Radu Serban

List of Publications by Year
in descending order

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53	3,371	430754	254106
papers	citations	18 h-index	43 g-index

56	56	56	3491
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	SUNDIALS. ACM Transactions on Mathematical Software, 2005, 31, 363-396.	1.6	2,134
2	Adjoint Sensitivity Analysis for Differential-Algebraic Equations: The Adjoint DAE System and Its Numerical Solution. SIAM Journal of Scientific Computing, 2003, 24, 1076-1089.	1.3	284
3	Chrono: An Open Source Multi-physics Dynamics Engine. Lecture Notes in Computer Science, 2016, , 19-49.	1.0	105
4	Sensitivity analysis of differential-algebraic equations and partial differential equations. Computers and Chemical Engineering, 2006, 30, 1553-1559.	2.0	84
5	A high-fidelity approach for vehicle mobility simulation: Nonlinear finite element tires operating on granular material. Journal of Terramechanics, 2017, 72, 39-54.	1.4	78
6	Identification and Identifiability of Unknown Parameters in Multibody Dynamic Systems. Multibody System Dynamics, 2001, 5, 335-350.	1.7	57
7	Halo orbit mission correction maneuvers using optimal control. Automatica, 2002, 38, 571-583.	3.0	55
8	Error Estimation for Reducedâ€Order Models of Dynamical Systems. SIAM Review, 2007, 49, 277-299.	4.2	50
9	Error Estimation for Reduced-Order Models of Dynamical Systems. SIAM Journal on Numerical Analysis, 2005, 43, 1693-1714.	1.1	49
10	Parallel Computing in Multibody System Dynamics: Why, When, and How. Journal of Computational and Nonlinear Dynamics, 2014, 9, .	0.7	41
11	Kinematic and Kinetic Derivatives in Multibody System Analysisâˆ—. Mechanics Based Design of Structures and Machines, 1998, 26, 145-173.	0.6	39
12	Compliant contact versus rigid contact: A comparison in the context of granular dynamics. Physical Review E, 2017, 96, 042905.	0.8	32
13	Computational Algorithm for Dynamic Optimization of Chemical Vapor Deposition Processes in Stagnation Flow Reactors. Journal of the Electrochemical Society, 2000, 147, 2718.	1.3	26
14	Using a half-implicit integration scheme for the SPH-based solution of fluidâ€“solid interaction problems. Computer Methods in Applied Mechanics and Engineering, 2019, 345, 100-122.	3.4	25
15	On the Importance of Displacement History in Soft-Body Contact Models. Journal of Computational and Nonlinear Dynamics, 2016, 11, .	0.7	24
16	Chrono::Vehicle: template-based ground vehicle modelling and simulation. International Journal of Vehicle Performance, 2019, 5, 18.	0.2	23
17	A Topology-Based Approach for Exploiting Sparsity in Multibody Dynamics in Cartesian Formulation*. Mechanics Based Design of Structures and Machines, 1997, 25, 379-396.	0.6	21
18	Adaptive algorithms for optimal control of time-dependent partial differential-algebraic equation systems. International Journal for Numerical Methods in Engineering, 2003, 57, 1457-1469.	1.5	20

#	Article	IF	Citations
19	Posing Multibody Dynamics With Friction and Contact as a Differential Complementarity Problem. Journal of Computational and Nonlinear Dynamics, 2018, 13, .	0.7	20
20	COOPT â€" a software package for optimal control of large-scale differentialâ€"algebraic equation systems. Mathematics and Computers in Simulation, 2001, 56, 187-203.	2.4	17
21	A GPUâ€based preconditioned Newtonâ€Krylov solver for flexible multibody dynamics. International Journal for Numerical Methods in Engineering, 2015, 102, 1585-1604.	1.5	17
22	A Topology-Based Approach to Exploiting Sparsity in Multibody Dynamics: Joint Formulation*. Mechanics Based Design of Structures and Machines, 1997, 25, 221-241.	0.6	14
23	A High Performance Computing Approach to the Simulation of Fluid-Solid interaction Problems with Rigid and Flexible Components. Archive of Mechanical Engineering, 2014, 61, 227-251.	0.7	13
24	Deformable soil with adaptive level of detail for tracked and wheeled vehicles. International Journal of Vehicle Performance, 2019, 5, 60.	0.2	13
25	Globally Independent Coordinates for Real-Time Vehicle Simulation. Journal of Mechanical Design, Transactions of the ASME, 2000, 122, 575-582.	1.7	12
26	Chrono::GPU: An Open-Source Simulation Package for Granular Dynamics Using the Discrete Element Method. Processes, 2021, 9, 1813.	1.3	12
27	Numerical Methods for High-Speed Vehicle Dynamic Simulation. Mechanics Based Design of Structures and Machines, 1999, 27, 507-533.	0.6	9
28	The Effect of Problem Perturbations on Nonlinear Dynamical Systems and their Reduced-Order Models. SIAM Journal of Scientific Computing, 2007, 29, 2621-2643.	1.3	8
29	Implicit Integration in Molecular Dynamics Simulation. , 2008, , .		8
30	Sensitivity Analysis for Hybrid Systems and Systems With Memory. Journal of Computational and Nonlinear Dynamics, 2019, 14, .	0.7	8
31	An integrated framework for high-performance, high-fidelity simulation of ground vehicle-tyre-terrain interaction. International Journal of Vehicle Performance, 2019, 5, 233.	0.2	8
32	Traction control design for off-road mobility using an SPH-DAE cosimulation framework. Multibody System Dynamics, 2022, 55, 165-188.	1.7	7
33	Efficient Computation of Sensitivities for Ordinary Differential Equation Boundary Value Problems. SIAM Journal on Numerical Analysis, 2002, 40, 220-232.	1.1	6
34	A model of macroscale deformation and microvibration in skeletal muscle tissue. ESAIM: Mathematical Modelling and Numerical Analysis, 2009, 43, 805-823.	0.8	6
35	A Sensor Simulation Framework for Training and Testing Robots and Autonomous Vehicles. ASME Journal of Autonomous Vehicles and Systems, 2021, 1, .	0.6	6
36	Analysis of a Splitting Approach for the Parallel Solution of Linear Systems on GPU Cards. SIAM Journal of Scientific Computing, 2017, 39, C215-C237.	1.3	5

#	Article	IF	Citations
37	Autonomous Vehicles in the Cyberspace: Accelerating Testing via Computer Simulation. , 0, , .		4
38	A Lagrangianâ€“Lagrangian Framework for the Simulation of Rigid and Deformable Bodies in Fluid. Computational Methods in Applied Sciences (Springer), 2014, , 33-52.	0.1	4
39	Chrono::Vehicle: template-based ground vehicle modelling and simulation. International Journal of Vehicle Performance, 2019, 5, 18.	0.2	4
40	Optimal Control for Halo Orbit Missions. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2000, 33, 1-6.	0.4	3
41	A parallel computational model for sensitivity analysis in optimization for robustness. Optimization Methods and Software, 2009, 24, 105-121.	1.6	3
42	Multibody Dynamics Versus Fluid Dynamics: Two Perspectives on the Dynamics of Granular Flows. Journal of Computational and Nonlinear Dynamics, 2020, 15, .	0.7	3
43	A Partitioned Lagrangian-Lagrangian Approach for Fluid-Solid Interaction Problems. , 2017, , .		2
44	Enabling Artificial Intelligence Studies in Off-Road Mobility Through Physics-Based Simulation of Multiagent Scenarios. Journal of Computational and Nonlinear Dynamics, 2022, 17, .	0.7	2
45	End-to-end learning for off-road terrain navigation using the Chrono open-source simulation platform. Multibody System Dynamics, 2022, 54, 399-414.	1.7	2
46	Variable Fidelity Differential-Algebraic Equation Model Correlation. Mechanics Based Design of Structures and Machines, 1997, 25, 61-85.	0.6	1
47	On Simulating Sloshing in Vehicle Dynamics. , 2018, , .		1
48	Synchrono: An open-source framework for physics-based simulation of collaborating robots. , 2018, , .		1
49	An Overview of a Connected Autonomous Vehicle Emulator (CAVE). , 2017, , .		1
50	SynChrono: A Scalable, Physics-Based Simulation Platform For Testing Groups of Autonomous Vehicles and/or Robots. , 2020, , .		1
51	An Investigation on New Numerical Methods for Molecular Dynamics Simulation. , 2007, , 1467.		0
52	A Connected Autonomous Vehicle Emulator (CAVE) for Testing Multi-agent, Conventionalâ€“Autonomous Mixed Vehicle Traffic Scenarios. , 2021, , 339-358.		0
53	A Geographically Distributed Simulation Framework for the Analysis of Mixed Traffic Scenarios Involving Conventional and Autonomous Vehicles. , 0, , .		0