Steven X Ding

List of Publications by Year
in descending order

121 papers	12,732 citations	53794 45 h-index	25787 108 g-index
121 all docs	121 docs citations	121 times ranked	6921 citing authors

#	ARTICLE	IF	CITATIONS
1	A Survey of Fault Diagnosis and Fault-Tolerant Techniquesâ€"Part I: Fault Diagnosis With Model-Based and Signal-Based Approaches. IEEE Transactions on Industrial Electronics, 2015, 62, 3757-3767.	7.9	2,166
2	A Review on Basic Data-Driven Approaches for Industrial Process Monitoring. IEEE Transactions on Industrial Electronics, 2014, 61, 6418-6428.	7.9	1,276
3	A comparison study of basic data-driven fault diagnosis and process monitoring methods on the benchmark Tennessee Eastman process. Journal of Process Control, 2012, 22, 1567-1581.	3.3	1,110
4	Data Mining and Analytics in the Process Industry: The Role of Machine Learning. IEEE Access, 2017, 5, 20590-20616.	4.2	647
5	Real-Time Implementation of Fault-Tolerant Control Systems With Performance Optimization. IEEE Transactions on Industrial Electronics, 2014, 61, 2402-2411.	7.9	520
6	An LMI approach to design robust fault detection filter for uncertain LTI systems. Automatica, 2003, 39, 543-550.	5.0	518
7	Model-Based Fault Diagnosis Techniques. Advances in Industrial Control, 2013, , .	0.5	420
8	Actuator fault robust estimation and fault-tolerant control for a class of nonlinear descriptor systems. Automatica, 2007, 43, 912-920.	5.0	388
9	Data-driven Design of Fault Diagnosis and Fault-tolerant Control Systems. Advances in Industrial Control, 2014, , .	0.5	370
10	fault detection filter design for discrete-time Takagiâ€"Sugeno fuzzy system. Automatica, 2013, 49, 1996-2005.	5.0	349
11	Fault Detection for Non-Gaussian Processes Using Generalized Canonical Correlation Analysis and Randomized Algorithms. IEEE Transactions on Industrial Electronics, 2018, 65, 1559-1567.	7.9	246
12	Data-Driven Fault Diagnosis for Traction Systems in High-Speed Trains: A Survey, Challenges, and Perspectives. IEEE Transactions on Intelligent Transportation Systems, 2022, 23, 1700-1716.	8.0	244
13	Fault Detection for Uncertain Fuzzy Systems: An LMI Approach. IEEE Transactions on Fuzzy Systems, 2007, 15, 1251-1262.	9.8	239
14	A Novel Scheme for Key Performance Indicator Prediction and Diagnosis With Application to an Industrial Hot Strip Mill. IEEE Transactions on Industrial Informatics, 2013, 9, 2239-2247.	11.3	223
15	Fuzzy State/Disturbance Observer Design for Tâ€"S Fuzzy Systems With Application to Sensor Fault Estimation. IEEE Transactions on Systems, Man, and Cybernetics, 2008, 38, 875-880.	5.0	193
16	Canonical correlation analysis-based fault detection methods with application to alumina evaporation process. Control Engineering Practice, 2016, 46, 51-58.	5.5	171
17	A comparison and evaluation of key performance indicator-based multivariate statistics process monitoring approaches. Journal of Process Control, 2015, 33, 112-126.	3.3	164
18	Data-driven realizations of kernel and image representations and their application to fault detection and control system design. Automatica, 2014, 50, 2615-2623.	5.0	135

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19	Optimal fault detection for linear discrete time-varying systems. Automatica, 2010, 46, 1395-1400.	5.0	132
20	Weighted Fuzzy Observer-Based Fault Detection Approach for Discrete-Time Nonlinear Systems via Piecewise-Fuzzy Lyapunov Functions. IEEE Transactions on Fuzzy Systems, 2016, 24, 1320-1333.	9.8	125
21	Performance-based fault detection and fault-tolerant control for automatic control systems. Automatica, 2019, 99, 308-316.	5.0	114
22	A Distributed Canonical Correlation Analysis-Based Fault Detection Method for Plant-Wide Process Monitoring. IEEE Transactions on Industrial Informatics, 2019, 15, 2710-2720.	11.3	110
23	Unbiased Minimum Variance Fault and State Estimation for Linear Discrete Time-Varying Two-Dimensional Systems. IEEE Transactions on Automatic Control, 2017, 62, 5463-5469.	5.7	109
24	Delay-dependent fault estimation for uncertain time-delay nonlinear systems: an LMI approach. International Journal of Robust and Nonlinear Control, 2006, 16, 913-933.	3.7	103
25	On Designing H_{∞} Fault Detection Filter for Linear Discrete Time-Varying Systems. IEEE Transactions on Automatic Control, 2010, 55, 1689-1695.	5.7	95
26	Finite-horizon H_∞ fault estimation for linear discrete time-varying systems with delayed measurements. Automatica, 2013, 49, 293-296.	5.0	95
27	Parity space-based fault detection for linear discrete time-varying systems with unknown input. Automatica, 2015, 59, 120-126.	5.0	89
28	Real-Time Fault Detection Approach for Nonlinear Systems and its Asynchronous T-S Fuzzy Observer-Based Implementation. IEEE Transactions on Cybernetics, 2016, 47, 1-12.	9.5	87
29	Decentralized Networked Control System Design Using T–S Fuzzy Approach. IEEE Transactions on Fuzzy Systems, 2012, 20, 9-21.	9.8	81
30	Fixed-Time Fault-Tolerant Formation Control for Heterogeneous Multi-Agent Systems With Parameter Uncertainties and Disturbances. IEEE Transactions on Circuits and Systems I: Regular Papers, 2021, 68, 2121-2133.	5.4	80
31	Design of robust fuzzy fault detection filter for polynomial fuzzy systems with new finite frequency specifications. Automatica, 2018, 93, 42-54.	5.0	79
32	A Just-In-Time-Learning-Aided Canonical Correlation Analysis Method for Multimode Process Monitoring and Fault Detection. IEEE Transactions on Industrial Electronics, 2021, 68, 5259-5270.	7.9	78
33	A survey on model-based fault diagnosis for linear discrete time-varying systems. Neurocomputing, 2018, 306, 51-60.	5.9	72
34	A New Soft-Sensor-Based Process Monitoring Scheme Incorporating Infrequent KPI Measurements. IEEE Transactions on Industrial Electronics, 2015, 62, 3843-3851.	7.9	69
35	A Plug-and-Play Monitoring and Control Architecture for Disturbance Compensation in Rolling Mills. IEEE/ASME Transactions on Mechatronics, 2018, 23, 200-210.	5.8	69
36	Voltage Difference Residual-Based Open-Circuit Fault Diagnosis Approach for Three-Level Converters in Electric Traction Systems. IEEE Transactions on Power Electronics, 2020, 35, 3012-3028.	7.9	69

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37	A New Observer-Based Cooperative Fault-Tolerant Tracking Control Method With Application to Networked Multiaxis Motion Control System. IEEE Transactions on Industrial Electronics, 2021, 68, 7422-7432.	7.9	65
38	On observer-based fault detection for nonlinear systems. Systems and Control Letters, 2015, 82, 18-25.	2.3	64
39	Probability-Relevant Incipient Fault Detection and Diagnosis Methodology With Applications to Electric Drive Systems. IEEE Transactions on Control Systems Technology, 2019, 27, 2766-2773.	5.2	64
40	Fuzzy Observer-Based Fault Detection Design Approach for Nonlinear Processes. IEEE Transactions on Systems, Man, and Cybernetics: Systems, 2017, 47, 1941-1952.	9.3	60
41	An Improved LightGBM Algorithm for Online Fault Detection of Wind Turbine Gearboxes. Energies, 2020, 13, 807.	3.1	55
42	A New Scheme of Fault Detection for Linear Discrete Time-Varying Systems. IEEE Transactions on Automatic Control, 2016, 61, 2597-2602.	5.7	54
43	<inline-formula> <tex-math notation="LaTeX">H_{infty} </tex-math> </inline-formula> Fault Estimation for 2-D Linear Discrete Time-Varying Systems Based on Krein Space Method. IEEE Transactions on Systems, Man, and Cybernetics: Systems, 2018, 48, 2070-2079.	9.3	52
44	Application of randomized algorithms to assessment and design of observer-based fault detection systems. Automatica, 2019, 107, 175-182.	5.0	47
45	An $H_{i}/H_{infty }$ Optimization Approach to Event-Triggered Fault Detection for Linear Discrete Time Systems. IEEE Transactions on Automatic Control, 2020, 65, 4464-4471.	5.7	47
46	Parameterization of Nonlinear Observer-Based Fault Detection Systems. IEEE Transactions on Automatic Control, 2016, 61, 3687-3692.	5.7	44
47	A Novel Approach to State and Unknown Input Estimation for Takagiâ€"Sugeno Fuzzy Models With Applications to Fault Detection. IEEE Transactions on Circuits and Systems I: Regular Papers, 2020, 67, 2053-2063.	5.4	44
48	Real-Time Optimization of Automatic Control Systems With Application to BLDC Motor Test Rig. IEEE Transactions on Industrial Electronics, 2017, 64, 4306-4314.	7.9	43
49	A KPI-based process monitoring and fault detection framework for large-scale processes. ISA Transactions, 2017, 68, 276-286.	5.7	41
50	A Probabilistic Approach to Robust Fault Detection for a Class of Nonlinear Systems. IEEE Transactions on Industrial Electronics, 2017, 64, 3930-3939.	7.9	38
51	Distributed process monitoring based on canonical correlation analysis with partly-connected topology. Control Engineering Practice, 2020, 101, 104500.	5.5	38
52	Parity relation based fault estimation for nonlinear systems: An LMI approach. International Journal of Automation and Computing, 2007, 4, 164-168.	4.5	36
53	A Correlation-Based Distributed Fault Detection Method and Its Application to a Hot Tandem Rolling Mill Process. IEEE Transactions on Industrial Electronics, 2020, 67, 2380-2390.	7.9	35
54	Performance-Based Fault Detection and Fault-Tolerant Control for Nonlinear Systems With Tâ€"S Fuzzy Implementation. IEEE Transactions on Cybernetics, 2021, 51, 801-814.	9.5	32

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55	Data-Driven Design and Optimization of Feedback Control Systems for Industrial Applications. IEEE Transactions on Industrial Electronics, 2014, 61, 6409-6417.	7.9	31
56	Interaction-Aware Graph Neural Networks for Fault Diagnosis of Complex Industrial Processes. IEEE Transactions on Neural Networks and Learning Systems, 2023, 34, 6015-6028.	11.3	31
57	A Fault Detection Approach for Nonlinear Systems Based on Data-Driven Realizations of Fuzzy Kernel Representations. IEEE Transactions on Fuzzy Systems, 2018, 26, 1800-1812.	9.8	29
58	Robust H_∞ Filtering for Two-Dimensional Uncertain Linear Discrete Time-Varying Systems: A Krein Space-Based Method. IEEE Transactions on Automatic Control, 2019, 64, 5124-5131.	5.7	29
59	Gap metric techniques and their application to fault detection performance analysis and fault isolation schemes. Automatica, 2020, 118, 109029.	5.0	27
60	Data-driven design of two-degree-of-freedom controllers using reinforcement learning techniques. IET Control Theory and Applications, 2015, 9, 1011-1021.	2.1	26
61	Fault-Tolerant Control for Systems With Model Uncertainty and Multiplicative Faults. IEEE Transactions on Systems, Man, and Cybernetics: Systems, 2020, 50, 514-524.	9.3	25
62	A Comparative Study of Deep Neural Network-Aided Canonical Correlation Analysis-Based Process Monitoring and Fault Detection Methods. IEEE Transactions on Neural Networks and Learning Systems, 2022, 33, 6158-6172.	11.3	25
63	Control performance monitoring and degradation recovery in automatic control systems: A review, some new results, and future perspectives. Control Engineering Practice, 2021, 111, 104790.	5.5	25
64	Performance-Based Fault-Tolerant Control Approaches For Industrial Processes With Multiplicative Faults. IEEE Transactions on Industrial Informatics, 2020, 16, 4759-4768.	11.3	23
65	Control Performance-Based Fault-Tolerant Control Strategy for Singular Systems. IEEE Transactions on Systems, Man, and Cybernetics: Systems, 2020, 50, 2398-2407.	9.3	22
66	Robust Asymptotic Fault Estimation of Discrete-Time Interconnected Systems With Sensor Faults. IEEE Transactions on Cybernetics, 2022, 52, 1691-1700.	9.5	22
67	On fault-tolerant control configurations for a class of nonlinear systems. Journal of the Franklin Institute, 2015, 352, 1397-1416.	3.4	21
68	Performance Supervised Fault Detection Schemes for Industrial Feedback Control Systems and their Data-Driven Implementation. IEEE Transactions on Industrial Informatics, 2020, 16, 2849-2858.	11.3	21
69	Extended Relevance Vector Machine-Based Remaining Useful Life Prediction for DC-Link Capacitor in High-Speed Train. IEEE Transactions on Cybernetics, 2022, 52, 9746-9755.	9.5	21
70	Assessment of T2- and Q-statistics for detecting additive and multiplicative faults in multivariate statistical process monitoring. Journal of the Franklin Institute, 2017, 354, 668-688.	3.4	20
71	Distributed data-driven optimal fault detection for large-scale systems. Journal of Process Control, 2020, 96, 94-103.	3.3	19
72	Design and Implementation of Lifecycle Management for Industrial Control Applications. IEEE Transactions on Control Systems Technology, 2015, 23, 1399-1410.	5.2	18

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73	Complex System Monitoring Based on Distributed Least Squares Method. IEEE Transactions on Automation Science and Engineering, 2021, 18, 1892-1900.	5.2	18
74	Parity Space Vector Machine Approach to Robust Fault Detection for Linear Discrete-Time Systems. IEEE Transactions on Systems, Man, and Cybernetics: Systems, 2021, 51, 4251-4261.	9.3	18
75	Design of a Discrete-Time Fault-Tolerant Quantum Filter and Fault Detector. IEEE Transactions on Cybernetics, 2021, 51, 889-899.	9.5	17
76	Optimal Observer-Based Fault Detection and Estimation Approaches for T–S Fuzzy Systems. IEEE Transactions on Fuzzy Systems, 2022, 30, 579-590.	9.8	16
77	An Optimal Data-Driven Approach to Distribution Independent Fault Detection. IEEE Transactions on Industrial Informatics, 2020, 16, 6826-6836.	11.3	15
78	Threshold computation for fault detection in linear discrete-time Markov jump systems. International Journal of Adaptive Control and Signal Processing, 2014, 28, 1106-1127.	4.1	14
79	A distribution independent data-driven design scheme of optimal dynamic fault detection systems. Journal of Process Control, 2020, 95, 1-9.	3.3	14
80	Decentralized learning of energy optimal production policies using PLC-informed reinforcement learning. Computers and Chemical Engineering, 2021, 152, 107382.	3.8	14
81	Curriculum-Based Deep Reinforcement Learning for Quantum Control. IEEE Transactions on Neural Networks and Learning Systems, 2023, 34, 8852-8865.	11.3	14
82	A Krein space-based approach to event-triggered H_∞ filtering for linear discrete time-varying systems. Automatica, 2022, 135, 110001.	5.0	13
83	Optimal fault detection design via iterative estimation methods for industrial control systems. Journal of the Franklin Institute, 2016, 353, 359-377.	3.4	12
84	Optimal Design of Residual-Driven Dynamic Compensator Using Iterative Algorithms With Guaranteed Convergence. IEEE Transactions on Systems, Man, and Cybernetics: Systems, 2016, 46, 548-558.	9.3	12
85	Fault Identifiability Analysis of Linear Discrete Time-Varying Systems. IEEE Transactions on Circuits and Systems I: Regular Papers, 2019, 66, 2371-2381.	5.4	12
86	Event-Triggered Parity Space Approach to Fault Detection for Linear Discrete-Time Systems. IEEE Transactions on Systems, Man, and Cybernetics: Systems, 2022, 52, 4813-4822.	9.3	12
87	Reinforcement Learning-Aided Performance-Driven Fault-Tolerant Control of Feedback Control Systems. IEEE Transactions on Automatic Control, 2022, 67, 3013-3020.	5.7	12
88	Shared Temporal Attention Transformer for Remaining Useful Lifetime Estimation. IEEE Access, 2022, 10, 74244-74258.	4.2	12
89	Self-optimization of energy consumption in complex bulk good processes using reinforcement learning. , 2017, , .		11
90	Optimal Detection Schemes for Multiplicative Faults in Uncertain Systems With Application to Rolling Mill Processes. IEEE Transactions on Control Systems Technology, 2020, 28, 2432-2444.	5.2	11

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91	A Real-Time Performance Recovery Framework for Vision-Based Control Systems. IEEE Transactions on Industrial Electronics, 2021, 68, 1571-1580.	7.9	11
92	Multivariate Relevance Vector Regression Based Degradation Modeling and Remaining Useful Life Prediction. IEEE Transactions on Industrial Electronics, 2022, 69, 9514-9523.	7.9	11
93	Design of a Quantum Projection Filter. IEEE Transactions on Automatic Control, 2020, 65, 3693-3700.	5.7	10
94	Distributed Self-Optimization of Modular Production Units: A State-Based Potential Game Approach. IEEE Transactions on Cybernetics, 2022, 52, 2174-2185.	9.5	9
95	A data-driven approach for sensor fault diagnosis in gearbox of wind energy conversion system. , 2013, , .		8
96	A data-driven approach for fault diagnosis in gearbox of wind energy conversion system. , 2013, , .		8
97	Key Performance Indicators Based Fault Detection and Isolation Using Data-Driven Approaches. IEEE Transactions on Circuits and Systems II: Express Briefs, 2021, 68, 291-295.	3.0	8
98	Hierarchical Structure-Based Fault-Tolerant Tracking Control of Multiple 3-DOF Laboratory Helicopters. IEEE Transactions on Systems, Man, and Cybernetics: Systems, 2022, 52, 4247-4258.	9.3	8
99	A New Method for Fault Tolerant Control through Q-Learning. IFAC-PapersOnLine, 2018, 51, 38-45.	0.9	7
100	A Sparse Nonstationary Trigonometric Gaussian Process Regression and Its Application on Nitrogen Oxide Prediction of the Diesel Engine. IEEE Transactions on Industrial Informatics, 2021, 17, 8367-8377.	11.3	7
101	On-line Energy Optimization of Hybrid Production Systems Using Actor-Critic Reinforcement Learning. , 2018, , .		6
102	Gaussian Process Regression With Maximizing the Composite Conditional Likelihood. IEEE Transactions on Instrumentation and Measurement, 2021, 70, 1-11.	4.7	6
103	Fault detection scheme for discrete-time Markov jump linear systems with mode-independent residual. , 2012, , .		5
104	A Residual-Generator-Based Plug-and-Play Control Scheme Toward Enhancing Power Quality in AC Microgrids. IEEE Transactions on Industrial Electronics, 2022, 69, 8146-8156.	7.9	5
105	Distributed Adaptive Leader-Following Consensus for Nonlinear Multiagent Systems With Actuator Failures Under Directed Switching Graphs. IEEE Transactions on Cybernetics, 2023, 53, 211-221.	9.5	5
106	PLC-Informed Distributed Game Theoretic Learning of Energy-Optimal Production Policies. IEEE Transactions on Cybernetics, 2023, 53, 5424-5435.	9.5	5
107	A brief survey of different statistics for detecting multiplicative faults in multivariate statistical process monitoring. , 2016, , .		4
108	Generalized CCA with Applications for Fault Detection and Estimation. , 2018, , .		4

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109	Neural logic rule layers. Information Sciences, 2022, 596, 185-201.	6.9	4
110	Recursive Distributed Filter Design for 2-D Systems Over Sensor Networks: On Component-Based, Node-Wise and Dynamic Event-Triggered Scheme. IEEE Transactions on Signal and Information Processing Over Networks, 2022, 8, 584-596.	2.8	4
111	Control performance based fault detection for nonlinear systems. , 2017, , .		3
112	Potential Game based Distributed Optimization of Modular Production Units. , 2019, , .		3
113	Performance Degradation Monitoring and Recovery of Vision-Based Control Systems. IEEE Transactions on Control Systems Technology, 2021, 29, 2712-2719.	5.2	3
114	An Asynchronized Observer Based Fault Detection Approach for Uncertain Switching Systems With Mode Estimation. IEEE Transactions on Circuits and Systems II: Express Briefs, 2022, 69, 514-518.	3.0	3
115	Gradient Monitored Reinforcement Learning. IEEE Transactions on Neural Networks and Learning Systems, 2023, 34, 4106-4119.	11.3	3
116	Performance-Based Fault-Tolerant Control and Performance Recovery. , 2021, , 601-628.		2
117	An Integrated Design Scheme for SKR-Based Data-Driven Dynamic Fault Detection Systems. IEEE Transactions on Industrial Informatics, 2022, 18, 6828-6839.	11.3	2
118	A fault detection scheme for discrete-time Markov jump linear systems. , 2011, , .		1
119	Guest Editorial: Data-Driven Management of Complex Systems Through Plant-Wide Performance Supervision. IEEE Transactions on Industrial Informatics, 2021, 17, 6324-6328.	11.3	1
120	A Data-Driven Fault Detection Scheme for Complex Industrial Systems Using Riemannian Metric and Randomized Algorithms. , 2020, , .		0
121	A Fault-Tolerant Control Approach Based on Image Processing Applied to Three-Tank System. IEEE Access, 2021, 9, 149520-149528.	4.2	0