Alvaro L G A Coutinho

List of Publications by Year
in descending order

104 papers	1,121 citations	361045 20 h-index	525886 27 g-index
107 all docs	107 docs citations	107 times ranked	629 citing authors

#	Article	IF	Citations
1	Stabilized edge-based finite element simulation of free-surface flows. International Journal for Numerical Methods in Fluids, 2007, 54, 965-993.	0.9	68
2	Control strategies for timestep selection in finite element simulation of incompressible flows and coupled reaction-convection-diffusion processes. International Journal for Numerical Methods in Fluids, 2005, 47, 201-231.	0.9	43
3	Simple finite element-based computation of distance functions in unstructured grids. International Journal for Numerical Methods in Engineering, 2007, 72, 1095-1110.	1.5	38
4	Iterative solution of bem equations by GMRES algorithm. Computers and Structures, 1992, 44, 1249-1253.	2.4	37
5	Compressible Flow SUPG Stabilization Parameters Computed from Degree-of-freedom Submatrices. Computational Mechanics, 2006, 38, 334-343.	2.2	35
6	Simple zero thickness kinematically consistent interface elements. Computers and Geotechnics, 2003, 30, 347-374.	2.3	32
7	Green water loads on FPSOs exposed to beam and quartering seas, Part II: CFD simulations. Ocean Engineering, 2017, 140, 434-452.	1.9	32
8	Compressible flow SUPG parameters computed from element matrices. Communications in Numerical Methods in Engineering, 2005, 21, 465-476.	1.3	30
9	A stabilized finite element procedure for turbulent fluid–structure interaction using adaptive time–space refinement. International Journal for Numerical Methods in Fluids, 2004, 44, 673-693.	0.9	28
10	Performance comparison of data-reordering algorithms for sparse matrix–vector multiplication in edge-based unstructured grid computations. International Journal for Numerical Methods in Engineering, 2006, 66, 431-460.	1.5	27
11	Residual-based variational multiscale simulation of free surface flows. Computational Mechanics, 2010, 46, 545-557.	2.2	27
12	Parallel edge-based solution of viscoplastic flows with the SUPG/PSPG formulation. Computational Mechanics, 2006, 38, 365-381.	2.2	26
13	Implicit SUPG solution of Euler equations using edge-based data structures. Computer Methods in Applied Mechanics and Engineering, 2002, 191, 3477-3490.	3.4	24
14	In situ visualization and data analysis for turbidity currents simulation. Computers and Geosciences, 2018, 110, 23-31.	2.0	24
15	Green water loads on FPSOs exposed to beam and quartering seas, part I: Experimental tests. Ocean Engineering, 2017, 140, 419-433.	1.9	23
16	Stabilized edge–based finite element computation of gravity currents in lock–exchange configurations. International Journal for Numerical Methods in Fluids, 2008, 57, 1137-1152.	0.9	22
17	Edge-based finite element techniques for non-linear solid mechanics problems. International Journal for Numerical Methods in Engineering, 2001, 50, 2053-2068.	1.5	20
18	Three-Dimensional Edge-Based SUPG Computation of Inviscid Compressible Flows With YZÎ² Shock-Capturing. Journal of Applied Mechanics, Transactions ASME, 2009, 76, .	1.1	20

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19	Energy Flux to a Cyclonic Eddy off Cabo Frio, Brazil. Journal of Physical Oceanography, 2009, 39, 2999-3010.	0.7	20
20	Data-centric iteration in dynamic workflows. Future Generation Computer Systems, 2015, 46, 114-126.	4.9	20
21	Raw data queries during data-intensive parallel workflow execution. Future Generation Computer Systems, 2017, 75, 402-422.	4.9	20
22	Edge‐based finite element implementation of the residual‐based variational multiscale method. International Journal for Numerical Methods in Fluids, 2009, 61, 1-22.	0.9	19
23	A new convected level-set method for gas bubble dynamics. Computers and Fluids, 2020, 209, 104667.	1.3	18
24	Assessing the Spatio-temporal Spread of COVID-19 via Compartmental Models with Diffusion in Italy, USA, and Brazil. Archives of Computational Methods in Engineering, 2021, 28, 1-19.	6.0	18
25	Coupled and uncoupled dynamic mode decomposition in multi-compartmental systems with applications to epidemiological and additive manufacturing problems. Computer Methods in Applied Mechanics and Engineering, 2022, 391, 114600.	3.4	18
26	Multiple cardinality constraints and automatic member grouping in the optimal design of steel framed structures. Engineering Structures, 2011, 33, 433-444.	2.6	17
27	The application of the Lanczos Mode Superposition Method in dynamic analysis of offshore structures. Computers and Structures, 1987, 25, 615-625.	2.4	16
28	On the parallelization of boundary element codes using standard and portable libraries. Engineering Analysis With Boundary Elements, 2004, 28, 893-902.	2.0	16
29	Finite element simulation of complex dense granular flows using a well-posed regularization of the μ(I)-rheology. Computers and Fluids, 2019, 188, 102-113.	1.3	16
30	Adaptive mesh refinement and coarsening for diffusion–reaction epidemiological models. Computational Mechanics, 2021, 67, 1177-1199.	2.2	16
31	Multi-level hierarchical preconditioners for boundary element systems. Engineering Analysis With Boundary Elements, 1993, 12, 103-109.	2.0	15
32	Miscible displacement simulation by finite element methods in distributed memory machines. Computer Methods in Applied Mechanics and Engineering, 1999, 174, 339-354.	3.4	15
33	Finite element simulation of viscous fingering in miscible displacements at high mobility-ratios. Journal of the Brazilian Society of Mechanical Sciences and Engineering, 2010, 32, 292-299.	0.8	15
34	Supporting dynamic parameter sweep in adaptive and user-steered workflow. , 2011, , .		15
35	UNCERTAINTY QUANTIFICATION IN COMPUTATIONAL PREDICTIVE MODELS FOR FLUID DYNAMICS USING A WORKFLOW MANAGEMENT ENGINE. , 2012, 2, 53-71.		12
36	Reordering and incomplete preconditioning in serial and parallel adaptive mesh refinement and coarsening flow solutions. International Journal for Numerical Methods in Fluids, 2012, 69, 802-823.	0.9	12

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37	Parallel adaptive simulation of gravity currents on the lock-exchange problem. Computers and Fluids, 2013, 88, 782-794.	1.3	12
38	Conjugate gradient solution of finite element equations on the IBM 3090 vector computer utilizing polynomial preconditionings. Computer Methods in Applied Mechanics and Engineering, 1990, 84, 129-145.	3.4	11
39	A stabilized method for transient transport equations. Computational Mechanics, 2010, 46, 199-204.	2.2	11
40	Inexact Newton-type methods for the solution of steady incompressible viscoplastic flows with the SUPG/PSPG finite element formulation. Computer Methods in Applied Mechanics and Engineering, 2006, 195, 3145-3167.	3.4	10
41	Keeping track of user steering actions in dynamic workflows. Future Generation Computer Systems, 2019, 99, 624-643.	4.9	10
42	Data reduction in scientific workflows using provenance monitoring and user steering. Future Generation Computer Systems, 2020, 110, 481-501.	4.9	10
43	Parallel Finite Element Simulation of Miscible Displacements in Porous Media. SPE Journal, 1996, 1, 487-500.	1.7	9
44	Improving convergence to steady state of implicit SUPG solution of Euler equations. Communications in Numerical Methods in Engineering, 2002, 18, 345-353.	1.3	9
45	DfAnalyzer: Runtime dataflow analysis tool for Computational Science and Engineering applications. SoftwareX, 2020, 12, 100592.	1.2	9
46	Modal solution of transient heat conduction utilizing Lanczos algorithm. International Journal for Numerical Methods in Engineering, 1989, 28, 13-25.	1.5	8
47	Parallel implementation and performance analysis of a linear octree finite element mesh generation scheme. Concurrency Computation Practice and Experience, 2013, 25, 826-842.	1.4	8
48	A hybrid FEM-DEM approach to the simulation of fluid flow laden with many particles. Computational Particle Mechanics, 2017, 4, 213-227.	1.5	8
49	A parameter-free dynamic diffusion method for advectionâ€"diffusionâ€"reaction problems. Computers and Mathematics With Applications, 2018, 75, 307-321.	1.4	8
50	A workflow for seismic imaging with quantified uncertainty. Computers and Geosciences, 2020, 145, 104615.	2.0	8
51	Dynamic mode decomposition in adaptive mesh refinement and coarsening simulations. Engineering With Computers, 2022, 38, 4241-4268.	3.5	8
52	Nonlinear dynamic analysis using the pseudo-force method and the Lanczos algorithm. Computers and Structures, 1988, 30, 979-983.	2.4	7
53	On the application of an element-by-element lanczos solver to large offshore structural engineering problems. Computers and Structures, 1987, 27, 27-37.	2.4	6
54	A study of implementation schemes for vectorized sparse EBE matrix-vector multiplication. Advances in Engineering Software and Workstations, 1991, 13, 130-134.	0.2	6

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55	Iterative local solvers for distributed Krylov-Schwarz method applied to convection-diffusion problems. Computer Methods in Applied Mechanics and Engineering, 1997, 149, 353-362.	3.4	6
56	Parallel Linear Octree Meshing with Immersed Surfaces. , 2010, , .		6
57	Numerical simulation of particle‐laden flows by the residual‐based variational multiscale method. International Journal for Numerical Methods in Fluids, 2013, 73, 729-749.	0.9	6
58	Uncertainty quantification in numerical simulation of particle-laden flows. Computational Geosciences, 2016, 20, 265-281.	1.2	6
59	Evaluating the LCD algorithm for solving linear systems of equations arising from implicit SUPG formulation of compressible flows. International Journal for Numerical Methods in Engineering, 2004, 60, 1513-1534.	1.5	5
60	Performance of LCD iterative method in the finite element and finite difference solution of convection-diffusion equations. Communications in Numerical Methods in Engineering, 2006, 22, 643-656.	1.3	5
61	Bayesian assessment of uncertainty in viscosity closure models for turbidity currents computations. Computer Methods in Applied Mechanics and Engineering, 2018, 342, 653-673.	3.4	5
62	Computational Techniques for Stabilized Edge-Based Finite Element Simulation of Nonlinear Free-Surface Flows. Journal of Offshore Mechanics and Arctic Engineering, 2009, 131, .	0.6	4
63	Evaluation of Message Passing Communication Patterns in Finite Element Solution of Coupled Problems. Lecture Notes in Computer Science, 2011, , 306-313.	1.0	4
64	A staggered procedure for fluid‐object interaction with free surfaces, large rotations and driven by adaptive time stepping. Journal of the Brazilian Society of Mechanical Sciences and Engineering, 2018, 40, 1.	0.8	4
65	Capturing Provenance for Runtime Data Analysis in Computational Science and Engineering Applications. Lecture Notes in Computer Science, 2018, , 183-187.	1.0	4
66	Edge-based data structures for a symmetric stabilized finite element method for the incompressible Navier‐Stokes equations with heat transfer. International Journal for Numerical Methods in Fluids, 2007, 53, 1473-1494.	0.9	3
67	An encoder-decoder deep surrogate for reverse time migration in seismic imaging under uncertainty. Computational Geosciences, 2021, 25, 1229-1250.	1.2	3
68	Edge-Based Interface Elements for Solution of Three- Dimensional Geomechanical Problems. Lecture Notes in Computer Science, 2003, , 53-64.	1.0	3
69	Comparing the convected level-set and the Allen‐Cahn phase-field methods in AMR/C simulations of two-phase flows. Computers and Fluids, 2022, 244, 105569.	1.3	3
70	Data-Driven Simulation of Fisher‐Kolmogorov Tumor Growth Models Using Dynamic Mode Decomposition. Journal of Biomechanical Engineering, 2022, 144, .	0.6	3
71	A posteriori error estimate for stress analysis of homogeneous and heterogeneous materials: An engineering approach. Finite Elements in Analysis and Design, 2005, 42, 171-188.	1.7	2
72	Edge-based adaptive implicit/explicit finite element procedures for three-dimensional transport problems. Communications in Numerical Methods in Engineering, 2005, 21, 545-552.	1.3	2

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73	Parallel Boundary Elements: A Portable 3-D Elastostatic Implementation for Shared Memory Systems. Lecture Notes in Computer Science, 2005, , 514-526.	1.0	2
74	Impact of tetrahedralization on parallel conforming octree mesh generation. International Journal for Numerical Methods in Fluids, 2014, 75, 800-814.	0.9	2
75	Adding domain data to code profiling tools to debug workflow parallel execution. Future Generation Computer Systems, 2020, 110, 422-439.	4.9	2
76	Residual-based variational multiscale 2D simulation of sediment transport with morphological changes. Computers and Fluids, 2020, 196, 104312.	1.3	2
77	EdgePack: A Parallel Vertex and Node Reordering Package for Optimizing Edge-Based Computations in Unstructured Grids. , 2006, , 292-304.		2
78	Multiscale Dynamic Diffusion Method to Solve Advection-Diffusion-Reaction Problems. , 0, , .		2
79	EdgeCFD-ALE: A Stabilized Finite Element System for Fluid-Structure Interaction in Offshore Engineering. , 2012, , .		1
80	A Stabilized Edge-Based Finite Element Approach to Wave-Structure Interaction Assessment. , 2013, , .		1
81	Deflated preconditioned conjugate gradients applied to a Petrov-Galerkin generalized least squares finite element formulation for incompressible flows with heat transfer. International Journal of Numerical Methods for Heat and Fluid Flow, 2015, 25, 272-298.	1.6	1
82	Practical implementation aspects of Galerkin reduced order models based on proper orthogonal decomposition for computational fluid dynamics. Journal of the Brazilian Society of Mechanical Sciences and Engineering, 2015, 37, 1309-1327.	0.8	1
83	Fostering Collaboration in Energy Research and Technological Developments Applying New Exascale HPC Techniques. , 2016, , .		1
84	Communication–Free Parallel Mesh Multiplication for Large Scale Simulations. Lecture Notes in Computer Science, 2019, , 3-15.	1.0	1
85	Computational Simulation of Free Surface Flows Using Stabilized Edge-Based Finite Element Method. , 2010, , .		1
86	Parallel Adaptive Simulation of Coupled Incompressible Viscous Flow and Advective-Diffusive Transport Using Stabilized FEM Formulation. CLEI Electronic Journal, 2012, 15, .	0.2	1
87	On the Implementation of Boundary Element Engineering Codes on the Cell Broadband Engine. Lecture Notes in Computer Science, 2008, , 490-504.	1.0	1
88	Computational Techniques for Stabilized Edge-Based Finite Element Simulation of Free-Surface Flows. , 2008, , .		1
89	Ibero-Latin American Conference on Computational Methods in Engineering CILAMCE 2005. Communications in Numerical Methods in Engineering, 2007, 23, 417-417.	1.3	0
90	14th International Conference on Finite Elements in Flow Problems. International Journal for Numerical Methods in Fluids, 2008, 57, 1047-1050.	0.9	0

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91	Leopoldo Luis Cabo Penna Franca (April 7th, 1959â€"September 19th, 2012). Computer Methods in Applied Mechanics and Engineering, 2013, 254, A1.	3.4	0
92	Recent advances in EdgeCFD on wave-structure interaction and turbulence modeling. Marine Systems and Ocean Technology, 2014, 9, 49-58.	0.5	0
93	EdgeCFD: a parallel residual-based variational multiscale code for multiphysics. International Journal of Computational Fluid Dynamics, 2020, 34, 529-548.	0.5	0
94	A shallow water eventâ€driven approach to simulate turbidity currents at stratigraphic scale. International Journal for Numerical Methods in Fluids, 2020, 92, 1290-1321.	0.9	0
95	Finite element solution of nonlocal Cahnâ€"Hilliard equations with feedback control time step size adaptivity. International Journal for Numerical Methods in Engineering, 2021, 122, 5028-5052.	1.5	0
96	Parallel Implementation for Probabilistic Analysis of 3D Discrete Cracking in Concrete. Lecture Notes in Computer Science, 2003, , 79-93.	1.0	0
97	Fast Numerical Simulation of Porous Media Flows. , 2006, , 589-589.		0
98	Progressive Wave Simulation Using Stabilized Edge-Based Finite Element Methods. , 2009, , .		0
99	On the Vectorization of Engineering Codes Using Multimedia Instructions. Lecture Notes in Computer Science, 2011, , 263-270.	1.0	0
100	Dynamic Substructure Analysis Using Enhanced Lanczos-Ritz Vectors. , 1987, , 349-355.		0
101	Modelling particle-laden turbulent flows with parametric uncertainties. , 0, , .		0
102	Simulation of a collapsing column for dense granular flows. Anais Do ... Congresso Ibero-Latino-Americano De MÃ©todos Computacionais Em Engenharia, 0, , .	0.0	0
103	Residual-based variational multiscale simulation of erosion using libMesh. Anais Do ... Congresso Ibero-Latino-Americano De MÃ©todos Computacionais Em Engenharia, 0, , .	0.0	0
104	Enhancing Energy Production with Exascale HPC Methods. Communications in Computer and Information Science, 2017, , 233-246.	0.4	0