# Boris Houska

## List of Publications by Year in descending order

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Version: 2024-02-01

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|---|---|---|---|
| 95 papers | 2,722 citations | 393982 19 h-index | 205818 48 g-index |
| 95 all docs | 95 docs citations | 95 times ranked | 1774 citing authors |

| # | Article | IF | Citations |
|---|---|---|---|
| 1 | ACADO toolkitâ€"An openâ€source framework for automatic control and dynamic optimization. Optimal Control Applications and Methods, 2011, 32, 298-312. | 1.3 | 741 |
| 2 | An auto-generated real-time iteration algorithm for nonlinear MPC in the microsecond range. Automatica, 2011, 47, 2279-2285. | 3.0 | 394 |
| 3 | An Augmented Lagrangian Based Algorithm for Distributed NonConvex Optimization. SIAM Journal on Optimization, 2016, 26, 1101-1127. | 1.2 | 120 |
| 4 | Fast Pareto set generation for nonlinear optimal control problems with multiple objectives. Structural and Multidisciplinary Optimization, 2010, 42, 591-603. | 1.7 | 99 |
| 5 | Robust multi-objective optimal control of uncertain (bio)chemical processes. Chemical Engineering Science, 2011, 66, 4670-4682. | 1.9 | 83 |
| 6 | Robust MPC via minâ€"max differential inequalities. Automatica, 2017, 77, 311-321. | 3.0 | 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. | 1.7 | 63 |
| 10 | Unified framework for the propagation of continuous-time enclosures for parametric nonlinear ODEs. Journal of Global Optimization, 2015, 62, 575-613. | 1.1 | 57 |
| 11 | Toward Distributed OPF Using ALADIN. IEEE Transactions on Power Systems, 2019, 34, 584-594. | 4.6 | 57 |
| 12 | Set-Theoretic Approaches in Analysis, Estimation and Control of Nonlinear Systems. IFAC-PapersOnLine, 2015, 48, 981-995. | 0.5 | 52 |
| 13 | Multi-objective optimal control of chemical processes using ACADO toolkit. Computers and Chemical Engineering, 2012, 37, 191-199. | 2.0 | 50 |
| 14 | Approximate robust optimization of nonlinear systems under parametric uncertainty and process noise. Journal of Process Control, 2015, 33, 140-154. | 1.7 | 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. | 0.8 | 40 |
| 17 | Optimal experiment design under process noise using Riccati differential equations. Journal of Process Control, 2013, 23, 613-629. | 1.7 | 25 |
| 18 | Nonlinear robust optimization via sequential convex bilevel programming. Mathematical Programming, 2013, 142, 539-577. | 1.6 | 24 |

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|---|---|---|---|
| 19 | Multi-objective optimal control of dynamic bioprocesses using ACADO Toolkit. Bioprocess and Biosystems Engineering, 2013, 36, 151-164. | 1.7 | 23 |
| 20 | Lifted collocation integrators for direct optimal control in ACADO toolkit. Mathematical Programming Computation, 2017, 9, 527-571. | 3.2 | 22 |
| 21 | Distributed Algorithm for Optimal Vehicle Coordination at Traffic Intersections. IFAC-PapersOnLine, 2017, 50, 11577-11582. | 0.5 | 22 |
| 22 | An economic objective for the optimal experiment design of nonlinear dynamic processes. Automatica, 2015, 51, 98-103. | 3.0 | 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. | 0.9 | 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. | 1.8 | 19 |
| 28 | Decomposition of Nonconvex Optimization via Bi-Level Distributed ALADIN. IEEE Transactions on Control of Network Systems, 2020, 7, 1848-1858. | 2.4 | 19 |
| 29 | A study of integrated experiment design for NMPC applied to the Droop model. Chemical Engineering Science, 2017, 160, 370-383. | 1.9 | 18 |
| 30 | Distributed AC Optimal Power Flow using ALADIN * *TF is indebted to the Baden-WÃ¼rttemberg 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. | 0.5 | 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. | 3.2 | 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. | 1.1 | 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. | 3.6 | 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. | 0.4 | 11 |
| 38 | Enforcing asymptotic orbital stability of economic model predictive control. Automatica, 2015, 57, 45-50. | 3.0 | 11 |
| 39 | Chebyshev model arithmetic for factorable functions. Journal of Global Optimization, 2017, 68, 413-438. | 1.1 | 10 |
| 40 | Towards rigorous robust optimal control via generalized highâ€order moment expansion. Optimal Control Applications and Methods, 2018, 39, 489-502. | 1.3 | 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. | 3.0 | 10 |
| 43 | ALADINâ€â€"An openâ€source MATLAB toolbox for distributed nonâ€convex optimization. Optimal Control Applications and Methods, 2022, 43, 4-22. | 1.3 | 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. | 0.3 | 9 |
| 46 | A Short Note on Constrained Linear Control Systems With Multiplicative Ellipsoidal Uncertainty. IEEE Transactions on Automatic Control, 2016, 61, 4106-4111. | 3.6 | 9 |
| 47 | Efficient symmetric Hessian propagation for direct optimal control. Journal of Process Control, 2017, 50, 19-28. | 1.7 | 9 |
| 48 | Self-Reflective Model Predictive Control. SIAM Journal on Control and Optimization, 2017, 55, 2959-2980. | 1.1 | 9 |
| 49 | Parallel Explicit MPC for Hardware with Limited Memory. IFAC-PapersOnLine, 2017, 50, 3301-3306. | 0.5 | 9 |
| 50 | Computing Ellipsoidal Robust Forward Invariant Tubes for Nonlinear MPC. IFAC-PapersOnLine, 2017, 50, 7175-7180. | 0.5 | 9 |
| 51 | Real-time algorithm for self-reflective model predictive control. Journal of Process Control, 2018, 65, 68-77. | 1.7 | 9 |
| 52 | Global optimization in Hilbert space. Mathematical Programming, 2019, 173, 221-249. | 1.6 | 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. | 1.3 | 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. | 1.3 | 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. | 0.5 | 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. | 0.3 | 6 |
| 60 | A Distributed Optimization Algorithm for Stochastic Optimal Control. IFAC-PapersOnLine, 2017, 50, 11263-11268. | 0.5 | 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. | 3.0 | 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. | 0.3 | 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. | 0.6 | 3 |
| 69 | Multi-purpose economic optimal experiment design applied to model based optimal control. Computers and Chemical Engineering, 2016, 94, 212-220. | 2.0 | 3 |
| 70 | Convex Enclosures for Constrained Reachability Tubes. IFAC-PapersOnLine, 2019, 52, 118-123. | 0.5 | 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. | 3.0 | 3 |
| 75 | Distributed Optimization for Massive Connectivity. IEEE Wireless Communications Letters, 2020, 9, 1412-1416. | 3.2 | 3 |
| 76 | Decentralized Optimization Over Tree Graphs. Journal of Optimization Theory and Applications, 2021, 189, 384-407. | 0.8 | 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. | 0.5 | 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. | 0.5 | 2 |
| 82 | A set-theoretic generalization of dissipativity with applications in Tube MPC. Automatica, 2020, 122, 109179. | 3.0 | 2 |
| 83 | Set-Based State Estimation: A Polytopic Approach. IFAC-PapersOnLine, 2020, 53, 11277-11282. | 0.5 | 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. | 1.1 | 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. | 0.3 | 1 |
| 89 | Distributed Control Enforcing Group Sparsity in Smart Grids. IFAC-PapersOnLine, 2020, 53, 13269-13274. | 0.5 | 1 |
| 90 | On the Stability of Set-Valued Integration for Parametric Nonlinear ODEs. Computer Aided Chemical Engineering, 2014, , 595-600. | 0.3 | 1 |

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| 91 | Parallelizable Real-Time Algorithm for Integrated Experiment Design MPC. IFAC-PapersOnLine, 2018, 51, 518-523. | 0.5 | 0 |
| 92 | Interval Superposition Arithmetic for Guaranteed Parameter Estimation. IFAC-PapersOnLine, 2019, 52, 574-579. | 0.5 | 0 |
| 93 | Set-membership Estimation using Ellipsoidal Ensembles. IFAC-PapersOnLine, 2021, 54, 596-601. | 0.5 | 0 |
| 94 | Distributed Multi-Building Coordination for Demand Response. IFAC-PapersOnLine, 2020, 53, 17113-17118. | 0.5 | 0 |
| 95 | Multi-Symmetric Lyapunov Equations. , 2023, 7, 490-495. | | 0 |