Helen Durand

List of Publications by Year
in descending order

70 papers	1,473 citations	448610 19 h-index	355658 38 g-index
70 all docs	70 docs citations	70 times ranked	1017 citing authors

#	Article	IF	Citations
1	Lyapunov-Based Economic Model Predictive Control for Detecting and Handling Actuator and Simultaneous Sensor/Actuator Cyberattacks on Process Control Systems. Frontiers in Chemical Engineering, 2022, 4, .	1.3	7
2	Lyapunov-based economic model predictive control for online model discrimination. Computers and Chemical Engineering, 2022, 161, 107769.	2.0	3
3	Control Implemented on Quantum Computers: Effects of Noise, Nondeterminism, and Entanglement. Industrial & Engineering Chemistry Research, 2022, 61, 10133-10155.	1.8	2
4	Integrated cyberattack detection and handling for nonlinear systems with evolving process dynamics under Lyapunov-based economic model predictive control. Chemical Engineering Research and Design, 2021, 170, 147-179.	2.7	12
5	Handling of stealthy sensor and actuator cyberattacks on evolving nonlinear process systems. Journal of Advanced Manufacturing and Processing, 2021, 3, .	1.4	10
6	Integrated cyberattack detection and resilient control strategies using <scp>Lyapunovâ€based</scp> economic model predictive control. AICHE Journal, 2020, 66, e17084.	1.8	19
7	Lyapunov-based Economic Model Predictive Control with Taylor Series State Approximations. , 2020, , .		0
8	Interactions between control and process design under economic model predictive control. Journal of Process Control, 2020, 92, 1-18.	1.7	13
9	Mitigating Safety Concerns and Profit/Production Losses for Chemical Process Control Systems under Cyberattacks via Design/Control Methods. Mathematics, 2020, 8, 499.	1.1	14
10	Anomaly-Handling in Lyapunov-Based Economic Model Predictive Control via Empirical Models. IFAC-PapersOnLine, 2020, 53, 6911-6916.	0.5	2
11	Mitigating Cyberattack Impacts Using Lyapunov-Based Economic Model Predictive Control. , 2020, , .		3
12	Responsive Economic Model Predictive Control for Next-Generation Manufacturing. Mathematics, 2020, 8, 259.	1.1	5
13	Control Lyapunov-Barrier function-based model predictive control of nonlinear systems. Automatica, 2019, 109, 108508.	3.0	55
14	On accounting for equipment-control interactions in economic model predictive control via process state constraints. Chemical Engineering Research and Design, 2019, 144, 63-78.	2.7	5
15	Economic Model Predictive Control and Process Equipment: Control-Induced Thermal Stress in a Pipe. , 2019, , .		0
16	Process/Equipment Design Implications for Control System Cybersecurity. Computer Aided Chemical Engineering, 2019, , 263-268.	0.3	1
17	Economic model predictive control of stochastic nonlinear systems. AICHE Journal, 2018, 64, 3312-3322.	1.8	19
18	On integration of feedback control and safety systems: Analyzing two chemical process applications. Chemical Engineering Research and Design, 2018, 132, 616-626.	2.7	32

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19	Process operational safety via model predictive control: Recent results and future research directions. Computers and Chemical Engineering, 2018, 114, 171-190.	2.0	26
20	Achieving operational process safety via model predictive control. Journal of Loss Prevention in the Process Industries, 2018, 53, 74-88.	1.7	11
21	Bayesian model averaging for estimating the spatial temperature distribution in a steam methane reforming furnace. Chemical Engineering Research and Design, 2018, 131, 465-487.	2.7	17
22	Elucidating and handling effects of valve-induced nonlinearities in industrial feedback control loops. Computers and Chemical Engineering, 2018, 116, 156-175.	2.0	7
23	Optimal operation of batch enantiomer crystallization: From ternary diagrams to predictive control. AICHE Journal, 2018, 64, 1618-1637.	1.8	5
24	State Measurement Spoofing Prevention through Model Predictive Control Design. IFAC-PapersOnLine, 2018, 51, 543-548.	0.5	1
25	Handling Process Safety and Stochastic Uncertainty in Economic Model Predictive Control. IFAC-PapersOnLine, 2018, 51, 424-429.	0.5	1
26	Control Lyapunov-Barrier Function-Based Economic Model Predictive Control of Nonlinear Systems. IFAC-PapersOnLine, 2018, 51, 48-53.	0.5	1
27	Optimal Enantiomer Crystallization Operation using Ternary Diagram Information. Computer Aided Chemical Engineering, 2018, 44, 499-504.	0.3	2
28	Distributed Economic Model Predictive Control with Safeness-Index Based Constraints of a Nonlinear Chemical Process. , 2018, , .		1
29	Detecting and Handling Cyber-Attacks in Model Predictive Control of Chemical Processes. Mathematics, 2018, 6, 173.	1.1	38
30	A Nonlinear Systems Framework for Cyberattack Prevention for Chemical Process Control Systems â€. Mathematics, 2018, 6, 169.	1.1	26
31	Control Lyapunov-Barrier Function-Based Model Predictive Control of Nonlinear Systems. , 2018, , .		7
32	On Integration of Model Predictive Control with Safety System: Preventing Thermal Runaway. Computer Aided Chemical Engineering, 2018, 44, 2011-2016.	0.3	1
33	Model Predictive Control of Batch Enantiomer Crystallization Using Ternary Diagram Information. , 2018, , .		0
34	Safe economic model predictive control of nonlinear systems. Systems and Control Letters, 2018, 118, 69-76.	1.3	23
35	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.	0.3	2
36	Safeness Index-Based Economic Model Predictive Control of Stochastic Nonlinear Systems. Mathematics, 2018, 6, 69.	1.1	8

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37	Economic Model Predictive Control: Handling Valve Actuator Dynamics and Process Equipment Considerations. Foundations and Trends in Systems and Control, 2018, 5, 293-350.	3.8	6
38	Data-Based Nonlinear Model Identification in Economic Model Predictive Control. Smart and Sustainable Manufacturing Systems, 2018, 2, 20180025.	0.3	9
39	Lyapunov-based Economic Model Predictive Control of Stochastic Nonlinear Systems. , 2018, , .		1
40	Distributed economic model predictive control for operational safety of nonlinear processes. AICHE Journal, 2017, 63, 3404-3418.	1.8	17
41	Process operational safety using model predictive control based on a process Safeness Index. Computers and Chemical Engineering, 2017, 104, 76-88.	2.0	46
42	Model Predictive Control of a Steam Methane Reforming Reactor Described by a Computational Fluid Dynamics Model. Industrial & Engineering Chemistry Research, 2017, 56, 6002-6011.	1.8	26
43	Temperature balancing in steam methane reforming furnace via an integrated CFD/data-based optimization approach. Computers and Chemical Engineering, 2017, 104, 185-200.	2.0	42
44	Fault-Tolerant Economic Model Predictive Control Using Error-Triggered Online Model Identification. Industrial & Engineering Chemistry Research, 2017, 56, 5652-5667.	1.8	16
45	Integrating Process Safety Considerations in Lyapunov-Based Model Predictive Control. IFAC-PapersOnLine, 2017, 50, 15910-15915.	0.5	0
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.	0.5	2
47	Distributed economic model predictive control with Safeness-Index based constraints for nonlinear systems. Systems and Control Letters, 2017, 110, 21-28.	1.3	13
48	CFD modeling of a industrial-scale steam methane reforming furnace. Chemical Engineering Science, 2017, 171, 576-598.	1.9	97
49	Process safeness index: Its definition and use in economic model predictive control to ensure process operational safety. , 2017, , .		0
50	An economic model predictive control approach to integrated production management and process operation. AICHE Journal, 2017, 63, 1892-1906.	1.8	11
51	Errorâ€triggered onâ€line model identification for modelâ€based feedback control. AICHE Journal, 2017, 63, 949-966.	1.8	21
52	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.	0.5	1
53	Steam methane reforming furnace temperature balancing via CFD model-based optimization. , 2017, , .		2
54	Elucidation and compensation of valve stiction-induced oscillations in closed-loop systems. , 2017, , .		0

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55	Actuator stiction compensation via model predictive control for nonlinear processes. AICHE Journal, 2016, 62, 2004-2023.	1.8	21
56	A feedback control framework for safe and economicallyâ€optimal operation of nonlinear processes. AICHE Journal, 2016, 62, 2391-2409.	1.8	31
57	Economic model predictive control for nonlinear processes incorporating actuator magnitude and rate of change constraints. , 2016, , .		3
58	Stiction compensation via model predictive control. , 2016, , .		0
59	Simultaneous control of safety constraint sets and process economics using economic model predictive control. , 2016, , .		3
60	Integrating production scheduling and process operation via economic model predictive control. , 2016, , .		1
61	Error-triggered on-line model identification in economic model predictive control. , 2016, , .		0
62	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.	0.5	0
63	Economic model predictive control designs for input rate-of-change constraint handling and guaranteed economic performance. Computers and Chemical Engineering, 2016, 92, 18-36.	2.0	27
64	Elucidation of the role of constraints in economic model predictive control. Annual Reviews in Control, 2016, 41, 208-217.	4.4	11
65	CFD modeling and control of a steam methane reforming reactor. Chemical Engineering Science, 2016, 148, 78-92.	1.9	101
66	Realâ€time preventive sensor maintenance using robust moving horizon estimation and economic model predictive control. AICHE Journal, 2015, 61, 3374-3389.	1.8	21
67	On identification of wellâ€conditioned nonlinear systems: Application to economic model predictive control of nonlinear processes. AICHE Journal, 2015, 61, 3353-3373.	1.8	22
68	Accounting for the control actuator layer in economic model predictive control of nonlinear processes. , 2015, , .		1
69	Integrated Design of Control Actuator Layer and Economic Model Predictive Control for Nonlinear Processes. Industrial & Engineering Chemistry Research, 2014, 53, 20000-20012.	1.8	6
70	A tutorial review of economic model predictive control methods. Journal of Process Control, 2014, 24, 1156-1178.	1.7	536