

Christian Kirches

List of Publications by Year in descending order

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51
papers

2,237
citations

566801

15
h-index

344852

36
g-index

53
all docs

53
docs citations

53
times ranked

2060
citing authors

#	ARTICLE	IF	CITATIONS
1	qpOASES: a parametric active-set algorithm for Quadratic programming. <i>Mathematical Programming Computation</i> , 2014, 6, 327-363.	3.2	884
2	Mixed-integer nonlinear optimization. <i>Acta Numerica</i> , 2013, 22, 1-131.	6.3	535
3	A Reactive Walking Pattern Generator Based on Nonlinear Model Predictive Control. <i>IEEE Robotics and Automation Letters</i> , 2017, 2, 10-17.	3.3	74
4	Combinatorial integral approximation. <i>Mathematical Methods of Operations Research</i> , 2011, 73, 363-380.	0.4	70
5	Time-optimal control of automobile test drives with gear shifts. <i>Optimal Control Applications and Methods</i> , 2010, 31, 137-153.	1.3	65
6	Efficient direct multiple shooting for nonlinear model predictive control on long horizons. <i>Journal of Process Control</i> , 2012, 22, 540-550.	1.7	63
7	Fast Numerical Methods for Mixed-Integer Nonlinear Model-Predictive Control. , 2011, , .		53
8	Efficient multiple objective optimal control of dynamic systems with integer controls. <i>Journal of Process Control</i> , 2010, 20, 810-822.	1.7	32
9	Optimal control for whole-body motion generation using center-of-mass dynamics for predefined multi-contact configurations. , 2015, , .		32
10	Numerical solution of optimal control problems with explicit and implicit switches. <i>Optimization Methods and Software</i> , 2018, 33, 450-474.	1.6	27
11	A factorization with update procedures for a KKT matrix arising in direct optimal control. <i>Mathematical Programming Computation</i> , 2011, 3, 319-348.	3.2	24
12	Block-structured quadratic programming for the direct multiple shooting method for optimal control. <i>Optimization Methods and Software</i> , 2011, 26, 239-257.	1.6	24
13	Mixed-integer NMPC for predictive cruise control of heavy-duty trucks. , 2013, , .		22
14	Efficient Numerics for Nonlinear Model Predictive Control. , 2010, , 339-357.		21
15	Dynamic optimisation of adsorber-bed designs ensuring optimal control. <i>Applied Thermal Engineering</i> , 2017, 125, 1565-1576.	3.0	20
16	Approximation Properties and Tight Bounds for Constrained Mixed-Integer Optimal Control. <i>SIAM Journal on Control and Optimization</i> , 2020, 58, 1371-1402.	1.1	20
17	Optimal control of Formula 1 race cars in a VDrift based virtual environment. <i>IFAC Postprint Volumes IPPV / International Federation of Automatic Control</i> , 2011, 44, 11907-11912.	0.4	19
18	Benchmarking model-free and model-based optimal control. <i>Robotics and Autonomous Systems</i> , 2017, 92, 81-90.	3.0	18

#	ARTICLE	IF	CITATIONS
19	Determining the optimum cyclic operation of adsorption chillers by a direct method for periodic optimal control. International Journal of Refrigeration, 2011, 34, 902-913.	1.8	17
20	Improved regularity assumptions for partial outer convexification of mixed-integer PDE-constrained optimization problems. ESAIM - Control, Optimisation and Calculus of Variations, 2020, 26, 32.	0.7	17
21	On Perspective Functions and Vanishing Constraints in Mixed-Integer Nonlinear Optimal Control. , 2013, , 387-417.		17
22	Fast solution of periodic optimal control problems in automobile test-driving with gear shifts. , 2008, , .		16
23	Mixed-integer optimal control problems with switching costs: a shortest path approach. Mathematical Programming, 2021, 188, 621-652.	1.6	16
24	An SR1/BFGS SQP algorithm for nonconvex nonlinear programs with block-diagonal Hessian matrix. Mathematical Programming Computation, 2016, 8, 435-459.	3.2	14
25	MultiDimensional Sum-Up Rounding for Elliptic Control Systems. SIAM Journal on Numerical Analysis, 2020, 58, 3427-3447.	1.1	14
26	Fast Nonlinear Model Predictive Control with an Application in Automotive Engineering. Lecture Notes in Control and Information Sciences, 2009, , 471-480.	0.6	13
27	<tt>trlib</tt>: a vector-free implementation of the GLTR method for iterative solution of the trust region problem. Optimization Methods and Software, 2018, 33, 420-449.	1.6	10
28	Optimal operation of adsorption chillers: First implementation and experimental evaluation of a nonlinear model-predictive-control strategy. Applied Thermal Engineering, 2019, 149, 1503-1521.	3.0	10
29	A switching cost aware rounding method for relaxations of mixed-integer optimal control problems. , 2019, , .		9
30	TACO: a toolkit for AMPL control optimization. Mathematical Programming Computation, 2013, 5, 227-265.	3.2	8
31	The polynomial chaos approach for reachable set propagation with application to chance-constrained nonlinear optimal control under parametric uncertainties. Optimal Control Applications and Methods, 2018, 39, 471-488.	1.3	8
32	Using Functional Mock-up Units for Nonlinear Model Predictive Control. , 2012, , .		8
33	Multi-dimensional Sum-Up Rounding using Hilbert curve iterates. Proceedings in Applied Mathematics and Mechanics, 2019, 19, e201900065.	0.2	7
34	An Active-Set Method for Quadratic Programming Based On Sequential Hot-Starts. SIAM Journal on Optimization, 2015, 25, 967-994.	1.2	6
35	Computational Approaches for Mixed Integer Optimal Control Problems with Indicator Constraints. Vietnam Journal of Mathematics, 2018, 46, 1023-1051.	0.4	6
36	On the relation between MPECs and optimization problems in abs-normal form. Optimization Methods and Software, 2020, 35, 560-575.	1.6	5

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37	Compactness and convergence rates in the combinatorial integral approximation decomposition. <i>Mathematical Programming</i> , 2021, 188, 569-598.	1.6	5
38	A phenomenological model of the time course of maximal voluntary isometric contraction force for optimization of complex loading schemes. <i>European Journal of Applied Physiology</i> , 2018, 118, 2587-2605.	1.2	4
39	Efficient Derivative Evaluation for Rigid-Body Dynamics Based on Recursive Algorithms Subject to Kinematic and Loop Constraints. , 2019, 3, 619-624.		4
40	Mixed-integer optimal control for multimodal chromatography. <i>Computers and Chemical Engineering</i> , 2021, 153, 107435.	2.0	4
41	Applying Mathematical Optimization Methods to an ACT-R Instance-Based Learning Model. <i>PLoS ONE</i> , 2016, 11, e0158832.	1.1	4
42	Convergence Analysis and Adaptive Order Selection for the Polynomial Chaos Approach to Direct Optimal Control under Uncertainties. <i>SIAM Journal on Control and Optimization</i> , 2021, 59, 509-533.	1.1	2
43	Switching Cost Aware Rounding for Relaxations of Mixed-Integer Optimal Control Problems: The 2-D Case. , 2022, 6, 548-553.		2
44	Sequential Linearization Method for Bound-Constrained Mathematical Programs with Complementarity Constraints. <i>SIAM Journal on Optimization</i> , 2022, 32, 75-99.	1.2	2
45	Mixed-Integer Nonlinear PDE-Constrained Optimization for Multi-Modal Chromatography. <i>Operations Research Proceedings: Papers of the Annual Meeting = Vorträge Der Jahrestagung / DGOR</i> , 2020, , 81-87.	0.1	1
46	Decomposition and Approximation for PDE-Constrained Mixed-Integer Optimal Control. <i>International Series of Numerical Mathematics</i> , 2022, , 283-305.	1.0	1
47	Structure-exploiting polynomial chaos for uncertain optimal control problems with sparse derivative generation. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2017, 17, 717-718.	0.2	0
48	Generation of Optimal Walking-Like Motions Using Dynamic Models with Switches, Switch Costs, and State Jumps. , 2019, , .		0
49	Comparing Absâ€Normal NLPs to MPECs. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2019, 19, e201900263.	0.2	0
50	The integrated control deviation of mixedâ€integer optimal control problems with vanishing constraints. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2021, 20, e202000022.	0.2	0
51	pySLEQP: A Sequential Linear Quadratic Programming Method Implemented in Python. , 2017, , 103-113.		0