Kai Goebel

List of Publications by Year
in descending order

169 papers	5,923 citations	172207 29 h-index	155451 55 g-index
170 all docs	170 docs citations	170 times ranked	3243 citing authors

#	Article	IF	Citations
1	Fusing physics-based and deep learning models for prognostics. Reliability Engineering and System Safety, 2022, 217, 107961.	5.1	80
2	Relation between prognostics predictor evaluation metrics and local interpretability SHAP values. Artificial Intelligence, 2022, 306, 103667.	3.9	49
3	More effective prognostics with elbow point detection and deep learning. Mechanical Systems and Signal Processing, 2021, 146, 106987.	4.4	15
4	Improving tail accuracy of the predicted cumulative distribution function of time of failure. Reliability Engineering and System Safety, 2021, 207, 107333.	5.1	1
5	Aircraft Engine Run-to-Failure Dataset under Real Flight Conditions for Prognostics and Diagnostics. Data, 2021, 6, 5.	1.2	80
6	A self-organizing map and a normalizing multi-layer perceptron approach to baselining in prognostics under dynamic regimes. Neurocomputing, 2021, 456, 268-287.	3.5	13
7	Exploring Architectures for Integrated Resilience Optimization. Journal of Aerospace Information Systems, 2021, 18, 665-678.	1.0	1
8	How Uncertain Is Too Uncertain? Validity Tests for Early Resilient and Risk-Based Design Processes. Journal of Mechanical Design, Transactions of the ASME, 2021, 143, .	1.7	2
9	Remaining Useful Life Prediction of Bearings Using Ensemble Learning: The Impact of Diversity in Base Learners and Features. Journal of Computing and Information Science in Engineering, 2021, 21, .	1.7	31
10	Bearing Life Prediction With Informed Hyperprior Distribution: A Bayesian Hierarchical and Machine Learning Approach. IEEE Access, 2021, 9, 157002-157011.	2.6	3
11	Conflict Probability Estimation Using a Risk-Based Dynamic Anisotropic Operational Safety Bound for UAS Traffic Management. , 2020, , .		0
12	Probabilistic Risk-Based Operational Safety Bound for Rotary-Wing Unmanned Aircraft Systems Traffic Management. Journal of Aerospace Information Systems, 2020, 17, 171-181.	1.0	11
13	Temporal Fault Injection Considerations in Resilience Quantification. , 2020, , .		3
14	A Novel Model-Based Framework for Power Consumption Prognosis in Multirotors Applied to the Battery End of Discharge Prognostics. Journal of Nondestructive Evaluation, Diagnostics and Prognostics of Engineering Systems, 2020, 3, .	0.7	0
15	Network Reconfiguration for Increasing Transportation System Resilience Under Extreme Events. Risk Analysis, 2019, 39, 2054-2075.	1.5	25
16	A neural network framework for similarity-based prognostics. MethodsX, 2019, 6, 383-390.	0.7	6
17	A neural network filtering approach for similarity-based remaining useful life estimation. International Journal of Advanced Manufacturing Technology, 2019, 101, 87-103.	1.5	67
18	Degradation Modeling and Remaining Useful Life Prediction of Aircraft Engines Using Ensemble Learning. Journal of Engineering for Gas Turbines and Power, 2019, 141, .	0.5	71

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19	Quantifying the Resilience-Informed Scenario Cost Sum: A Value-Driven Design Approach for Functional Hazard Assessment. Journal of Mechanical Design, Transactions of the ASME, 2019, 141, .	1.7	13
20	Decomposing Incentives for Early Resilient Design: Method and Validation. , 2019, , .		3
21	Prognostics Applied to Electric Propulsion UAV. , 2019, , 1-18.		0
22	A Comparative Study on Computation of Cumulative Distribution Function in Predicting Time of Failure of Engineering Systems. Proceedings of the Annual Conference of the Prognostics and Health Management Society Prognostics and Health Management Society Conference, 2019, 11, .	0.2	0
23	Using Value Assessment to Drive PHM System Development in Early Design. Proceedings of the Annual Conference of the Prognostics and Health Management Society Prognostics and Health Management Society Conference, 2019, 11, .	0.2	2
24	Risk-Based Dynamic Anisotropic Operational Safety Bound for Rotary UAV Traffic Control. Proceedings of the Annual Conference of the Prognostics and Health Management Society Prognostics and Health Management Society Conference, 2019, 11, .	0.2	1
25	Conceptual design of cogeneration plants under a resilient design perspective: Resilience metrics and case study. Applied Energy, 2018, 215, 736-750.	5.1	20
26	Ensemble of optimized echo state networks for remaining useful life prediction. Neurocomputing, 2018, 281, 121-138.	3.5	79
27	Bayesian hierarchical model-based prognostics for lithium-ion batteries. Reliability Engineering and System Safety, 2018, 172, 25-35.	5.1	55
28	A Bayesian framework for fatigue life prediction of composite laminates under co-existing matrix cracks and delamination. Composite Structures, 2018, 187, 58-70.	3.1	41
29	Resilience-based network design under uncertainty. Reliability Engineering and System Safety, 2018, 169, 364-379.	5.1	94
30	Model Validation in Early Phase of Designing Complex Engineered Systems. , 2018, , .		0
31	Optimizing Function-Based Fault Propagation Model Resilience Using Expected Cost Scoring. , 2018, , .		1
32	Reconstructing secondary test database from PHM08 challenge data set. Data in Brief, 2018, 21, 2464-2469.	0.5	5
33	In- Time Safety Assurance Systems for Emerging Autonomous Flight Operations. , 2018, , .		9
34	Resilience evaluation of the environmental control and life support system of a spacecraft for deep space travel. Acta Astronautica, 2018, 152, 360-369.	1.7	3
35	Computational architecture for autonomous decision-making in unmanned aerial vehicles. , 2018, , .		5
36	Prognostics and Health Monitoring: Application to an Unmanned Electric Aircraft. , 2018, , 219-242.		0

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37	An investigation of strain energy release rate models for real-time prognosis of fiber-reinforced laminates. Composite Structures, 2017, 165, 99-114.	3.1	11
38	A new algorithm for prognostics using Subset Simulation. Reliability Engineering and System Safety, 2017, 168, 189-199.	5.1	15
39	Resilient System Design Using Cost-Risk Analysis With Functional Models. , 2017, , .		6
40	Real Time Safety Monitoring: Concept for Supporting Safe Flight Operations. , 2017, , .		2
41	Real-Time Prediction of Safety Margins in the National Airspace. , 2017, , .		7
42	Preliminary Investigation of Impact of Technological Impairment on Trajectory-Based Operation. , 2017, , .		2
43	Microstructural Indicators for Assessment of Effect of Prolonged and Intermittent Storage on Reliability of Lead-free Electronics. IEEE Transactions on Device and Materials Reliability, 2016, 16, 304-317.	1.5	0
44	Initial Demonstration of the Real-Time Safety Monitoring Framework for the National Airspace System Using Flight Data. , 2016, , .		5
45	Predicting Real-Time Safety of the National Airspace System. , 2016, , .		10
46	Application of Model-based Prognostics Framework to Pneumatic Valves on Cryogenic Testbed. , 2015, , .		1
47	Towards Characterizing the Variability in the Loading Demands of an Unmanned Aerial Vehicle. , 2015, , .		0
48	Condition-based prediction of time-dependent reliability in composites. Reliability Engineering and System Safety, 2015, 142, 134-147.	5.1	57
49	A battery certification testbed for small satellite missions. , 2015, , .		5
50	In-situ fatigue life prognosis for composite laminates based on stiffness degradation. Composite Structures, 2015, 132, 155-165.	3.1	89
51	A Recursive Receding Horizon Planning for Unmanned Vehicles. IEEE Transactions on Industrial Electronics, 2015, 62, 2912-2920.	5.2	39
52	Prognostic Health-Management System Development for Electromechanical Actuators. Journal of Aerospace Information Systems, 2015, 12, 329-344.	1.0	57
53	A testbed for implementing prognostic methodologies on cryogenic propellant loading systems. IEEE Instrumentation and Measurement Magazine, 2015, 18, 5-15.	1.2	1
54	Bayesian model selection and parameter estimation for fatigue damage progression models in composites. International Journal of Fatigue, 2015, 70, 361-373.	2.8	49

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55	Probabilistic fatigue damage prognosis of lap joint using Bayesian updating. Journal of Intelligent Material Systems and Structures, 2015, 26, 965-979.	1.4	28
56	Prognostics Applied to Electric Propulsion UAV. , 2015, , 1053-1070.		10
57	An Uncertainty Quantification Framework for Prognostics and Condition-Based Monitoring. , 2014, , .		4
58	A testbed for implementing prognostic methodologies on cryogenic propellant loading systems. , 2014, , .		3
59	Uncertainty in prognostics: Computational methods and practical challenges. , 2014, , .		4
60	Uncertainty Quantification in Remaining Useful Life Prediction Using First-Order Reliability Methods. IEEE Transactions on Reliability, 2014, 63, 603-619.	3.5	84
61	Integrated experimental and numerical investigation for fatigue damage diagnosis in composite plates. Structural Health Monitoring, 2014, 13, 537-547.	4.3	11
62	A novel Bayesian imaging method for probabilistic delamination detection of composite materials. Smart Materials and Structures, 2013, 22, 125019.	1.8	42
63	Remaining Useful Life Estimation in Prognosis: An Uncertainty Propagation Problem. , 2013, , .		11
64	Analytical algorithms to quantify the uncertainty in remaining useful life prediction. , 2013, , .		32
65	Implementation of prognostic methodologies to cryogenic propellant loading testbed. , 2013, , .		8
66	Prognostic health monitoring for a micro-coil spring interconnect subjected to drop impacts. , 2013, , .		2
67	Model-Based Prognostics With Concurrent Damage Progression Processes. IEEE Transactions on Systems, Man, and Cybernetics: Systems, 2013, 43, 535-546.	5.9	110
68	Physics based Degradation Modeling and Prognostics of Electrolytic Capacitors under Electrical Overstress Conditions. , 2013, , .		14
69	A multi-feature integration method for fatigue crack detection and crack length estimation in riveted lap joints using Lamb waves. Smart Materials and Structures, 2013, 22, 105007.	1.8	76
70	Uncertainty Quantification in Remaining Useful Life of Aerospace Components using State Space Models and Inverse FORM. , 2013, , .		8
71	Damage pre-cursor based assessment of impact of high temperature storage on reliability of leadfree electronics. , 2013, , .		3
72	Fatigue Damage Diagnosis and Prognosis Using Bayesian Updating. , 2013, , .		2

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73	Comparison of Prognostic Health Management Algorithms for Assessment of Electronic Interconnect Reliability. , 2013, , .		1
74	Damage Pre-Cursors Based Prognostication of Accrued Damage and Assessment of Operational Readiness of Leadfree Electronics. , 2013, , .		1
75	Method for Assessment of Prolonged and Intermittent Storage on Reliability of Leadfree Electronics Using Leading Indicators. , 2013, , .		0
76	Sustained damage and remaining useful life assessment in leadfree electronics subjected to sequential multiple thermal environments. , 2012, , .		18
77	Comparison of particle filter using SIR algorithm with self-adaptive filter using ARMA for PHM of Electronics. , 2012, , .		3
78	Comparison of Lalman-filter and extended Kalman-filter for prognostics health management of electronics. , 2012, , .		7
79	Interrogation of thermo-mechanical damage in field-deployed electronics. , 2012, , .		5
80	Prognostics Health Management and Physics Based Failure Models for Electrolytic Capacitors. , 2012, , .		6
81	Autonomous Decision Making for Planetary Rovers Using Diagnostic and Prognostic Information. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2012, 45, 289-294.	0.4	5
82	Requirements Flowdown for Prognostics and Health Management. , 2012, , .		25
83	A Discussion on Uncertainty Representation and Interpretation in Model-based Prognostics Algorithms based on Kalman Filter Estimation Applied to Prognostics of Electronics Components. , 2012, , .		12
84	Prognostication Based on Resistance-Spectroscopy and Phase-Sensitive Detection for Electronics Subjected to Shock-Impact. Journal of Electronic Packaging, Transactions of the ASME, 2012, 134, .	1.2	3
85	Cost Assessment for Implementation of Embedded Prognostic Health Management for Electronic Systems. , 2012, , .		1
86	Assessment of Accrued Damage and Remaining Useful Life in Leadfree Electronics Subjected to Multiple Thermal Environments of Thermal Aging and Thermal Cycling. IEEE Transactions on Components, Packaging and Manufacturing Technology, 2012, 2, 634-649.	1.4	4
87	Prognostics Health Management of Electronic Systems Under Mechanical Shock and Vibration Using Kalman Filter Models and Metrics. IEEE Transactions on Industrial Electronics, 2012, 59, 4301-4314.	5.2	52
88	Optimizing battery life for electric UAVs using a Bayesian framework. , 2012, , .		33
89	Prognostication of accrued damage in board assemblies under thermal and mechanical stresses. , 2012, , .		10
90	Leading indicators for prognostic health management of electrical connectors subjected to random vibration. , 2012, , .		3

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91	Leading indicator based assessment of operational readiness in electronics subjected to multiple environments. , 2012, , .		0
92	Level of damage and remaining useful life assessment in leadfree electronics subjected to multiple thermo-mechanical environments. , 2012, , .		9
93	Particle swarm optimization with extended Kalman filter for prognostication of accrued damage in electronics under temperature and vibration. , 2012, , .		3
94	Cost assessment for implementation of embedded prognostic health management for electronic systems. , 2012, , .		2
95	Classification of location of damage in package-on-package (PoP) assemblies using ANN with feature vectors for progression of accrued damage. , 2012, , .		0
96	Classification of multiple failure modes in package-on-package (PoP) assemblies using feature vectors for progression of accrued damage. , 2012, , .		0
97	Accelerated aging in electrolytic capacitors for prognostics. , 2012, , .		30
98	Prognostics of Power Electronics, methods and validation experiments. , 2012, , .		11
99	Accelerated aging experiments for capacitor health monitoring and prognostics. , 2012, , .		27
100	Prognostics approach for power MOSFET under thermal-stress aging. , 2012, , .		72
101	A knowledge-based system approach for sensor fault modeling, detection and mitigation. Expert Systems With Applications, 2012, 39, 10977-10989.	4.4	71
102	A Model-based Avionic Prognostic Reasoner (MAPR). , 2012, , .		2
103	Decorrelated feature space and neural nets based framework for failure modes clustering in electronics subjected to mechanical-shock. , 2011, , .		3
104	Prognostics of power MOSFET. , 2011, , .		34
105	Fault classification with Gauss-Newton optimization and real-time simulation. , 2011, , .		4
106	Multiple damage progression paths in model-based prognostics. , 2011, , .		30
107	Novel metrics and methodologies for the verification and validation of prognostic algorithms. , 2011, , .		18
108	Experimental Validation of a Prognostic Health Management System for Electro-Mechanical Actuators. , 2011, , .		19

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109	Towards Prognostics of Electrolytic Capacitors. , 2011, , .		15
110	Prognostics for Ground Support Systems: Case Study on Pneumatic Valves. , 2011, , .		2
111	Extended Kalman Filter models and resistance spectroscopy for prognostication and health monitoring of leadfree electronics under vibration. , 2011, , .		9
112	Battery health management system for electric UAVs. , 2011, , .		72
113	Prognostication of Residual Life and Latent Damage Assessment in Lead-Free Electronics Under Thermomechanical Loads. IEEE Transactions on Industrial Electronics, 2011, 58, 2605-2616.	5.2	16
114	Prognostics and health monitoring of electronic systems. , 2011, , .		10
115	Identification of failure modes in portable electronics subjected to mechanical-shock using supervised learning of damage progression. , 2011, , .		5
116	Particle filter models and phase sensitive detection for prognostication and health monitoring of leadfree electronics under shock and vibration. , 2011, , .		9
117	Interrogation of accrued damage and remaining life in field-deployed electronics subjected to multiple thermal environments of thermal aging and thermal cycling. , 2011, , .		8
118	PHM of Leadfree Interconnects Using Resistance Spectroscopy Based Particle Filter Models for Shock and Vibration Environments. , 2011, , .		0
119	KL Transform and Neural-Net Based Framework for Failure Modes Classification in Electronics Subjected to Mechanical-Shock. , 2011, , .		0
120	Tackling V&V for Prognostics. , 2010, , .		1
121	Prognostic Health Monitoring of Damage Progression in Leadfree Electronics Under Sequential Exposure to Thermal Aging and Thermal Cycling. , 2010, , .		0
122	PHM-based residual life computation of electronics subjected to a combination of multiple cyclic-thermal environments. , 2010, , .		7
123	Evaluating prognostics performance for algorithms incorporating uncertainty estimates. , 2010, , .		28
124	Observer based junction temperature estimator in thermoelectrical aging. , 2010, , .		3
125	Accelerated aging system for prognostics of power semiconductor devices. , 2010, , .		56
126	A verification methodology for prognostic algorithms. , 2010, , .		9

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127	Prognostics using Kalman-Filter models and metrics for risk assessment in BGAs under shock and vibration loads. , 2010, , .		37
128	Model-based prognostics under limited sensing. , 2010, , .		52
129	Requirements Specification for Prognostics Performance - An Overview. , 2010, , .		14
130	Use of prognostics in risk-based decision making for BGAs under shock and vibration loads. , 2010, , .		16
131	Distributed prognostic health management with gaussian process regression. , 2010, , .		39
132	Load allocation for risk management in overactuated systems experiencing incipient failure conditions. , 2010, , .		0
133	Assessment of residual damage in leadfree electronics subjected to multiple thermal environments of thermal aging and thermal cycling. , 2010, , .		13
134	Case studies for prognostics-enhanced Automated Contingency Management for aircraft systems. , 2010, , .		6
135	Filtering and prediction techniques for model-based prognosis and uncertainty management. , 2010, , .		20
136	Integrated diagnostic/prognostic experimental setup for capacitor degradation and health monitoring. , 2010, , .		35
137	Metrics for Offline Evaluation of Prognostic Performance. International Journal of Prognostics and Health Management, 2010, 1, .	0.6	73
138	Risk-Sensitive Particle-Filtering-based Prognosis Framework for Estimation of Remaining Useful Life in Energy Storage Devices<. Studies in Informatics and Control, 2010, 19, .	0.6	35
139	Methodologies for uncertainty management in prognostics. , 2009, , .		36
140	Evaluating algorithm performance metrics tailored for prognostics. , 2009, , .		71
141	Communication optimizations for a wireless distributed prognostic framework. , 2009, , .		1
142	Resistance spectroscopy-based condition monitoring for prognostication of high reliability electronics under shock-impact. , 2009, , .		34
143	Comparison of prognostic algorithms for estimating remaining useful life of batteries. Transactions of the Institute of Measurement and Control, 2009, 31, 293-308.	1.1	336
144	Prognostication of latent damage and residual life in leadfree electronics subjected to multiple thermal-environments. , 2009, , .		16

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145	Prognostics Methods for Battery Health Monitoring Using a Bayesian Framework. IEEE Transactions on Instrumentation and Measurement, 2009, 58, 291-296.	2.4	609
146	Prognostication Based on Resistance-Spectroscopy for High Reliability Electronics Under Shock-Impact. , 2009, , .		17
147	Leading-Indicators Based on Impedance Spectroscopy for Prognostication of Electronics Under Shock and Vibration Loads. , 2009, , .		5
148	Remaining Useful-Life Based on Damage Pre-Cursors for Leadfree Electronics Subjected to Multiple Thermal-Environments. , 2009, , .		0
149	An Instance-Based Method for Remaining Useful Life Estimation for Aircraft Engines. Journal of Failure Analysis and Prevention, 2008, 8, 199-206.	0.5	37
150	Correcting Sensor Drift and Intermittency Faults With Data Fusion and Automated Learning. IEEE Systems Journal, 2008, 2, 189-197.	2.9	35
151	Prognostics in Battery Health Management. IEEE Instrumentation and Measurement Magazine, 2008, 11, 33-40.	1.2	415
152	Modeling aging effects of IGBTs in power drives by ringing characterization. , 2008, , .		32
153	Metrics for evaluating performance of prognostic techniques. , 2008, , .		245
154	Distributed prognostics using wireless embedded devices. , 2008, , .		3
155	Interrogation of system state for damage assessment in lead-free electronics subjected to thermo-mechanical loads. , 2008, , .		35
156	Damage propagation modeling for aircraft engine run-to-failure simulation. , 2008, , .		774
157	Advances in uncertainty representation and management for particle filtering applied to prognostics. , 2008, , .		76
158	Standardizing research methods for prognostics. , 2008, , .		76
159	Uncertainty Management for Diagnostics and Prognostics of Batteries using Bayesian Techniques. Aerospace Conference Proceedings IEEE, 2008, , .	0.0	100
160	An agile accelerated aging, characterization and scenario simulation system for gate controlled power transistors. , 2008, , .		62
161	Real-time Probabilistic Forecasting of Wear Degradation using a Macro-scale Physical Model. Aerospace Conference Proceedings IEEE, 2008, , .	0.0	5
162	Prognostics-enhanced Automated Contingency Management for advanced autonomous systems. , 2008, , .		29

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163	Modeling Propagation of Gas Path Damage. , 2007, , .		10
164	A Data Fusion Approach for Aircraft Engine Fault Diagnostics. , 2007, , 767.		5
165	An integrated approach to battery health monitoring using bayesian regression and state estimation. IEEE Autotestcon Proceedings, 2007, , .	0.0	99
166	Prognostic Fusion for Uncertainty Reduction. , 2007, , .		15
167	When will it break? A hybrid soft computing model to predict time-to-break margins in paper machines. , 2002, , .		12
168	Developing IVHM Requirements for Aerospace Systems. , 0, , .		13
169	Evaluation of Multiple Damage-Mode Models for Prognostics of Carbon Fiber-reinforced Polymers. , 0, , .		2