

Alberto Bemporad

List of Publications by Year in descending order

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151
papers

13,043
citations

70961

41
h-index

29081

104
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152
all docs

152
docs citations

152
times ranked

6061
citing authors

#	ARTICLE	IF	CITATIONS
1	The explicit linear quadratic regulator for constrained systems. <i>Automatica</i> , 2002, 38, 3-20.	3.0	2,616
2	Control of systems integrating logic, dynamics, and constraints. <i>Automatica</i> , 1999, 35, 407-427.	3.0	2,531
3	Robust model predictive control: A survey. , 1999, , 207-226.		651
4	An algorithm for multi-parametric quadratic programming and explicit MPC solutions. <i>Automatica</i> , 2003, 39, 489-497.	3.0	479
5	OSQP: an operator splitting solver for quadratic programs. <i>Mathematical Programming Computation</i> , 2020, 12, 637-672.	3.2	456
6	Stochastic MPC With Learning for Driver-Predictive Vehicle Control and its Application to HEV Energy Management. <i>IEEE Transactions on Control Systems Technology</i> , 2014, 22, 1018-1031.	3.2	345
7	Model Predictive Control (MPC) for Enhancing Building and HVAC System Energy Efficiency: Problem Formulation, Applications and Opportunities. <i>Energies</i> , 2018, 11, 631.	1.6	341
8	Identification of piecewise affine systems via mixed-integer programming. <i>Automatica</i> , 2004, 40, 37-50.	3.0	327
9	Dynamic programming for constrained optimal control of discrete-time linear hybrid systems. <i>Automatica</i> , 2005, 41, 1709-1721.	3.0	300
10	An Accelerated Dual Gradient-Projection Algorithm for Embedded Linear Model Predictive Control. <i>IEEE Transactions on Automatic Control</i> , 2014, 59, 18-33.	3.6	209
11	Stability analysis of stochastic networked control systems. <i>Automatica</i> , 2012, 48, 917-925.	3.0	196
12	From linear to nonlinear MPC: bridging the gap via the real-time iteration. <i>International Journal of Control</i> , 2020, 93, 62-80.	1.2	164
13	On-line optimization via off-line parametric optimization tools. <i>Computers and Chemical Engineering</i> , 2002, 26, 175-185.	2.0	161
14	Model Predictive Control Design: New Trends and Tools. , 2006, , .		131
15	Multiobjective model predictive control. <i>Automatica</i> , 2009, 45, 2823-2830.	3.0	125
16	Fulfilling Hard Constraints in Uncertain Linear Systems by Reference Managing. <i>Automatica</i> , 1998, 34, 451-461.	3.0	121
17	Stabilizing Model Predictive Control of Stochastic Constrained Linear Systems. <i>IEEE Transactions on Automatic Control</i> , 2012, 57, 1468-1480.	3.6	120
18	Scenario-based model predictive control of stochastic constrained linear systems. , 2009, , .		117

#	ARTICLE	IF	CITATIONS
19	Model Predictive Control Tuning by Controller Matching. IEEE Transactions on Automatic Control, 2010, 55, 185-190.	3.6	114
20	An Algorithm for Approximate Multiparametric Convex Programming. Computational Optimization and Applications, 2006, 35, 87-108.	0.9	101
21	Combined Design of Disturbance Model and Observer for Offset-Free Model Predictive Control. IEEE Transactions on Automatic Control, 2007, 52, 1048-1053.	3.6	98
22	Ultra-Fast Stabilizing Model Predictive Control via Canonical Piecewise Affine Approximations. IEEE Transactions on Automatic Control, 2011, 56, 2883-2897.	3.6	98
23	Efficient On-Line Computation of Constrained Optimal Control. SIAM Journal on Control and Optimization, 2008, 47, 2470-2489.	1.1	82
24	Performance-Oriented Model Learning for Data-Driven MPC Design. , 2019, 3, 577-582.		82
25	Convexity recognition of the union of polyhedra. Computational Geometry: Theory and Applications, 2001, 18, 141-154.	0.3	76
26	Decentralized model predictive control of dynamically coupled linear systems. Journal of Process Control, 2011, 21, 705-714.	1.7	76
27	A simple effective heuristic for embedded mixed-integer quadratic programming. International Journal of Control, 2020, 93, 2-12.	1.2	74
28	Passivity Analysis and Passification of Discrete-Time Hybrid Systems. IEEE Transactions on Automatic Control, 2008, 53, 1004-1009.	3.6	72
29	Stochastic model predictive control for constrained discrete-time Markovian switching systems. Automatica, 2014, 50, 2504-2514.	3.0	72
30	Model Predictive Idle Speed Control: Design, Analysis, and Experimental Evaluation. IEEE Transactions on Control Systems Technology, 2011, , .	3.2	68
31	Piecewise affine regression via recursive multiple least squares and multcategory discrimination. Automatica, 2016, 73, 155-162.	3.0	68
32	A Quadratic Programming Algorithm Based on Nonnegative Least Squares With Applications to Embedded Model Predictive Control. IEEE Transactions on Automatic Control, 2016, 61, 1111-1116.	3.6	61
33	Energy-aware robust model predictive control based on noisy wireless sensors. Automatica, 2012, 48, 36-44.	3.0	60
34	Exact Complexity Certification of Active-Set Methods for Quadratic Programming. IEEE Transactions on Automatic Control, 2017, 62, 6094-6109.	3.6	60
35	Direct Data-Driven Control of Constrained Systems. IEEE Transactions on Control Systems Technology, 2018, 26, 1422-1429.	3.2	60
36	Embedded Model Predictive Control With Certified Real-Time Optimization for Synchronous Motors. IEEE Transactions on Control Systems Technology, 2021, 29, 893-900.	3.2	56

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37	Assessment of non-centralised model predictive control techniques for electrical power networks. International Journal of Control, 2012, 85, 1162-1177.	1.2	53
38	Inner and outer approximations of polytopes using boxes. Computational Geometry: Theory and Applications, 2004, 27, 151-178.	0.3	52
39	A Multiparametric Quadratic Programming Algorithm With Polyhedral Computations Based on Nonnegative Least Squares. IEEE Transactions on Automatic Control, 2015, 60, 2892-2903.	3.6	51
40	Reference trajectory planning under constraints and path tracking using linear time-varying model predictive control for agricultural machines. Biosystems Engineering, 2017, 153, 28-41.	1.9	50
41	Optimization-based automatic flatness control in cold tandem rolling. Journal of Process Control, 2010, 20, 396-407.	1.7	47
42	Model predictive control for pre-compensated voltage mode controlled DC-DC converters. IET Control Theory and Applications, 2017, 11, 2514-2520.	1.2	47
43	Anti-windup synthesis via sampled-data piecewise affine optimal control. Automatica, 2004, 40, 549-562.	3.0	46
44	Stabilizing Linear Model Predictive Control Under Inexact Numerical Optimization. IEEE Transactions on Automatic Control, 2014, 59, 1660-1666.	3.6	45
45	Online model predictive torque control for Permanent Magnet Synchronous Motors. , 2015, , .		43
46	Optimal energy management of a small-size building via hybrid model predictive control. Energy and Buildings, 2017, 140, 1-8.	3.1	43
47	Learning nonlinear state-space models using autoencoders. Automatica, 2021, 129, 109666.	3.0	42
48	Risk-averse model predictive control. Automatica, 2019, 100, 281-288.	3.0	41
49	Model-Predictive Control of Discrete Hybrid Stochastic Automata. IEEE Transactions on Automatic Control, 2011, 56, 1307-1321.	3.6	36
50	A simple effective heuristic for embedded mixed-integer quadratic programming. , 2016, , .		36
51	Fitting jump models. Automatica, 2018, 96, 11-21.	3.0	35
52	A Predictive Controller with Artificial Lyapunov Function for Linear Systems with Input/State Constraints. Automatica, 1998, 34, 1255-1260.	3.0	34
53	Embedded code generation using the OSQP solver. , 2017, , .		34
54	Global optimization via inverse distance weighting and radial basis functions. Computational Optimization and Applications, 2020, 77, 571-595.	0.9	34

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55	Hybrid modelling and optimal control of a Multiproduct Batch Plant. Control Engineering Practice, 2004, 12, 1127-1137.	3.2	28
56	GPU-Accelerated Stochastic Predictive Control of Drinking Water Networks. IEEE Transactions on Control Systems Technology, 2018, 26, 551-562.	3.2	28
57	A bias-correction method for closed-loop identification of Linear Parameter-Varying systems. Automatica, 2018, 87, 128-141.	3.0	28
58	A predictive reference governor for constrained control systems. Computers in Industry, 1998, 36, 55-64.	5.7	27
59	Optimal distributed task scheduling in volunteer clouds. Computers and Operations Research, 2017, 81, 231-246.	2.4	27
60	Global optimization based on active preference learning with radial basis functions. Machine Learning, 2021, 110, 417-448.	3.4	26
61	Embedded Mixed-Integer Quadratic Optimization using Accelerated Dual Gradient Projection. IFAC-PapersOnLine, 2017, 50, 10723-10728.	0.5	25
62	Optimal Control of Discrete Hybrid Stochastic Automata. Lecture Notes in Computer Science, 2005, , 151-167.	1.0	24
63	Dynamic option hedging via stochastic model predictive control based on scenario simulation. Quantitative Finance, 2014, 14, 1739-1751.	0.9	23
64	Learning Nonlinear State-Space Models Using Deep Autoencoders. , 2018, , .		23
65	Fast Linear Parameter Varying Model Predictive Control of Buck DC-DC Converters Based on FPGA. IEEE Access, 2018, 6, 52434-52446.	2.6	23
66	Safe Reinforcement Learning via Projection on a Safe Set: How to Achieve Optimality?. IFAC-PapersOnLine, 2020, 53, 8076-8081.	0.5	23
67	Scenario-based stochastic model predictive control for dynamic option hedging. , 2010, , .		22
68	Stabilizing Dynamic Controllers for Hybrid Systems: A Hybrid Control Lyapunov Function Approach. IEEE Transactions on Automatic Control, 2014, 59, 2629-2643.	3.6	22
69	A Numerically Robust Mixed-Integer Quadratic Programming Solver for Embedded Hybrid Model Predictive Control. IFAC-PapersOnLine, 2018, 51, 412-417.	0.5	22
70	Complexity and convergence certification of a block principal pivoting method for box-constrained quadratic programs. Automatica, 2019, 100, 29-37.	3.0	21
71	Solving Mixed-Integer Quadratic Programs via Nonnegative Least Squares. IFAC-PapersOnLine, 2015, 48, 73-79.	0.5	19
72	A Numerically Stable Solver for Positive Semidefinite Quadratic Programs Based on Nonnegative Least Squares. IEEE Transactions on Automatic Control, 2018, 63, 525-531.	3.6	19

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73	Model Predictive Control With Environment Adaptation for Legged Locomotion. IEEE Access, 2021, 9, 145710-145727.	2.6	18
74	Pairwise Preferences-Based Optimization of a Path-Based Velocity Planner in Robotic Sealing Tasks. IEEE Robotics and Automation Letters, 2021, 6, 6632-6639.	3.3	17
75	High-Speed Piecewise Affine Virtual Sensors. IEEE Transactions on Industrial Electronics, 2012, 59, 1228-1237.	5.2	16
76	Stability and Invariance Analysis of Uncertain Discrete-Time Piecewise Affine Systems. IEEE Transactions on Automatic Control, 2013, 58, 2359-2365.	3.6	16
77	Robust explicit model predictive control via regular piecewise-affine approximation. International Journal of Control, 2014, 87, 2583-2593.	1.2	16
78	A dual gradient-projection algorithm for model predictive control in fixed-point arithmetic. Automatica, 2015, 55, 226-235.	3.0	16
79	Equivalent Piecewise Affine Models of Linear Hybrid Automata. IEEE Transactions on Automatic Control, 2010, 55, 498-502.	3.6	14
80	A stochastic model predictive control approach to dynamic option hedging with transaction costs. , 2011, , .		14
81	Fixed-point dual gradient projection for embedded model predictive control. , 2013, , .		14
82	A Bounded-Variable Least-Squares Solver Based on Stable QR Updates. IEEE Transactions on Automatic Control, 2020, 65, 1242-1247.	3.6	12
83	Rao-Blackwellized sampling for batch and recursive Bayesian inference of Piecewise Affine models. Automatica, 2020, 117, 109002.	3.0	12
84	Dynamic option hedging with transaction costs: A stochastic model predictive control approach. International Journal of Robust and Nonlinear Control, 2019, 29, 5058-5077.	2.1	11
85	Identification of hybrid and linear parameter-varying models via piecewise affine regression using mixed integer programming. International Journal of Robust and Nonlinear Control, 2020, 30, 5802-5819.	2.1	11
86	Efficient Calibration of Embedded MPC. IFAC-PapersOnLine, 2020, 53, 5189-5194.	0.5	11
87	Model predictive control: A multi-parametric programming approach. Computer Aided Chemical Engineering, 2000, 8, 301-306.	0.3	10
88	Real-time model predictive control based on dual gradient projection: Theory and fixed-point FPGA implementation. International Journal of Robust and Nonlinear Control, 2016, 26, 3292-3310.	2.1	10
89	Identification of hybrid and linear parameter varying models via recursive piecewise affine regression and discrimination. , 2016, , .		10
90	A Lyapunov method for stability analysis of piecewise-affine systems over non-invariant domains. International Journal of Control, 2016, 89, 950-959.	1.2	10

#	ARTICLE	IF	CITATIONS
91	Preference-based MPC calibration. , 2021, , .		10
92	A Dual Active-Set Solver for Embedded Quadratic Programming Using Recursive LDL ^T Updates. IEEE Transactions on Automatic Control, 2022, 67, 4362-4369.	3.6	10
93	Regularized moving-horizon piecewise affine regression using mixed-integer quadratic programming. , 2017, , .		9
94	Model predictive control for drift counteraction of stochastic constrained linear systems. Automatica, 2021, 123, 109304.	3.0	9
95	C-GLISp: Preference-Based Global Optimization Under Unknown Constraints With Applications to Controller Calibration. IEEE Transactions on Control Systems Technology, 2022, 30, 2176-2187.	3.2	9
96	Sparse Solutions to the Average Consensus Problem via Various Regularizations of the Fastest Mixing Markov-Chain Problem. IEEE Transactions on Network Science and Engineering, 2015, 2, 97-111.	4.1	8
97	Regularized least square support vector machines for order and structure selection of LPV-ARX models. , 2016, , .		8
98	Synthesis of stabilizing model predictive controllers via canonical piecewise affine approximations. , 2010, , .		7
99	Distributed solution of stochastic optimal control problems on GPUs. , 2015, , .		7
100	Fast model predictive control based on linear input/output models and bounded-variable least squares. , 2017, , .		7
101	Optimal direct data-driven control with stability guarantees. European Journal of Control, 2021, 59, 175-187.	1.6	7
102	Explicit Model Predictive Control. , 2019, , 1-7.		7
103	Optimal and receding horizon drift counteraction control: Linear programming approaches. , 2017, , .		7
104	Learning Approximate Semi-Explicit Hybrid MPC with an Application to Microgrids. IFAC-PapersOnLine, 2020, 53, 5207-5212.	0.5	7
105	Stochastic economic model predictive control for Markovian switching systems * *This work was supported by the EU-funded H2020 research project DISIRE, grant agreement No. 636834. The work of the third author was supported by the KU Leuven Research Council under BOF/STG-15-043.. IFAC-PapersOnLine, 2017, 50, 524-530.	0.5	6
106	Spacecraft Drift Counteraction Optimal Control: Open-Loop and Receding Horizon Solutions. Journal of Guidance, Control, and Dynamics, 2018, 41, 1859-1872.	1.6	6
107	Estimation of jump Boxâ€™Jenkins models. Automatica, 2020, 120, 109126.	3.0	6
108	Learning affine predictors for MPC of nonlinear systems via artificial neural networks. IFAC-PapersOnLine, 2020, 53, 5233-5238.	0.5	6

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109	Data-Driven Synthesis of Robust Invariant Sets and Controllers. , 2022, 6, 1676-1681.		6
110	LQG Online Learning. Neural Computation, 2017, 29, 2203-2291.	1.3	5
111	Uncertainty-aware demand management of water distribution networks in deregulated energy markets. Environmental Modelling and Software, 2018, 101, 10-22.	1.9	5
112	A Fast NMPC Approach based on Bounded-Variable Nonlinear Least Squares. IFAC-PapersOnLine, 2018, 51, 337-342.	0.5	5
113	Simple Interpolating Control. IFAC-PapersOnLine, 2018, 51, 42-47.	0.5	5
114	Online end-use energy disaggregation via jump linear models. Control Engineering Practice, 2019, 89, 30-42.	3.2	5
115	Synthesis of Optimal Feedback Controllers from Data via Stochastic Gradient Descent. , 2019, , .		5
116	Cooperative constrained parameter estimation by ADMM-RLS. Automatica, 2020, 121, 109175.	3.0	5
117	Exact Complexity Certification of a Nonnegative Least-Squares Method for Quadratic Programming. , 2020, 4, 1036-1041.		5
118	Interpolation based predictive control by ellipsoidal invariant sets. IFAC Journal of Systems and Control, 2020, 12, 100084.	1.1	5
119	Explicit Model Predictive Control. , 2021, , 744-751.		5
120	Tuning LQR Controllers: A Sensitivity-Based Approach. , 2022, 6, 932-937.		5
121	A Piecewise Linear Regression and Classification Algorithm With Application to Learning and Model Predictive Control of Hybrid Systems. IEEE Transactions on Automatic Control, 2023, 68, 3194-3209.	3.6	5
122	Low-complexity piecewise-affine virtual sensors: theory and design. International Journal of Control, 2014, 87, 622-632.	1.2	4
123	A hierarchical consensus method for the approximation of the consensus state, based on clustering and spectral graph theory. Engineering Applications of Artificial Intelligence, 2016, 56, 157-174.	4.3	4
124	SAT-Based Synthesis of Spoofing Attacks in Cyber-Physical Control Systems. , 2018, , .		4
125	A machine-learning approach to synthesize virtual sensors for parameter-varying systems. European Journal of Control, 2021, 61, 40-49.	1.6	4
126	Constrained Controller and Observer Design by Inverse Optimality. IEEE Transactions on Automatic Control, 2022, 67, 5432-5439.	3.6	4

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127	Tight Error Analysis in Fixed-Point Arithmetic. Lecture Notes in Computer Science, 2020, , 318-336.	1.0	4
128	Energy Disaggregation using Piecewise Affine Regression and Binary Quadratic Programming. , 2018, , .		3
129	Regularized Moving-Horizon PWA Regression for LPV System Identification. IFAC-PapersOnLine, 2018, 51, 1092-1097.	0.5	3
130	Cloud-aided collaborative estimation by ADMM-RLS algorithms for connected diagnostics and prognostics. , 2018, , .		3
131	Complexity Certification of Proximal-Point Methods for Numerically Stable Quadratic Programming. , 2021, 5, 1381-1386.		3
132	An efficient bounded-variable nonlinear least-squares algorithm for embedded MPC. Automatica, 2022, 141, 110293.	3.0	3
133	Tight Error Analysis in Fixed-point Arithmetic. Formal Aspects of Computing, 2022, 34, 1-32.	1.4	3
134	Stochastic MPC Approach to Drift Counteraction. , 2018, , .		2
135	Variable Elimination in Model Predictive Control Based on K-SVD and QR Factorization. IEEE Transactions on Automatic Control, 2023, 68, 782-797.	3.6	2
136	Pairwise Preferences-Based Optimization of a Path-Based Velocity Planner in Robotic Sealing Tasks. , 2021, , .		2
137	Active preference-based optimization for human-in-the-loop feature selection. European Journal of Control, 2022, 66, 100647.	1.6	2
138	Online learning as an LQG optimal control problem with random matrices. , 2015, , .		1
139	Data-driven modelling, learning and stochastic predictive control for the steel industry. , 2017, , .		1
140	Parallel investments in multiple call and put options for the tracking of desired profit profiles. , 2017, , .		1
141	Input Constraint Sets for Robust Regulation of Linear Systems. IEEE Transactions on Automatic Control, 2022, 67, 5533-5540.	3.6	1
142	PLC implementation of a real-time embedded MPC algorithm based on linear input/output models. IFAC-PapersOnLine, 2020, 53, 6987-6992.	0.5	1
143	Learning optimal switching feedback controllers from data. IFAC-PapersOnLine, 2020, 53, 1602-1607.	0.5	1
144	Proximal Limited-Memory Quasi-Newton Methods for Scenario-based Stochastic Optimal Control * *The work of the second author was supported by the EU-funded H2020 research project DISIRE, grant agreement No. 636834. The work of the fourth author was supported by the KU Leuven Research Council under BOF/STG-15-043.. IFAC-PapersOnLine, 2017, 50, 11865-11870.	0.5	0

#	ARTICLE	IF	CITATIONS
145	LPV Model Order Selection from Noise-corrupted Output and Scheduling Signal Measurements * *This work was partially supported by the European Commission under project H2020-SPIRE-636834 "DISIRE - Distributed In-Situ Sensors Integrated into Raw Material and Energy Feedstock" (http://spire2030.eu/disire).. IFAC-PapersOnLine, 2017, 50, 8355-8360.	0.5	0
146	New trends in modeling and control of hybrid systems. International Journal of Robust and Nonlinear Control, 2020, 30, 5775-5776.	2.1	0
147	Complexity Certification of Proximal-Point Methods for Numerically Stable Quadratic Programming. , 2021, , .		0
148	Cloud-based collaborative learning of optimal feedback controllers. IFAC-PapersOnLine, 2020, 53, 2660-2665.	0.5	0
149	A Linear Programming Method Based on Proximal-Point Iterations With Applications to Multi-Parametric Programming. , 2022, 6, 2066-2071.		0
150	An ADMM-based approach for multi-class recursive parameter estimation. , 2021, , .		0
151	Computation of Input Disturbance Sets for Constrained Output Reachability. IEEE Transactions on Automatic Control, 2022, , 1-8.	3.6	0