

Helen Durand

List of Publications by Year in descending order

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70
papers

1,473
citations

394421

19
h-index

315739

38
g-index

70
all docs

70
docs citations

70
times ranked

881
citing authors

#	ARTICLE	IF	CITATIONS
1	A tutorial review of economic model predictive control methods. Journal of Process Control, 2014, 24, 1156-1178.	3.3	536
2	CFD modeling and control of a steam methane reforming reactor. Chemical Engineering Science, 2016, 148, 78-92.	3.8	101
3	CFD modeling of a industrial-scale steam methane reforming furnace. Chemical Engineering Science, 2017, 171, 576-598.	3.8	97
4	Control Lyapunov-Barrier function-based model predictive control of nonlinear systems. Automatica, 2019, 109, 108508.	5.0	55
5	Process operational safety using model predictive control based on a process Safeness Index. Computers and Chemical Engineering, 2017, 104, 76-88.	3.8	46
6	Temperature balancing in steam methane reforming furnace via an integrated CFD/data-based optimization approach. Computers and Chemical Engineering, 2017, 104, 185-200.	3.8	42
7	Detecting and Handling Cyber-Attacks in Model Predictive Control of Chemical Processes. Mathematics, 2018, 6, 173.	2.2	38
8	On integration of feedback control and safety systems: Analyzing two chemical process applications. Chemical Engineering Research and Design, 2018, 132, 616-626.	5.6	32
9	A feedback control framework for safe and economically optimal operation of nonlinear processes. AIChE Journal, 2016, 62, 2391-2409.	3.6	31
10	Economic model predictive control designs for input rate-of-change constraint handling and guaranteed economic performance. Computers and Chemical Engineering, 2016, 92, 18-36.	3.8	27
11	Model Predictive Control of a Steam Methane Reforming Reactor Described by a Computational Fluid Dynamics Model. Industrial & Engineering Chemistry Research, 2017, 56, 6002-6011.	3.7	26
12	Process operational safety via model predictive control: Recent results and future research directions. Computers and Chemical Engineering, 2018, 114, 171-190.	3.8	26
13	A Nonlinear Systems Framework for Cyberattack Prevention for Chemical Process Control Systems. Mathematics, 2018, 6, 169.	2.2	26
14	Safe economic model predictive control of nonlinear systems. Systems and Control Letters, 2018, 118, 69-76.	2.3	23
15	On identification of well-conditioned nonlinear systems: Application to economic model predictive control of nonlinear processes. AIChE Journal, 2015, 61, 3353-3373.	3.6	22
16	Real-time preventive sensor maintenance using robust moving horizon estimation and economic model predictive control. AIChE Journal, 2015, 61, 3374-3389.	3.6	21
17	Actuator stiction compensation via model predictive control for nonlinear processes. AIChE Journal, 2016, 62, 2004-2023.	3.6	21
18	Error-triggered online model identification for model-based feedback control. AIChE Journal, 2017, 63, 949-966.	3.6	21

#	ARTICLE	IF	CITATIONS
19	Economic model predictive control of stochastic nonlinear systems. <i>AIChE Journal</i> , 2018, 64, 3312-3322.	3.6	19
20	Integrated cyberattack detection and resilient control strategies using Lyapunov-based economic model predictive control. <i>AIChE Journal</i> , 2020, 66, e17084.	3.6	19
21	Distributed economic model predictive control for operational safety of nonlinear processes. <i>AIChE Journal</i> , 2017, 63, 3404-3418.	3.6	17
22	Bayesian model averaging for estimating the spatial temperature distribution in a steam methane reforming furnace. <i>Chemical Engineering Research and Design</i> , 2018, 131, 465-487.	5.6	17
23	Fault-Tolerant Economic Model Predictive Control Using Error-Triggered Online Model Identification. <i>Industrial & Engineering Chemistry Research</i> , 2017, 56, 5652-5667.	3.7	16
24	Mitigating Safety Concerns and Profit/Production Losses for Chemical Process Control Systems under Cyberattacks via Design/Control Methods. <i>Mathematics</i> , 2020, 8, 499.	2.2	14
25	Distributed economic model predictive control with Safeness-Index based constraints for nonlinear systems. <i>Systems and Control Letters</i> , 2017, 110, 21-28.	2.3	13
26	Interactions between control and process design under economic model predictive control. <i>Journal of Process Control</i> , 2020, 92, 1-18.	3.3	13
27	Integrated cyberattack detection and handling for nonlinear systems with evolving process dynamics under Lyapunov-based economic model predictive control. <i>Chemical Engineering Research and Design</i> , 2021, 170, 147-179.	5.6	12
28	Elucidation of the role of constraints in economic model predictive control. <i>Annual Reviews in Control</i> , 2016, 41, 208-217.	7.9	11
29	An economic model predictive control approach to integrated production management and process operation. <i>AIChE Journal</i> , 2017, 63, 1892-1906.	3.6	11
30	Achieving operational process safety via model predictive control. <i>Journal of Loss Prevention in the Process Industries</i> , 2018, 53, 74-88.	3.3	11
31	Handling of stealthy sensor and actuator cyberattacks on evolving nonlinear process systems. <i>Journal of Advanced Manufacturing and Processing</i> , 2021, 3, .	2.4	10
32	Data-Based Nonlinear Model Identification in Economic Model Predictive Control. <i>Smart and Sustainable Manufacturing Systems</i> , 2018, 2, 20180025.	0.7	9
33	Safeness Index-Based Economic Model Predictive Control of Stochastic Nonlinear Systems. <i>Mathematics</i> , 2018, 6, 69.	2.2	8
34	Elucidating and handling effects of valve-induced nonlinearities in industrial feedback control loops. <i>Computers and Chemical Engineering</i> , 2018, 116, 156-175.	3.8	7
35	Control Lyapunov-Barrier Function-Based Model Predictive Control of Nonlinear Systems. , 2018, , .		7
36	Lyapunov-Based Economic Model Predictive Control for Detecting and Handling Actuator and Simultaneous Sensor/Actuator Cyberattacks on Process Control Systems. <i>Frontiers in Chemical Engineering</i> , 2022, 4, .	2.7	7

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37	Integrated Design of Control Actuator Layer and Economic Model Predictive Control for Nonlinear Processes. Industrial & Engineering Chemistry Research, 2014, 53, 20000-20012.	3.7	6
38	Economic Model Predictive Control: Handling Valve Actuator Dynamics and Process Equipment Considerations. Foundations and Trends in Systems and Control, 2018, 5, 293-350.	7.5	6
39	Optimal operation of batch enantiomer crystallization: From ternary diagrams to predictive control. AIChE Journal, 2018, 64, 1618-1637.	3.6	5
40	On accounting for equipment-control interactions in economic model predictive control via process state constraints. Chemical Engineering Research and Design, 2019, 144, 63-78.	5.6	5
41	Responsive Economic Model Predictive Control for Next-Generation Manufacturing. Mathematics, 2020, 8, 259.	2.2	5
42	Economic model predictive control for nonlinear processes incorporating actuator magnitude and rate of change constraints. , 2016, , .		3
43	Simultaneous control of safety constraint sets and process economics using economic model predictive control. , 2016, , .		3
44	Mitigating Cyberattack Impacts Using Lyapunov-Based Economic Model Predictive Control. , 2020, , .		3
45	Lyapunov-based economic model predictive control for online model discrimination. Computers and Chemical Engineering, 2022, 161, 107769.	3.8	3
46	Fault-Tolerant Economic Model Predictive Control Using Empirical Models * *Financial support from the National Science Foundation and the Department of Energy is gratefully acknowledged. IFAC-PapersOnLine, 2017, 50, 3517-3523.	0.9	2
47	Steam methane reforming furnace temperature balancing via CFD model-based optimization. , 2017, , .		2
48	Optimal Enantiomer Crystallization Operation using Ternary Diagram Information. Computer Aided Chemical Engineering, 2018, 44, 499-504.	0.5	2
49	Model Predictive Control for Process Operational Safety: Utilizing Safeness Index-Based Constraints and Control Lyapunov-Barrier Functions. Computer Aided Chemical Engineering, 2018, 44, 505-510.	0.5	2
50	Anomaly-Handling in Lyapunov-Based Economic Model Predictive Control via Empirical Models. IFAC-PapersOnLine, 2020, 53, 6911-6916.	0.9	2
51	Control Implemented on Quantum Computers: Effects of Noise, Nondeterminism, and Entanglement. Industrial & Engineering Chemistry Research, 2022, 61, 10133-10155.	3.7	2
52	Accounting for the control actuator layer in economic model predictive control of nonlinear processes. , 2015, , .		1
53	Integrating production scheduling and process operation via economic model predictive control. , 2016, , .		1
54	Distributed Economic MPC with Safety-Based Constraints for Nonlinear Systems * *Financial support from the National Science Foundation and the Department of Energy is gratefully acknowledged.. IFAC-PapersOnLine, 2017, 50, 12033-12040.	0.9	1

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55	State Measurement Spoofing Prevention through Model Predictive Control Design. IFAC-PapersOnLine, 2018, 51, 543-548.	0.9	1
56	Handling Process Safety and Stochastic Uncertainty in Economic Model Predictive Control. IFAC-PapersOnLine, 2018, 51, 424-429.	0.9	1
57	Control Lyapunov-Barrier Function-Based Economic Model Predictive Control of Nonlinear Systems. IFAC-PapersOnLine, 2018, 51, 48-53.	0.9	1
58	Distributed Economic Model Predictive Control with Safeness-Index Based Constraints of a Nonlinear Chemical Process. , 2018, , .		1
59	On Integration of Model Predictive Control with Safety System: Preventing Thermal Runaway. Computer Aided Chemical Engineering, 2018, 44, 2011-2016.	0.5	1
60	Lyapunov-based Economic Model Predictive Control of Stochastic Nonlinear Systems. , 2018, , .		1
61	Process/Equipment Design Implications for Control System Cybersecurity. Computer Aided Chemical Engineering, 2019, , 263-268.	0.5	1
62	Stiction compensation via model predictive control. , 2016, , .		0
63	Error-triggered on-line model identification in economic model predictive control. , 2016, , .		0
64	Handling Plant Variation via Error-Triggered On-line Model Identification: Application to Economic Model Predictive Control**Financial support from the National Science Foundation and the Department of Energy is gratefully acknowledged.. IFAC-PapersOnLine, 2016, 49, 790-795.	0.9	0
65	Integrating Process Safety Considerations in Lyapunov-Based Model Predictive Control. IFAC-PapersOnLine, 2017, 50, 15910-15915.	0.9	0
66	Process safeness index: Its definition and use in economic model predictive control to ensure process operational safety. , 2017, , .		0
67	Model Predictive Control of Batch Enantiomer Crystallization Using Ternary Diagram Information. , 2018, , .		0
68	Economic Model Predictive Control and Process Equipment: Control-Induced Thermal Stress in a Pipe. , 2019, , .		0
69	Lyapunov-based Economic Model Predictive Control with Taylor Series State Approximations. , 2020, , .		0
70	Elucidation and compensation of valve stiction-induced oscillations in closed-loop systems. , 2017, , .		0