Boris Houska

List of Publications by Year
in descending order

95 papers	2,722 citations	394421 19 h-index	206112 48 g-index
95 all docs	95 docs citations	95 times ranked	1774 citing authors

#	Article	IF	Citations
1	ACADO toolkit—An open-source framework for automatic control and dynamic optimization. Optimal Control Applications and Methods, 2011, 32, 298-312.	2.1	741
2	An auto-generated real-time iteration algorithm for nonlinear MPC in the microsecond range. Automatica, 2011, 47, 2279-2285.	5.0	394
3	An Augmented Lagrangian Based Algorithm for Distributed NonConvex Optimization. SIAM Journal on Optimization, 2016, 26, 1101-1127.	2.0	120
4	Fast Pareto set generation for nonlinear optimal control problems with multiple objectives. Structural and Multidisciplinary Optimization, 2010, 42, 591-603.	3.5	99
5	Robust multi-objective optimal control of uncertain (bio)chemical processes. Chemical Engineering Science, 2011, 66, 4670-4682.	3.8	83
6	Robust MPC via min–max differential inequalities. Automatica, 2017, 77, 311-321.	5.0	75
7	Optimal control for power generating kites. , 2007, , .		69
8	Optimal Control of Towing Kites. , 2006, , .		66
9	Robust optimization of nonlinear dynamic systems with application to a jacketed tubular reactor. Journal of Process Control, 2012, 22, 1152-1160.	3.3	63
10	Unified framework for the propagation of continuous-time enclosures for parametric nonlinear ODEs. Journal of Global Optimization, 2015, 62, 575-613.	1.8	57
11	Toward Distributed OPF Using ALADIN. IEEE Transactions on Power Systems, 2019, 34, 584-594.	6.5	57
12	Set-Theoretic Approaches in Analysis, Estimation and Control of Nonlinear Systems. IFAC-PapersOnLine, 2015, 48, 981-995.	0.9	52
13	Multi-objective optimal control of chemical processes using ACADO toolkit. Computers and Chemical Engineering, 2012, 37, 191-199.	3.8	50
14	Approximate robust optimization of nonlinear systems under parametric uncertainty and process noise. Journal of Process Control, 2015, 33, 140-154.	3.3	50
15	Experimental validation of nonlinear MPC on an overhead crane using automatic code generation. , 2012, , .		48
16	Branch-and-Lift Algorithm for Deterministic Global Optimization in Nonlinear Optimal Control. Journal of Optimization Theory and Applications, 2014, 162, 208-248.	1.5	40
17	Optimal experiment design under process noise using Riccati differential equations. Journal of Process Control, 2013, 23, 613-629.	3.3	25
18	Nonlinear robust optimization via sequential convex bilevel programming. Mathematical Programming, 2013, 142, 539-577.	2.4	24

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19	Multi-objective optimal control of dynamic bioprocesses using ACADO Toolkit. Bioprocess and Biosystems Engineering, 2013, 36, 151-164.	3.4	23
20	Lifted collocation integrators for direct optimal control in ACADO toolkit. Mathematical Programming Computation, 2017, 9, 527-571.	4.8	22
21	Distributed Algorithm for Optimal Vehicle Coordination at Traffic Intersections. IFAC-PapersOnLine, 2017, 50, 11577-11582.	0.9	22
22	An economic objective for the optimal experiment design of nonlinear dynamic processes. Automatica, 2015, 51, 98-103.	5.0	20
23	A block based ALADIN scheme for highly parallelizable direct Optimal Control. , 2016, , .		20
24	Robustness and stability optimization of power generating kite systems in a periodic pumping mode. , 2010, , .		19
25	A lifting method for generalized semi-infinite programs based on lower level Wolfe duality. Computational Optimization and Applications, 2013, 54, 189-210.	1.6	19
26	Symmetric algorithmic differentiation based exact Hessian SQP method and software for Economic MPC. , 2014, , .		19
27	Optimal experiment design for nonlinear dynamic (bio)chemical systems using sequential semidefinite programming. AICHE Journal, 2014, 60, 1728-1739.	3.6	19
28	Decomposition of Nonconvex Optimization via Bi-Level Distributed ALADIN. IEEE Transactions on Control of Network Systems, 2020, 7, 1848-1858.	3.7	19
29	A study of integrated experiment design for NMPC applied to the Droop model. Chemical Engineering Science, 2017, 160, 370-383.	3.8	18
30	Distributed AC Optimal Power Flow using ALADIN * *TF is indebted to the Baden-Württemberg Stiftung for the financial support of this research by the Elite Programme for Postdocs. TF and BH are supported by the Deutsche Forschungsgemeinschaft, Grants WO 2056/1 and WO 2056/4-1. YJ and BH are supported by the National Natural Science Foundation China (NSFC), Nr. 61473185, as well as ShanghaiTech University, Grant-Nr. F-0203-14-012. This work was also supported by the Helmholtz Association under the Joint Initi. IFAC-PapersOnLine, 2017, 50, 5536-5541.	0.9	17
31	Robust nonlinear optimal control of dynamic systems with affine uncertainties. , 2009, , .		16
32	Distributed Optimization Using ALADIN for MPC in Smart Grids. IEEE Transactions on Control Systems Technology, 2021, 29, 2142-2152.	5.2	16
33	A validated integration algorithm for nonlinear ODEs using Taylor models and ellipsoidal calculus. , 2013, , .		13
34	Stable Set-Valued Integration of Nonlinear Dynamic Systems using Affine Set-Parameterizations. SIAM Journal on Numerical Analysis, 2015, 53, 2307-2328.	2.3	12
35	Distributed Stochastic AC Optimal Power Flow based on Polynomial Chaos Expansion. , 2018, , .		12
36	Parallel MPC for Linear Systems With Input Constraints. IEEE Transactions on Automatic Control, 2021, 66, 3401-3408.	5.7	12

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37	Windenergienutzung mit schnell fliegenden Flugdrachen: eine Herausforderung fÃ¼r die Optimierung und RegelungWind Power via Fast Flying Kites: a Challenge for Optimization and Control. Automatisierungstechnik, 2009, 57, 525-533.	0.8	11
38	Enforcing asymptotic orbital stability of economic model predictive control. Automatica, 2015, 57, 45-50.	5.0	11
39	Chebyshev model arithmetic for factorable functions. Journal of Global Optimization, 2017, 68, 413-438.	1.8	10
40	Towards rigorous robust optimal control via generalized highâ€order moment expansion. Optimal Control Applications and Methods, 2018, 39, 489-502.	2.1	10
41	Real-Time Tube MPC Applied to a 10-State Quadrotor Model. , 2018, , .		10
42	Towards global optimal control via Koopman lifts. Automatica, 2021, 132, 109610.	5.0	10
43	ALADINâ€â€"An openâ€source MATLAB toolbox for distributed nonâ€convex optimization. Optimal Control Applications and Methods, 2022, 43, 4-22.	2.1	10
44	Approximate robust optimization of time-periodic stationary states with application to biochemical processes. , 2009, , .		9
45	Robust optimal control of a biochemical reactor with multiple objectives. Computer Aided Chemical Engineering, 2011, 29, 1460-1464.	0.5	9
46	A Short Note on Constrained Linear Control Systems With Multiplicative Ellipsoidal Uncertainty. IEEE Transactions on Automatic Control, 2016, 61, 4106-4111.	5.7	9
47	Efficient symmetric Hessian propagation for direct optimal control. Journal of Process Control, 2017, 50, 19-28.	3.3	9
48	Self-Reflective Model Predictive Control. SIAM Journal on Control and Optimization, 2017, 55, 2959-2980.	2.1	9
49	Parallel Explicit MPC for Hardware with Limited Memory. IFAC-PapersOnLine, 2017, 50, 3301-3306.	0.9	9
50	Computing Ellipsoidal Robust Forward Invariant Tubes for Nonlinear MPC. IFAC-PapersOnLine, 2017, 50, 7175-7180.	0.9	9
51	Real-time algorithm for self-reflective model predictive control. Journal of Process Control, 2018, 65, 68-77.	3.3	9
52	Global optimization in Hilbert space. Mathematical Programming, 2019, 173, 221-249.	2.4	9
53	Real-Time Control of a Kite-Model using an Auto-Generated Nonlinear MPC Algorithm. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2011, 44, 2488-2493.	0.4	8
54	A quadratically convergent inexact SQP method for optimal control of differential algebraic equations. Optimal Control Applications and Methods, 2013, 34, 396-414.	2.1	8

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55	Cost-to-travel functions: A new perspective on optimal and model predictive control. Systems and Control Letters, 2017, 106, 79-86.	2.3	8
56	Robust Optimization for MPC. Control Engineering, 2019, , 413-443.	0.3	8
57	Optimal Experiment Design for AC Power Systems Admittance Estimation. IFAC-PapersOnLine, 2020, 53, 13311-13316.	0.9	8
58	Parallel Explicit Tube Model Predictive Control. , 2019, , .		7
59	A toolkit for efficiently generating Pareto sets in (bio)chemical multi-objective optimal control problems. Computer Aided Chemical Engineering, 2010, 28, 481-486.	0.5	6
60	A Distributed Optimization Algorithm for Stochastic Optimal Control. IFAC-PapersOnLine, 2017, 50, 11263-11268.	0.9	6
61	Guaranteed robust optimal experiment design for nonlinear dynamic systems. , 2013, , .		5
62	Symmetric Hessian propagation for lifted collocation integrators in direct Optimal Control. , 2016, , .		5
63	On stochastic linear systems with zonotopic support sets. Automatica, 2020, 111, 108652.	5.0	5
64	A Toolkit for Multi-Objective Optimal Control in Bioprocess Engineering. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2010, 43, 281-286.	0.4	4
65	Branch-and-lift algorithm for obstacle avoidance control. , 2017, , .		4
66	Ellipsoidal Arithmetic for Multivariate Systems. Computer Aided Chemical Engineering, 2015, 37, 767-772.	0.5	4
67	Resource-Aware Asynchronous Multi-Agent Coordination via Self-Triggered MPC. , 2020, , .		4
68	A Tutorial on Numerical Methods for State and Parameter Estimation in Nonlinear Dynamic Systems. Lecture Notes in Control and Information Sciences, 2012, , 67-88.	1.0	3
69	Multi-purpose economic optimal experiment design applied to model based optimal control. Computers and Chemical Engineering, 2016, 94, 212-220.	3.8	3
70	Convex Enclosures for Constrained Reachability Tubes. IFAC-PapersOnLine, 2019, 52, 118-123.	0.9	3
71	Distributed State Estimation for AC Power Systems using Gauss-Newton ALADIN. , 2019, , .		3
72	A Time Splitting Based Real-Time Iteration Scheme for Nonlinear MPC. , 2019, , .		3

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73	Min-max Differential Inequalities for Polytopic Tube MPC. , 2019, , .		3
74	Backward-forward reachable set splitting for state-constrained differential games. Automatica, 2020, 111, 108602.	5.0	3
75	Distributed Optimization for Massive Connectivity. IEEE Wireless Communications Letters, 2020, 9, 1412-1416.	5.0	3
76	Decentralized Optimization Over Tree Graphs. Journal of Optimization Theory and Applications, 2021, 189, 384-407.	1.5	3
77	Nonlinear robust optimization of uncertainty affine dynamic systems under the L-infinity norm. , 2010, , .		2
78	Robust Design of Linear Control Laws for Constrained Nonlinear Dynamic Systems. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2011, 44, 13438-13443.	0.4	2
79	Continuous-Time Enclosures for Uncertain Implicit Differential Equations. IFAC-PapersOnLine, 2015, 48, 94-99.	0.9	2
80	Ellipsoidal tube MPC of robots carrying glass plates. , 2018, , .		2
81	Robust Optimal Feedback Control for Periodic Biochemical Processes. IFAC-PapersOnLine, 2018, 51, 756-761.	0.9	2
82	A set-theoretic generalization of dissipativity with applications in Tube MPC. Automatica, 2020, 122, 109179.	5.0	2
83	Set-Based State Estimation: A Polytopic Approach. IFAC-PapersOnLine, 2020, 53, 11277-11282.	0.9	2
84	A structure exploiting algorithm for approximate robust optimal control with application to power generating kites. , 2012, , .		1
85	Approximate robust optimal control of nonlinear dynamic systems under process noise. , 2015, , .		1
86	Partially distributed outer approximation. Journal of Global Optimization, 2021, 80, 523-550.	1.8	1
87	Online power system parameter estimation and optimal operation. , 2021, , .		1
88	Enclosing the Reachable Set of Parametric ODEs using Taylor Models and Ellipsoidal Calculus. Computer Aided Chemical Engineering, 2013, 32, 979-984.	0.5	1
89	Distributed Control Enforcing Group Sparsity in Smart Grids. IFAC-PapersOnLine, 2020, 53, 13269-13274.	0.9	1
90	On the Stability of Set-Valued Integration for Parametric Nonlinear ODEs. Computer Aided Chemical Engineering, 2014, , 595-600.	0.5	1

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91	Parallelizable Real-Time Algorithm for Integrated Experiment Design MPC. IFAC-PapersOnLine, 2018, 51, 518-523.	0.9	0
92	Interval Superposition Arithmetic for Guaranteed Parameter Estimation. IFAC-PapersOnLine, 2019, 52, 574-579.	0.9	0
93	Set-membership Estimation using Ellipsoidal Ensembles. IFAC-PapersOnLine, 2021, 54, 596-601.	0.9	0
94	Distributed Multi-Building Coordination for Demand Response. IFAC-PapersOnLine, 2020, 53, 17113-17118.	0.9	0
95	Multi-Symmetric Lyapunov Equations. , 2023, 7, 490-495.		0