallel Algorithms for Nearest Neighbor Search Problems in High Dimensions. SIAM Journal of Scientific Computing, 2016, 38, S667-S699.	1.3	16
33	ASKIT: An Efficient, Parallel Library for High-Dimensional Kernel Summations. SIAM Journal of Scientific Computing, 2016, 38, S720-S749.	1.3	8
34	An inverse problem formulation for parameter estimation of a reaction–diffusion model of low grade gliomas. Journal of Mathematical Biology, 2016, 72, 409-433.	0.8	55
35	Adaptive time stepping for vesicle suspensions. Journal of Computational Physics, 2016, 306, 478-499.	1.9	19
36	Imaging patterns predict patient survival and molecular subtype in glioblastoma via machine learning techniques. Neuro-Oncology, 2016, 18, 417-425.	0.6	243

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37	High-order Adaptive Time Stepping for Vesicle Suspensions with Viscosity Contrast. Procedia IUTAM, 2015, 16, 89-98.	1.2	6
38	PVFMM: A Parallel Kernel Independent FMM for Particle and Volume Potentials. Communications in Computational Physics, 2015, 18, 808-830.	0.7	68
39	Boundary integral method for the flow of vesicles with viscosity contrast in three dimensions. Journal of Computational Physics, 2015, 298, 766-786.	1.9	30
40	Comparison of multigrid algorithms for high‐order continuous finite element discretizations. Numerical Linear Algebra With Applications, 2015, 22, 664-680.	0.9	33
41	An Inexact Newton--Krylov Algorithm for Constrained Diffeomorphic Image Registration. SIAM Journal on Imaging Sciences, 2015, 8, 1030-1069.	1.3	40
42	ASKIT: Approximate Skeletonization Kernel-Independent Treecode in High Dimensions. SIAM Journal of Scientific Computing, 2015, 37, A1089-A1110.	1.3	25
43	An Algebraic Parallel Treecode in Arbitrary Dimensions. , 2015, , .		10
44	On preconditioners for the Laplace double-layer in 2D. Numerical Linear Algebra With Applications, 2015, 22, 101-122.	0.9	7
45	Performance analysis of HPC applications with irregular tree data structures. , 2014, , .		0
46	High-volume fraction simulations of two-dimensional vesicle suspensions. Journal of Computational Physics, 2014, 274, 245-267.	1.9	32
47	A geodesic-active-contour-based variational model for short-axis cardiac MR image segmentation. International Journal of Computer Mathematics, 2013, 90, 124-139.	1.0	11
48	Parallel geometric-algebraic multigrid on unstructured forests of octrees. , 2012, , .		33
49	GLISTR: Glioma Image Segmentation and Registration. IEEE Transactions on Medical Imaging, 2012, 31, 1941-1954.	5.4	181
50	FaIMS: A fast algorithm for the inverse medium problem with multiple frequencies and multiple sources for the scalar Helmholtz equation. Journal of Computational Physics, 2012, 231, 4403-4421.	1.9	18
51	A fast algorithm for simulating vesicle flows in three dimensions. Journal of Computational Physics, 2011, 230, 5610-5634.	1.9	115
52	Dynamic simulation of locally inextensible vesicles suspended in an arbitrary two-dimensional domain, a boundary integral method. Journal of Computational Physics, 2010, 229, 6466-6484.	1.9	60
53	A Parallel Geometric Multigrid Method for Finite Elements on Octree Meshes. SIAM Journal of Scientific Computing, 2010, 32, 1361-1392.	1.3	61
54	Fast Algorithms for Source Identification Problems with Elliptic PDE Constraints. SIAM Journal on Imaging Sciences, 2010, 3, 791-808.	1.3	12

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55	Analytical and numerical solutions for shapes of quiescent two-dimensional vesicles. International Journal of Non-Linear Mechanics, 2009, 44, 257-262.	1.4	24
56	A boundary integral method for simulating the dynamics of inextensible vesicles suspended in a viscous fluid in 2D. Journal of Computational Physics, 2009, 228, 2334-2353.	1.9	136
57	A numerical method for simulating the dynamics of 3D axisymmetric vesicles suspended in viscous flows. Journal of Computational Physics, 2009, 228, 7233-7249.	1.9	60
58	Why Do Red Blood Cells Have Asymmetric Shapes Even in a Symmetric Flow?. Physical Review Letters, 2009, 103, 188101.	2.9	175
59	Non-diffeomorphic registration of brain tumor images by simulating tissue loss and tumor growth. NeuroImage, 2009, 46, 762-774.	2.1	77
60	An image-driven parameter estimation problem for a reaction–diffusion glioma growth model with mass effects. Journal of Mathematical Biology, 2008, 56, 793-825.	0.8	209
61	The Chebyshev fast Gauss and nonuniform fast Fourier transforms and their application to the evaluation of distributed heat potentials. Journal of Computational Physics, 2008, 227, 7768-7790.	1.9	7
62	A Comparative Study of Biomechanical Simulators in Deformable Registration of Brain Tumor Images. IEEE Transactions on Biomedical Engineering, 2008, 55, 1233-1236.	2.5	35
63	Multigrid Algorithms for Inverse Problems with Linear Parabolic PDE Constraints. SIAM Journal of Scientific Computing, 2008, 31, 369-397.	1.3	19
64	Brain–Tumor Interaction Biophysical Models for Medical Image Registration. SIAM Journal of Scientific Computing, 2008, 30, 3050-3072.	1.3	40
65	Bottom-Up Construction and 2:1 Balance Refinement of Linear Octrees in Parallel. SIAM Journal of Scientific Computing, 2008, 30, 2675-2708.	1.3	144
66	A High-Order Solver for the Heat Equation in 1D domains with Moving Boundaries. SIAM Journal of Scientific Computing, 2007, 29, 2581-2606.	1.3	10
67	A high-order 3D boundary integral equation solver for elliptic PDEs in smooth domains. Journal of Computational Physics, 2006, 219, 247-275.	1.9	123
68	Parallel Lagrange--Newton--Krylov--Schur Methods for PDE-Constrained Optimization. Part I: The Krylov--Schur Solver. SIAM Journal of Scientific Computing, 2005, 27, 687-713.	1.3	195
69	Parallel Lagrange--Newton--Krylov--Schur Methods for PDE-Constrained Optimization. Part II: The Lagrange--Newton Solver and Its Application to Optimal Control of Steady Viscous Flows. SIAM Journal of Scientific Computing, 2005, 27, 714-739.	1.3	109
70	A fast solver for the Stokes equations with distributed forces in complex geometries. Journal of Computational Physics, 2004, 193, 317-348.	1.9	58
71	A kernel-independent adaptive fast multipole algorithm in two and three dimensions. Journal of Computational Physics, 2004, 196, 591-626.	1.9	366
72	A variational finite element method for source inversion for convective–diffusive transport. Finite Elements in Analysis and Design, 2003, 39, 683-705.	1.7	57