Carlo Luigi Bottasso

List of Publications by Year
in descending order

141	4,093	117453	143772
papers	citations	34 h-index	57 g-index

201	201	201	2177
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Grand challenges in the science of wind energy. Science, 2019, 366, .	6.0	482
2	Long-term research challenges in wind energy â€“ a research agenda by the European Academy of Wind Energy. Wind Energy Science, 2016, 1, 1-39.	1.2	162
3	Wind tunnel testing of scaled wind turbine models: Beyond aerodynamics. Journal of Wind Engineering and Industrial Aerodynamics, 2014, 127, 11-28.	1.7	153
4	Modeling rotorcraft dynamics with finite element multibody procedures. Mathematical and Computer Modelling, 2001, 33, 1113-1137.	2.0	136
5	The ball-vertex method: a new simple spring analogy method for unstructured dynamic meshes. Computer Methods in Applied Mechanics and Engineering, 2005, 194, 4244-4264.	3.4	103
6	Integrating finite rotations. Computer Methods in Applied Mechanics and Engineering, 1998, 164, 307-331.	3.4	97
7	Multi-disciplinary constrained optimization of wind turbines. Multibody System Dynamics, 2012, 27, 21-53.	1.7	91
8	Wind tunnel testing of a closed-loop wake deflection controller for wind farm power maximization. Journal of Physics: Conference Series, 2016, 753, 032006.	0.3	89
9	On the design of energy preserving and decaying schemes for flexible, nonlinear multi-body systems. Computer Methods in Applied Mechanics and Engineering, 1999, 169, 61-79.	3.4	85
10	Robust integration schemes for flexible multibody systems. Computer Methods in Applied Mechanics and Engineering, 2003, 192, 395-420.	3.4	79
11	A general framework for interpreting time finite element formulations. Computational Mechanics, 1993, 13, 133-142.	2.2	76
12	Anisotropic mesh adaption by metric-driven optimization. International Journal for Numerical Methods in Engineering, 2004, 60, 597-639.	1.5	75
13	On Representations and Parameterizations of Motion. Multibody System Dynamics, 2000, 4, 129-193.	1.7	72
14	Integration of elastic multibody systems by invariant conserving/dissipating algorithms. II. Numerical schemes and applications. Computer Methods in Applied Mechanics and Engineering, 2001, 190, 3701-3733.	3.4	66
15	Wind tunnel testing of wake control strategies. , 2016, , .		66
16	Energy preserving/decaying schemes for non-linear beam dynamics using the helicoidal approximation. Computer Methods in Applied Mechanics and Engineering, 1997, 143, 393-415.	3.4	64
17	An intrinsic beam model based on a helicoidal approximationâ€”Part I: Formulation. International Journal for Numerical Methods in Engineering, 1994, 37, 2267-2289.	1.5	60
18	Combined preliminaryâ€“detailed design of wind turbines. Wind Energy Science, 2016, 1, 71-88.	1.2	59

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19	Aero-servo-elastic modeling and control of wind turbines using finite-element multibody procedures. Multibody System Dynamics, 2006, 16, 291-308.	1.7	58
20	Path Planning for Autonomous Vehicles by Trajectory Smoothing Using Motion Primitives. IEEE Transactions on Control Systems Technology, 2008, 16, 1152-1168.	3.2	57
21	A new look at finite elements in time: a variational interpretation of Runge-Kutta methods. Applied Numerical Mathematics, 1997, 25, 355-368.	1.2	56
22	Integration of elastic multibody systems by invariant conserving/dissipating algorithms. I. Formulation. Computer Methods in Applied Mechanics and Engineering, 2001, 190, 3669-3699.	3.4	55
23	Structural optimization of wind turbine rotor blades by multilevel sectional/multibody/3D-FEM analysis. Multibody System Dynamics, 2014, 32, 87-116.	1.7	55
24	Periodic dynamic induction control of wind farms: proving the potential in simulations and wind tunnel experiments. Wind Energy Science, 2020, 5, 245-257.	1.2	55
25	A numerical procedure for inferring from experimental data the optimization cost functions using a multibody model of the neuro-musculoskeletal system. Multibody System Dynamics, 2006, 16, 123-154.	1.7	54
26	Optimizationâ€based study of bendâ€“twist coupled rotor blades for passive and integrated passive/active loadâ€‰alleviation. Wind Energy, 2013, 16, 1149-1166.	1.9	50
27	Multi-layer control architecture for the reduction of deterministic and non-deterministic loads on wind turbines. Renewable Energy, 2013, 51, 159-169.	4.3	44
28	Load mitigation for wind turbines by a passive aeroelastic device. Journal of Wind Engineering and Industrial Aerodynamics, 2016, 148, 57-69.	1.7	44
29	The discontinuous Petrovâ€“Galerkin method for elliptic problems. Computer Methods in Applied Mechanics and Engineering, 2002, 191, 3391-3409.	3.4	42
30	On the optimal scaling of index three DAEs in multibody dynamics. Multibody System Dynamics, 2008, 19, 3-20.	1.7	42
31	Field experiment for open-loop yaw-based wake steering at a commercial onshore wind farm in Italy. Wind Energy Science, 2021, 6, 159-176.	1.2	42
32	LiDAR-enabled model predictive control of wind turbines with real-time capabilities. Renewable Energy, 2014, 71, 442-452.	4.3	38
33	Power curve tracking in the presence of a tip speed constraint. Renewable Energy, 2012, 40, 1-12.	4.3	37
34	Wind turbine envelope protection control over the full wind speed range. Renewable Energy, 2017, 111, 836-848.	4.3	37
35	An energy decaying scheme for nonlinear dynamics of shells. Computer Methods in Applied Mechanics and Engineering, 2002, 191, 3099-3121.	3.4	36
36	Timeâ€Stepâ€Sizeâ€Independent Conditioning and Sensitivity to Perturbations in the Numerical Solution of Index Three Differential Algebraic Equations. SIAM Journal of Scientific Computing, 2007, 29, 397-414.	1.3	35

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37	Wind tunnel testing of wake steering with dynamic wind direction changes. Wind Energy Science, 2020, 5, 1273-1295.	1.2	35
38	Contact Conditions for Cylindrical, Prismatic, and Screw Joints in Flexible Multibody Systems. Multibody System Dynamics, 2001, 5, 251-278.	1.7	34
39	Design and Validation of Demanded Power Point Tracking Control Algorithm of Wind Turbine. International Journal of Precision Engineering and Manufacturing - Green Technology, 2018, 5, 387-400.	2.7	34
40	A Procedure for Tetrahedral Boundary Layer Mesh Generation. Engineering With Computers, 2002, 18, 66-79.	3.5	32
41	Optimal Control of Multibody Systems Using an Energy Preserving Direct Transcription Method. Multibody System Dynamics, 2004, 12, 17-45.	1.7	32
42	Scaling of Constraints and Augmented Lagrangian Formulations in Multibody Dynamics Simulations. Journal of Computational and Nonlinear Dynamics, 2009, 4, .	0.7	30
43	Brief communication: A double-Gaussian wake model. Wind Energy Science, 2020, 5, 237-244.	1.2	30
44	Adaptive planning and tracking of trajectories for the simulation of maneuvers with multibody models. Computer Methods in Applied Mechanics and Engineering, 2006, 195, 7052-7072.	3.4	29
45	Estimation of wind misalignment and vertical shear from blade loads. Renewable Energy, 2014, 62, 293-302.	4.3	28
46	Optimization of Critical Trajectories for Rotorcraft Vehicles. Journal of the American Helicopter Society, 2005, 50, 165-177.	0.5	26
47	Improving wind farm flow models by learning from operational data. Wind Energy Science, 2020, 5, 647-673.	1.2	26
48	On the Modeling of Shells in Multibody Dynamics. Multibody System Dynamics, 2002, 8, 459-489.	1.7	25
49	Calibration of wind turbine lifting line models from rotor loads. Journal of Wind Engineering and Industrial Aerodynamics, 2014, 124, 29-45.	1.7	25
50	Wind inflow observation from load harmonics. Wind Energy Science, 2017, 2, 615-640.	1.2	25
51	Wake behavior and control: comparison of LES simulations and wind tunnel measurements. Wind Energy Science, 2019, 4, 71-88.	1.2	25
52	On some new recovery-based a posteriori error estimators. Computer Methods in Applied Mechanics and Engineering, 2006, 195, 4794-4815.	3.4	24
53	Modelâ€independent periodic stability analysis of wind turbines. Wind Energy, 2015, 18, 865-887.	1.9	24
54	Modeling of unilateral contact conditions with application to aerospace systems involving backlash, freeplay and friction. Mechanics Research Communications, 2001, 28, 571-599.	1.0	22

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55	Performance comparison of control schemes for variable-speed wind turbines. Journal of Physics: Conference Series, 2007, 75, 012079.	0.3	22
56	Geometric invariance. Computational Mechanics, 2002, 29, 163-169.	2.2	21
57	Multiscale temporal integration. Computer Methods in Applied Mechanics and Engineering, 2002, 191, 2815-2830.	3.4	21
58	Estimation of blade structural properties from experimental data. Wind Energy, 2013, 16, 501-518.	1.9	19
59	Numerical Approach to Inverse Flight Dynamics. Journal of Guidance, Control, and Dynamics, 1997, 20, 742-747.	1.6	18
60	Multibody Modeling of Engage and Disengage Operations of Helicopter Rotors. Journal of the American Helicopter Society, 2001, 46, 290-300.	0.5	18
61	Wind turbine optimal control during storms. Journal of Physics: Conference Series, 2014, 524, 012052.	0.3	18
62	Integration of multiple passive load mitigation technologies by automated design optimizationâ€"The case study of a mediumâ€size onshore wind turbine. Wind Energy, 2019, 22, 65-79.	1.9	18
63	Parallel Adaptive Finite Element Euler Flow Solver for Rotary Wing Aerodynamics. AIAA Journal, 1997, 35, 937-944.	1.5	17
64	Rotorcraft Trajectory Optimization with Realizability Considerations. Journal of Aerospace Engineering, 2005, 18, 146-155.	0.8	17
65	On the Solution of Inverse Dynamics and Trajectory Optimization Problems for Multibody Systems. Multibody System Dynamics, 2004, 11, 1-22.	1.7	16
66	Configuration Optimization of Supercavitating Underwater Vehicles With Maneuvering Constraints. IEEE Journal of Oceanic Engineering, 2010, 35, 647-662.	2.1	16
67	Design, manufacturing and characterization of aero-elastically scaled wind turbine blades for testing active and passive load alleviation techniques within a ABL wind tunnel. Journal of Physics: Conference Series, 2014, 524, 012061.	0.3	16
68	Periodic stability analysis of wind turbines operating in turbulent wind conditions. Wind Energy Science, 2016, 1, 177-203.	1.2	16
69	Field testing of a local wind inflow estimator and wake detector. Wind Energy Science, 2020, 5, 867-884.	1.2	16
70	A multiscale formulation of the Discontinuous Petrovâ€"Galerkin method for advectiveâ€"diffusive problems. Computer Methods in Applied Mechanics and Engineering, 2005, 194, 2819-2838.	3.4	15
71	Cyclic pitch control for the reduction of ultimate loads on wind turbines. Journal of Physics: Conference Series, 2014, 524, 012063.	0.3	15
72	Validation of a wind misalignment observer using field test data. Renewable Energy, 2015, 74, 298-306.	4.3	15

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73	On the scaling of wind turbine rotors. Wind Energy Science, 2021, 6, 601-626.	1.2	15
74	How realistic are the wakes of scaled wind turbine models?. Wind Energy Science, 2021, 6, 961-981.	1.2	15
75	Comparison between upwind and downwind designs of a 10â€‰MW wind turbine rotor. Wind Energy Science, 2019, 4, 115-125.	1.2	15
76	Trajectory Optimization Strategies for Supercavitating Underwater Vehicles. JVC/Journal of Vibration and Control, 2008, 14, 611-644.	1.5	14
77	Automatic detection and correction of pitch misalignment in wind turbine rotors. Wind Energy Science, 2018, 3, 791-803.	1.2	14
78	Finite Element and Runge-Kutta Methods for Boundary-Value and Optimal Control Problems. Journal of Guidance, Control, and Dynamics, 2000, 23, 749-751.	1.6	13
79	Trajectory Optimization Procedures for Rotorcraft Vehicles, Their Software Implementation, and Applicability to Models of Increasing Complexity. Journal of the American Helicopter Society, 2010, 55, 32010-3201013.	0.5	13
80	An Attempt at the Classification of Energy Decaying Schemes for Structural and Multibody Dynamics. Multibody System Dynamics, 2004, 12, 173-185.	1.7	12
81	Free-form design of rotor blades. Journal of Physics: Conference Series, 2014, 524, 012041.	0.3	12
82	Vertical wake deflection for offshore floating wind turbines by differential ballast control. Journal of Physics: Conference Series, 2020, 1618, 022047.	0.3	12
83	An invariant-preserving approach to robust finite-element multibody simulation. ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik, 2003, 83, 663-676.	0.9	11
84	Performance of non-intrusive uncertainty quantification in the aeroservoelastic simulation of wind turbines. Wind Energy Science, 2019, 4, 397-406.	1.2	11
85	Efficient rotorcraft trajectory optimization using comprehensive models by improved shooting methods. Aerospace Science and Technology, 2012, 23, 34-42.	2.5	10
86	Ultimate and fatigue load mitigation by an inertial-driven passive flap, using a geometrically exact multibody formulation. Journal of Wind Engineering and Industrial Aerodynamics, 2018, 175, 169-178.	1.7	10
87	Flux-upwind stabilization of the discontinuous Petrovâ€“Galerkin formulation with Lagrange multipliers for advection-diffusion problems. ESAIM: Mathematical Modelling and Numerical Analysis, 2005, 39, 1087-1114.	0.8	9
88	A method to estimate bending moments acting on a wind turbine blade specimen using FBG sensors. International Journal of Precision Engineering and Manufacturing, 2012, 13, 1247-1250.	1.1	9
89	Optimal shutdown management. Journal of Physics: Conference Series, 2014, 524, 012050.	0.3	8
90	Brief communication: Wind inflow observation from load harmonics â€“ wind tunnel validation of the rotationally symmetric formulation. Wind Energy Science, 2019, 4, 89-97.	1.2	8

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91	Implementation of effective procedures for unilateral contact modeling in multibody dynamics. Mechanics Research Communications, 2001, 28, 233-246.	1.0	7
92	A unified approach to the deformation of simplicial and non-simplicial meshes in two and three dimensions with guaranteed validity. Computers and Structures, 2007, 85, 944-954.	2.4	7
93	Rotorcraft Flight Envelope Protection by Model Predictive Control. Journal of the American Helicopter Society, 2015, 60, 1-13.	0.5	7
94	Delayed fusion for real-time vision-aided inertial navigation. Journal of Real-Time Image Processing, 2015, 10, 633-646.	2.2	7
95	The Quality of Partitions Produced by an Iterative Load Balancer. , 1996, , 265-278.		7
96	Deferred-Correction Optimal Control with Applications to Inverse Problems in Flight Mechanics. Journal of Guidance, Control, and Dynamics, 2001, 24, 101-108.	1.6	6
97	Time integrators for shells in multibody dynamics. Computers and Structures, 2002, 80, 871-889.	2.4	6
98	Trim of rotorcraft multibody models usingÂaÂneural-augmented model-predictive auto-pilot. Multibody System Dynamics, 2007, 18, 299-321.	1.7	6
99	Load Reduction in Leadâ€“Lag Dampers by Speed-Scheduled Aperture and Modulated Control of a Bypass Valve. Journal of the American Helicopter Society, 2012, 57, 16-28.	0.5	6
100	Wind Tunnel Testing of Wind Turbines and Farms. , 2021, , 1-57.		6
101	Wind inflow observation from load harmonics: initial steps towards a field validation. Wind Energy Science, 2021, 6, 759-775.	1.2	6
102	Articulated blade tip devices for load alleviation onÂwindÂturbines. Wind Energy Science, 2016, 1, 297-310.	1.2	6
103	Identification of airfoil polars from uncertain experimental measurements. Wind Energy Science, 2020, 5, 1537-1550.	1.2	6
104	Design, steady performance and wake characterization of a scaled wind turbine with pitch, torque and yaw actuation. Wind Energy Science, 2022, 7, 1263-1287.	1.2	6
105	ON THE COMPUTATION OF THE BOUNDARY INTEGRAL OF SPACE-TIME DEFORMING FINITE ELEMENTS. Communications in Numerical Methods in Engineering, 1997, 13, 53-59.	1.3	5
106	Parameter Estimation of Multibody Models of Unstable Systems From Experimental Data, With Application to Rotorcraft Vehicles. Journal of Computational and Nonlinear Dynamics, 2010, 5, .	0.7	5
107	Stereo particle image velocimetry set up for measurements in the wake of scaled wind turbines. Journal of Physics: Conference Series, 2017, 882, 012003.	0.3	5
108	What are the benefits of lidar-assisted control in the design of a wind turbine?. Wind Energy Science, 2021, 6, 1325-1340.	1.2	5

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109	Data structures and mesh modification tools for unstructured multigrid adaptive techniques. Engineering With Computers, 1998, 14, 235-247.	3.5	4
110	Tightly-coupled stereo vision-aided inertial navigation using feature-based motion sensors. Advanced Robotics, 0, , 1-13.	1.1	4
111	Wind Turbine Envelope Riding. , 2015, , .		4
112	Wake redirection: comparison of analytical, numerical and experimental models. Journal of Physics: Conference Series, 2016, 753, 032064.	0.3	4
113	Wake Characterization of a Multipurpose Scaled Wind Turbine Model. , 2019, , .		4
114	Metric-driven mesh optimization using a local simulated annealing algorithm. International Journal for Numerical Methods in Engineering, 2007, 71, 201-223.	1.5	3
115	Trajectory Optimization for DDE Models of Supercavitating Underwater Vehicles. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2009, 131, .	0.9	3
116	Maximal power extraction strategy in the transition region and its benefit on the AEP (annul energy) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 5	0.7	3
117	Floquet Stability Analysis of Wind Turbines Using Input-Output Models. , 2014, , .		3
118	Propagation of Uncertainties Through Wind Turbine Models for Robust Design Optimization. , 2017, , .		3
119	Economic nonlinear model predictive control of fatigue for a hybrid wind-battery generation system. Journal of Physics: Conference Series, 2022, 2265, 032106.	0.3	3
120	Feasibility Study of Rotorcraft Fire Fighting for High-Rise Buildings. Journal of Aerospace Engineering, 2010, 23, 166-175.	0.8	2
121	Tightly-coupled vision-aided inertial navigation via trifocal constraints. , 2012, , .		2
122	A new concept to mitigate loads for wind turbines based on a passive flap. , 2015, , .		2
123	Wake detection for wind farm control - Formulation and validation. , 2016, , .		2
124	On the modeling of shells in multibody dynamics. , 2001, , 58-60.		2
125	Neural-Augmented Planning and Tracking Pilots for Maneuvering Multibody Dynamics. , 2007, , 113-135.		2
126	Solution Procedures for Maneuvering Multibody Dynamics Problems for Vehicle Models of Varying Complexity. , 2009, , 57-79.		2

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127	Economic control of hybrid energy systems composed of wind turbine and battery. , 2021, , .		2
128	Further calibration and validation of FLORIS with wind tunnel data. Journal of Physics: Conference Series, 2022, 2265, 022019.	0.3	2
129	Finite Element Adaptive Multigrid Euler Solver for Rotary Wing Aerodynamics. AIAA Journal, 2000, 38, 50-56.	1.5	1
130	A Method for Inferring the Optimization Cost Function of Experimentally Observed Motor Strategies. , 2005, , 367.		1
131	Adaptive Reference-Augmented Predictive Control. Proceedings of the American Control Conference, 2007, , .	0.0	1
132	Aero-Servo-Elastic Design of Wind Turbines: Numerical and Wind Tunnel Modeling Contribution. , 2011, , 97-190.		1
133	Global Solution of Optimization Problems in Rotorcraft Flight Mechanics. Journal of Aerospace Engineering, 2015, 28, 04014042.	0.8	1
134	Verification of a Fast Scale-Adaptive CFD Formulation for Waked Wind Turbines. , 2018, , .		1
135	Implementation of the BEM skewed-wake model within the multibody aero-elastic solver Cp-Lambda. E3S Web of Conferences, 2020, 173, 02004.	0.2	1
136	On the effectiveness of one-sided wake steering -A wind tunnel study with dynamic direction changes-. , 2021, , .		1
137	On the Optimal Scaling of Index Three Daes in Multibody Dynamics. , 2006, , 566-566.		1
138	Reduced Sensitivity to Perturbations in the Numerical Solution of Multibody DAEs. , 2005, , .		0
139	Maneuvering Multibody Dynamics: New Developments for Models with Fast Solution Scales and Pilot-in-the-Loop Effects. Computational Methods in Applied Sciences (Springer), 2011, , 29-48.	0.1	0
140	Economic nonlinear model predictive control of fatigueâ€"Formulation and application to wind turbine control. Optimal Control Applications and Methods, 2023, 44, 647-676.	1.3	0
141	Towards Maneuvering Aeroelasticity â€" Progress in the Simulation of Large Fluid-Structure Interaction Problems. , 0, , 191-203.		0