

# **2023 Global Reliability and Prognostics and Health Management Conference (PHM-Hangzhou 2023)**

**Hangzhou, China  
12-15 October 2023**

**Pages 1-514**



**IEEE Catalog Number: CFP23T22-POD  
ISBN: 979-8-3503-0136-6**

**Copyright © 2023 by the Institute of Electrical and Electronics Engineers, Inc.  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

**\*\*\* *This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP23T22-POD
ISBN (Print-On-Demand):	979-8-3503-0136-6
ISBN (Online):	979-8-3503-0135-9

**Additional Copies of This Publication Are Available From:**

Curran Associates, Inc  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: (845) 758-0400  
Fax: (845) 758-2633  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

## TABLE OF CONTENTS

Feature Extraction of Planetary Gear Based on Fast Harmonic Square Envelope Spectral Kurtosis Method .....	1
<i>Weixin Yang, Feichun Liu, Rupeng Zhu</i>	
Gearbox Fault Diagnosis Based on the Ratio of Characteristic Energy .....	6
<i>Weixin Yang, Feichun Liu, Rupeng Zhu</i>	
Railway Track Short-Wave Defect Identification Based on Axle Box Acceleration and Neural Network.....	12
<i>Zhehao Huang, Jinzhao Liu</i>	
Fault Diagnosis of ABS Wheel Speed Sensor Based on Improved BP Neural Network.....	18
<i>Xu Guangpeng, Li Aijuan, Jiang Tiejun, Zhao Feng, Wang Xibo, Sun Chao</i>	
A Rotating Machinery Fault Diagnosis Method Based on Recurrence Characteristics and Model-Agnostic Meta-Learning Under Small Sample Conditions .....	24
<i>Jiahao Gao, Youren Wang</i>	
A Study on Iterative Field Testability Evaluation Method Based on Prior Information.....	30
<i>Jiangang Jin, Shaoliang Li, Zhongyi Cai, Bingye Yang</i>	
Network Reliability Analysis of VHF Data Exchange System Base on Improved Complex Network Theory .....	35
<i>Jiaxiang E, Yu Zang, Danyang Geng, Yunfei Ai</i>	
Reliability Evaluation of Time Synchronization Device Based on BP Neural Network .....	43
<i>Zhenjun Zhang, Tan Wen, Yan Su, Feiyu Zhou</i>	
Fault Diagnosis Method for Rotating Machinery Based on Attention Adversarial Transfer Networks Under Variable Operating Conditions .....	49
<i>Tianyu Gao, Cheng Yang, Jingli Yang</i>	
Three-Dimensional Reconstruction Method of Oil Wear Particles Based on Binocular Stereo Microscopic Image.....	55
<i>Yue Su, Hongfu Zuo, Jingxuan Cheng, Zhenzhen Liu</i>	
WMCSCNN Method for Intelligent Diagnosis of Transmission Faults .....	63
<i>Shunming Li, Chen Liao, Mingwu Zhang, Jiantao Lu, Xianglian Li</i>	
Design and Implementation of Ground PHM Principled Sample Machine for Airborne Fuel Pump Based on Three-Dimensional Multiphase Criterion .....	69
<i>Songlin Huang, Xiaoxuan Jiao, Qirui Zhang, Jianjun Chen, Fangzhou Hu, Kai Yang</i>	
A Wear Debris Detection Method Based on Sparse Decomposition .....	76
<i>Heng Jiang, Zhirong Zhong, Pengdong Yuan, Hongfu Zuo</i>	
Particle Flow Filter: An Ingenious Method to Predict the Remaining Useful Life of Lithium-Ion Batteries.....	84
<i>Yiting Li, Shuai Wang, Shoubin Zhou, Lifei Chen</i>	
UAV Flight Data Anomaly Detection Based on Parameter Selection and Multiple Regression .....	89
<i>Lei Yang, Yizong Zhang, Shaobo Li, Ansi Zhang, Zihao Liao, Chuanjiang Li</i>	

Health Indicators Correlated to Battery State of Health Estimation: A Review .....	95
<i>Liang Ma, Tieling Zhang</i>	
Manufacturing Quality Risk Analysis Approach Considering Production Process Scheme	
Robustness.....	102
<i>Tianyu Feng, Yihai He, Rui Shi, Yuqi Cai</i>	
Vibration Reduction Performance of a Periodic Mass-Spring Structure Carrying Multi-Type of	
Locally Resonant Oscillators.....	108
<i>Zilong Cong, Ziwei Xu</i>	
A Method of Extracting Shaft Speed Based on Ridge Tracking and Phase Demodulation .....	116
<i>Chuan Li, Jian Li, Xinglong Fang, Yu Lu, Ting Deng, Tingxun Hu</i>	
Power Transformer Fault Diagnosis Method Based on Genetic Algorithm Optimized Random	
Forest.....	124
<i>Junjie Feng, Zhenhua Wen, Long Ma, Mengdi Wu, Donghao Wei</i>	
Reliability Life Evaluation of DC Charger Based on Improved Bootstrap Expansion Data .....	129
<i>Tan Wen, Yan Su, Zichao Yi, Ke Wang, Feiyu Zhou</i>	
Failure Mode Risk Analysis of DC Charger Based on Cloud Model and TOPSIS .....	134
<i>Li Yuan, Tan Wen, Yan Su, Zichao Yi, Yu Wang</i>	
Cooperative Maintenance Policy and Pricing Scheme for a Leased Series Manufacturing System.....	140
<i>Yaping Li, Tangbin Xia, Zhen Chen</i>	
Optimal Allocation of Series Performance Sharing Systems Considering Transmission Loss .....	145
<i>Liudong Gu, Guanjun Wang, Yifan Zhou, Kui Huang</i>	
Allocation Strategy for Operational Test of UAVs Based on Reconnaissance Mission Reliability.....	150
<i>Jingyu Wang, Ping Jiang</i>	
Research of Model-Based Reliability Requirement Transformation Technology .....	156
<i>Yuan Lou</i>	
Simulation Analysis of Reliability in Radiology Service Systems Based on Cellular Automata .....	160
<i>Li Huang, Yonggang Cai, Liang Xiao</i>	
Fault Diagnosis Model Based on Federated Learning.....	166
<i>Kai Pan, Jie Liu, Wen Wang</i>	
Incipient Fault Diagnosis of Rolling Bearing Based on ACMD and Parametric Optimized MNAD.....	173
<i>Jia Shi, Feng Wang, Runyu Yuan, Yufeng Huang</i>	
Intelligent Crack Damage Identification for Compressor Blade Based on Transfer Graph Neural	
Network.....	179
<i>Peng Ding, Junxian Shen, Di Song</i>	
Slippage Analysis of Rolling Bearings with Various Profiles of Rolling Elements.....	185
<i>Xilong Hu, Lihua Yang, Zihang Li, Chongyang Wang, Haoze Wang</i>	
A Joint Optimization Policy of Tail Assignment and Maintenance Scheme for Civil Aircraft Fleet.....	191
<i>Yutong Ding, Kaigan Zhang, Yu Wang, Yuhui Xu, Ying Zhu, Tangbin Xia, Lifeng Xi, Joachim Seidelmann</i>	

A Novel Deep Multi-Source Domain Adaptation Framework for Remaining Useful Life Prediction Across Operating Condition .....	198
<i>Junrong Du, Xuanang Gui, Lei Song, Xuzhi Li, Lili Guo</i>	
Fault Diagnosis Method of Rotating Machinery Based on Multi-Sensor Information Decision-Level Fusion .....	203
<i>Jingli Yang, Yuxiang Huang, Huiyuan Zhang, Tianyu Gao</i>	
A Multi-Level FW-UAV Fault Diagnosis Solution Based on Multi-Task Learning Under Small Samples .....	211
<i>Yizong Zhang, Lei Yang, Xue An, Shaobo Li, Ansi Zhang, Zihao Liao</i>	
Vibration Analysis Based on Differential Evolution Mode Decomposition for Crack Identification of Helicopter Planetary Gearboxes .....	217
<i>Canfei Sun, Jianrong Li, Wei Li</i>	
Combination of PSO and RF with Weights for Supervised Learning Model .....	223
<i>Wei-Chang Yeh, Chia-Ling Huang</i>	
A Data-Driven CEEMDAN-DRSCN-Based RUL Prediction Method for UAV Batteries .....	227
<i>Zihao Liao, Ansi Zhang, Shaobo Li, Leiyang, Yizong Zhang, Peng Zhou</i>	
Study on the Calculation Method of Operational Availability of Civil Aircraft .....	232
<i>Li Yang</i>	
A Transformer-CNN Based Transferable Model for State-Of-Health Prediction of Lithium-Ion Batteries .....	237
<i>Xuanang Gui, Junrong Du, Lei Song, Zhen Yan, Lili Guo</i>	
Reliability Qualification Test Method for Airborne Products with Integrated Software and Hardware .....	245
<i>Xuerui Yang, Zhijia Wang</i>	
Reliability Simulation Test Method for Airborne Products with Integrated Software and Hardware .....	250
<i>Xuerui Yang, Zhijia Wang</i>	
Simulation and Experimental Study of a Triple-Coils Wear Debris Inductance Sensor .....	255
<i>Pengdong Yuan, Heng Jiang, Tao Li, Hongfu Zuo</i>	
Analysis of Uneven Wear of Aircraft Landing Gear Hatch Lock Mechanism .....	263
<i>Yajie Han, Weimin Cui, Fangyi Wan, Deyin Jiang, Shuhai Jiang, Tianyu Chen</i>	
A GPQ Based Method for Reliability Assessment on Aircraft Hinge Mechanism .....	270
<i>Tianyu Chen, Weimin Cui, Fangyi Wan, Deyin Jiang, Shuhai Jiang, Yajie Han</i>	
A Diagnosis Method for Assembly Deviation Based on Structure-Variable Dynamic Bayesian Networks .....	276
<i>Siyi Ding, Sen Wang, Jie Zhang, Xinhua Mao</i>	
Application of Nuclearization Free -Noise Automatic Encoder in Planetary Gear Fault Diagnosis .....	284
<i>Guodong Sun, Luyang Zhang, Youren Wang</i>	
Dual-Domain Signal Fusion Adversarial Network Based Vision Transformer for Cross-Domain Fault Diagnosis .....	288
<i>Shuo Xing, Jinrui Wang, Baokun Han, Zongzhen Zhang, Xingwang Jiang, Hao Ma, Xiao Zhang, Haidong Shao</i>	

Ferrographic Wear Particle Identification of Marine Lubricating Oil Based on YOLO V5s and Attention Mechanism .....	293
Dayang Li, Fanhao Zhou, Yutong Gao, Kun Yang, Pengcheng Yan	
Early Fault Feature Extraction Based on Improved 2.5-Dimensional Envelope Spectrum.....	301
Fengqi Zhou, Fengxing Zhou, Baokang Yan	
Reliability Assessment of Anti-SEU Computer System with Timed Refresh and Backup Fault Tolerance .....	308
Zhongqing Zhang, Guicui Fu, Bo Wan, Xiangfen Wang	
Three-Level Assessment of the Safety of Floating Nuclear Power Plants Under Hazard Waves.....	315
Yan Wu, Shuwen Yu, Ye Liu	
Application of Impulse Demodulation Analysis in the Abnormal Noise Fault Diagnosis of Robot Joint .....	321
Jian Zhou, Can Yao, Lijun Sun, Wei Wu, Ji Wang, Chunyang Ji	
Imbalanced Fault Diagnosis Based on Supervised Prototypical Contrastive Network .....	325
Xiao Zhang, Weiguo Huang, Rui Wang, Xingxing Jiang, Jinrui Wang, Zhenhao Yan, Guowei Zhang	
An Uncertain Operational Risk-Oriented Approach for Manufacturing System Functional Failure Prognosis .....	330
Rui Shi, Yihai He, Yuqi Cai, Xiuzhen Yang, Tianyu Feng	
Research on UFS Endurance Test and Life Prediction Method Based on Back-Propagation Neural Network.....	336
Ying Shi, Shaohua Yang, Fugen Wu, Huafeng Dong, Rongde Luo	
A Reliability Modeling Method for Directed Acyclic Graph Network System.....	342
Zhang Yang, Huang Jine, Li Jing	
Remaining Useful Life Estimation of Turbofan Engine Based on Selective Ensemble of Deep Neural Networks.....	346
Zhi Fan, Dongying Han, Yijing Fan, Tangbin Xia, Hao Wang, Lifeng Xi, Joachim Seidelmann	
Fault Diagnosis of Planetary Gearbox in Nuclear Circulating Water Pump-Unit Under Heavy Background Noise .....	354
Yuxiao Cui, Xin Xiong, Jiashuo Zhang, Yuanyuan Huang	
Helicopter Rotor Fault Diagnosis Based on IPSO and RVM .....	362
Xiaoyi Si, Liang Zheng, Guo Zheng, Jinglin Wang, Guo Zheng, Jinglin Wang, Zhenping Zhao, Ziang Guo	
Intelligent Fault Diagnosis of Centrifugal Pumps Via Self-Attention and Convolutional Fusion Method Based on Acoustic-Vibration Signals .....	368
Xiaoming Yuan, Zhikang Zhang, Pengfei Liang, Zhi Zheng, Lijie Zhang	
Agent-Based Contrastive Domain Generalization for Fault Diagnosis .....	373
Jiankang Zhong, Hanling Mao, Xinxin Li, Zhenfeng Huang	
ConDa-CorA: A Context-And-Data-Driven Correlation Analysis Mechanism for Complex System's Multi-Senor Time-Series Anomaly Detection .....	378
Jinhan Zhou, Jinsong Yu	

Research on Reliability Evaluation Method When Data Follow Weibull Distribution .....	386
<i>Shuhai Jiang, Weimin Cui, Fangyi Wan, Juanzhang Xie, Yajie Han, Tianyu Chen</i>	
Intelligent Detection of Freight Car Bolt Fault Based on Improved YOLOv3.....	391
<i>Weiyu Zhang, Hongmei Shi, Chao He</i>	
An Informer-LSTM Network for State-Of-Charge Estimation of Lithium-Ion Batteries .....	395
<i>Kai Guo, Yaohui Zhu, Yuyang Zhong, Kunchao Wu, Fangfang Yang</i>	
A New Method of Testability Quantitative Requirements Demonstration Based on Efficacy Simulation .....	402
<i>Junyou Shi, Yilei Hou, Zhenyang Lv</i>	
A Fully Transparent Deep Signal Operator Network for Intelligent Fault Diagnosis.....	406
<i>Qi Li, Shilin Sun, Wenyang Hu, Hua Li, Zhaoye Qin, Fulei Chu</i>	
A Life Evaluation Method Based on Accelerated Degradation Tests Under Combination of Cycling and Constant Temperature Stresses for Rubber Sealing Rings.....	411
<i>Shiyu Chen, Shunong Zhang, Beibei Huang, Lixu Wang, Jian Wang, Zuocheng Li</i>	
Rolling Bearing Fault Diagnosis with Time-Frequency Image Based on Deep Learning .....	417
<i>Ziqi Zhao, Xiaolan Gao, Honghai Wang, Jing Tian</i>	
Statistical Process Monitoring Based on Region Growing for Fused Deposition Modeling with Image Data .....	423
<i>Qian Li, Tingting Huang, Shanggang Wang</i>	
Dynamics Modeling of Faulty Gear Systems Considering Time-Varying Mesh Stiffness .....	431
<i>Honghai Wang, Ziqi Zhao, Xiaolan Gao, Jing Tian, Zhi Wang, Cai Wang</i>	
Simulated Data Driven GAN-Based for Fault Diagnosis Under Missing Fault Types.....	438
<i>Ma Junqing, Han Baokun, Wang Jinrui, Yao Shunxiang, Zhang Zongzhen, Song Lijin</i>	
Prediction of Bearing Remaining Useful Life Based on CNN and Gated Recurrent Unit .....	445
<i>Xiaolan Gao, Honghai Wang, Ziqi Zhao, Jing Tian, Fengling Zhang, Cai Wang</i>	
Reliability Estimation and Impact Analysis of High-Voltage Distribution Box Under Series Model .....	452
<i>Wang Chai, Yingzhi Zhang, Wei Li, Minqiao Song, Qi Cheng</i>	
Vague Set-Based Fault Tree Analysis of Automotive High-Voltage Relays.....	458
<i>Yingzhi Zhang, Siwei Liu, Changtao Zhang, Xiaofeng Wang, Xihui Cheng</i>	
Lifetime Prediction Based on Age-State Dependent Diffusion Model.....	465
<i>Bincheng Wen, Shijie Deng, Changjun Li, Haizhen Zhu</i>	
Secure and Private Fault Detections of Wind Turbine Through Blockchain-Enabled Federated Learning .....	470
<i>Xinhao Guo, Yangxia Xiang, Zhuo Long, Xiaoguang Ma, Runda Jia, Jie Jia</i>	
Multicomponent Nonstationary Fault Feature Extraction Based on Match Chirplet Transform .....	476
<i>Jingbo Liu, Zong Meng, Zhaolin Cui, Shuhan Quan, Jing Liu</i>	
A Physical-Assisted Multi-Source Signal Rolling Bearing Fault Diagnosis Method.....	483
<i>Jingshu Zhong, Xiangyu Bao, Lei Xiao, Yu Zheng</i>	

Spare Parts Varieties Optimization for Hydraulic System Using Data Envelopment Analysis Method .....	489
<i>Xiaoning Zheng, Lixiang Gu, Wenshu Xie, Li Jia, Meilin Wen</i>	
A New Binary Classification Twin Uncertain Support Vector Machine with Imprecise Data.....	497
<i>Jingyu Liang, Jie Liu, Wen Wang</i>	
A General Intelligent Method for Degradation Sensitive Parameters Extraction and Life Prediction of Bipolar Transistor.....	503
<i>Jin-Yong Yao, Run-Li Liu, Si-Zhe Zeng, Si-Wei Yan</i>	
Research on Fault Diagnosis Method of Coal Machine Equipment Based on Differential Oscillator .....	509
<i>Hailong Ma, Honggang Jia</i>	
Civil Aircraft Reliability Top-Level Requirements Capture and Decomposition.....	515
<i>Xixi Zhang</i>	
Fault Diagnosis of Reducer Based on Dual-Tree Complex Wavelet Packet and Morphology .....	520
<i>Fengtao Yu, Yijun Zhu</i>	
Research on Reliability Trade-Off Technology for Civil Aircraft Based on Function and Architecture .....	524
<i>Jiawei Sun</i>	
Design of a Vibration-Sensing Tool Holder for High-Quality Signal Measurement in Milling Process.....	529
<i>Junhao Tian, Xiang Sun, Zhiming Han, Min Zhang</i>	
Intermittent Fault Diagnosis Method Based on Graph Convolutional Neural Network.....	534
<i>Junyou Shi, Huidong Zhou, Zhilin Yang</i>	
Fractional Order Frequency Weighted Energy Operator and Its Application in Bearing Fault Diagnosis.....	539
<i>Zhen Li</i>	
The Study on Static Attribute of Tilting Pad Thrust Bearing with Thermal Elasto Hydrodynamic Lubrication Under Steady Load .....	544
<i>Fan Qin, Xinkai Feng, Lihua Yang, Xinyuan Wang</i>	
Self-Supervised Vision Transformer for Intelligent Fault Diagnosis of Gearbox with Limited Samples .....	550
<i>Hanqin Shuai, Pengfei Liang</i>	
The Effect Analysis of the Excitation Frequency on the Output Signal of an Inductive Sensor for the Detection of Wear Debris in Lubrication Oil.....	556
<i>Mengdi Wu, Zhenhua Wen, Long Ma, Junjie Feng, Huimeng Lv, Zhigang Xiong</i>	
Fault Diagnosis of Landing Gear Expert System Based on Neural Network .....	564
<i>Zeyang Xi, Fangyi Wan, Zhenyu Liang, Xuhui Cui</i>	
Reliability Demonstration Test Design Method Based on Two-Stage Test with Zero Failure Data .....	570
<i>Dian Zhang, Yunyan Xing, Ping Jiang</i>	
Server Operational Status Recognition Based on Non-Intrusive Energy Monitoring .....	576
<i>Qianhao Zhou, Xiaodong Wang, Ruiqiang Huang, Shenhao Zhao, Min Luo, Lianjun Zhang, Shiquan Fan</i>	

Research on Motor Fault Identification Method Based on Vibration Current Multisource Data Fusion and Deep Learning.....	581
<i>Yiyi He, Kun Feng, Baoxia Liu</i>	
A Collaborative Modeling and Simulation Method for Reliability and Testability Based on GSPN .....	586
<i>Junyou Shi, Zhilin Yang, Zetao Xiong, Dejing Kong</i>	
Unsupervised Domain Adaptation Fault Diagnosis Method Using Weight-Based Mask Network.....	590
<i>Youzhong Xu, Tianyu Han, Xi Shi, Songtao Hu</i>	
Two-Stage Degradation Modeling and Remaining Useful Life Prediction Method Based on Uncertain Random Process.....	597
<i>Xuerui Cao, Kaixiang Peng</i>	
Research on Sampling and Life Prediction of Storage Products Based on Uncertainty Theory .....	605
<i>Changli Ma, Li Jia, Wenshu Xie, Han Li, Menlin Wen</i>	
Health Prognostics of Multivariate Deteriorating Machinery Considering Unit-To-Unit Variability.....	613
<i>Pengcheng Xu, Yaguo Lei, Naipeng Li, Xiang Li, Bin Yang</i>	
Research on Fault Diagnosis Technology of Slewing Platform Bearing Based on Multi-Channel Fused CNN .....	619
<i>Chunzhi Wu, Baoyue Zhang, Chunhao Yang, Fanjie Meng, Haiyan Zhao, Gaihong Yuan</i>	
Intelligent Fault Diagnosis Method for the Moving Parts of Equipment Based on Transfer Learning .....	626
<i>Haoyu Luo, Zhe Cheng, Liang Guo</i>	
A Damage Accumulation Model Based on Load Interaction Effects .....	633
<i>Min Luo, Tianyi Zhong, Jinxing Huang</i>	
Fault Diagnosis of Aircraft Landing Gear Retractable System Based on BO-SVM .....	641
<i>Zhenyu Liang, Fangyi Wan, Zeyang Xi, Xuhui Cui</i>	
A Deep Generative Digital Twin for Vehicle Steering System Health Monitoring with Limited Healthy Monitoring Samples*.....	648
<i>Wenyang Hu, Qingkai Zhou, Shilin Sun, Qi Li, Hua Li, Tianyang Wang, Fulei Chu</i>	
Multi-Level Canonical Correlation Analysis Network for Remaining Useful Life Prediction of Rolling Bearings.....	655
<i>Guoqian Jiang, Qi Chen, Wenda Zhou, Ping Xie</i>	
Investigation of Civil Aircraft Airborne System Integration Test Procedure.....	662
<i>Xuyin Yao</i>	
The Optimal Design of a Rotor System Supported by Squeeze Oil Film Damper.....	666
<i>Zhongyu Yang, Jiali Chen, Yinli Feng</i>	
Fault Diagnosis of Rolling Bearings Under Variable Working Conditions Based on EOS-CNN .....	672
<i>Yu Liu, Yaqiong Lv, Xiaoling Guo, Xian Wang</i>	
Sun Gear Fault Diagnosis of Helicopter Main Gearbox Based on Condition Indicators.....	679
<i>Xiaoqiang Jin, Zhilong Yuan, Tianyang Xiong, Xianhui Zhang</i>	
Research on Reliability Integration Test Method for Civil Aircraft Airborne Systems Based on Fault Injection.....	684
<i>Biao Ma, Xuan Hu</i>	

Risk Analysis of Static Equipment for Oil and Gas Station Based on RBI .....	689
<i>Wenju Zhao, Qianlin Wang, Weiwei He, Guoan Yang</i>	
GUI-Based Multi-Objective Maintenance Optimization of Series-Parallel Pipeline Systems .....	697
<i>Jianli Zhao, Ziqi Wei, Mingjiang Xie</i>	
Analysis of Fatigue Crack Propagation Law and Fault Characteristics on the Outer Edge of Aeroengine Compressor Disk.....	704
<i>Haiyan Yu, Shuaiping Guo, Xuejun Li</i>	
Bearing Remaining Useful Life Prediction Based on BERT Fine-Tuning .....	712
<i>Junan Zhu, Zhuo Long, Xiaoguang Ma, Feng Luan</i>	
Wind Power Fault Detection Based on Vertical Federated Learning.....	718
<i>Dike Yang, Zhuo Long, Xiaoguang Ma, Bin Xu</i>	
A Fault Diagnosis Method of Harmonic Reducers Based on Markov Field Graphs and Graphomer .....	725
<i>Wenpeng Xu, Xiaoguang Ma, Zhuo Long, Lu Meng</i>	
Research on Fault Diagnosis Method of Solid-State Power Controller of Rocket .....	731
<i>Qiuhan Cao, Jian Shi, Shaoping Wang, Mengqi Yang</i>	
RUL Prediction Architecture of Rolling Bearing Considering Failure Behavior Determination .....	738
<i>Xuewu Pei, Xinyu Li, Liang Gao</i>	
Research on Circuit Performance Degradation Prediction Method Based on SSA-LSTM & GRU.....	745
<i>Weiwei Hu, Yunpeng Wang, Sunxiao Han, Xulan Zhu, Xiaogang Li</i>	
Cross-Device Anomaly Detection of Health Status for Industrial Robot Joints Based on SWDCGAN-Deep CORAL.....	754
<i>Hailong Zhao, Lei Xiao, Biyue Zhang</i>	
A Multi-State Economy Quantification Method of Structural Health Monitoring System for Helicopter Composite Blades .....	762
<i>Yingqiao Wang, Tianxiang Huang, Jianhong Sun</i>	
Dynamic Analysis of Four Point Contact Ball Bearings .....	770
<i>Zechao Li, Hao Zhang, Zhongliang Xie, Hao Zhang</i>	
Application of Continuous Wavelet Transform and Statistical Process Control Chart in Gear Health State Assessment .....	777
<i>Xin Li, Jiwen Tang, Bin Yang, Hongfu Zuo, Weinan Li, Xinyu Ma</i>	
Active Learning Polynomial-Chaos Kriging Based Uncertainty Quantification and Reliability Analysis of a Spline-Shafting System .....	784
<i>Xinxing Ma, Yucai Zhong, Peng Cao, Yuxiang Song, Zhenguo Zhang</i>	
The Effects of Binaural Auditory Modality on Operators in a Flight Simulation Task .....	789
<i>Keke Zheng</i>	
Compound Fault Diagnosis of Rolling Bearings Based on Fastica and Granger Causality Analysis.....	794
<i>Chongchong Yu, Mengxiong Li, Yong Qin, Keke Gao</i>	
Investigation on Wear Diagnosis of Aero-Engine Mechanical System Based on Lubricant Wear Particle Analysis .....	800
<i>Daopeng Fu, Tonghai Wu, Le Jiang, Shixuan Ren, Yanjun Li</i>	

State-Of-Health Estimation of Power Battery Regarding Capacity and Internal Resistance from Field Data .....	805
<i>Xianghuai Cheng, Jian Zhou, Haoyuan Shen, Jianjun Wang, Miao Zhao, Yaoqiu Liu</i>	
Distributional Difference-Based Dynamic Adaptation for Bearing Performance Degradation Assessment .....	812
<i>Xin Li, Fei Xiao, Zhende Ran, Zhao Huang, Ying Zhang, Xiaoxi Ding</i>	
Research on Model-Based Reliability Verification Technique for Civil Aircraft .....	819
<i>Haiwei Li, Peng Lu</i>	
An Unified Nonconvex Sparse Decomposition Method for Fault Feature Enhancement of Rotating Machinery.....	825
<i>Lin Zou, Mingming Dong, Han Kong, Yun Kong</i>	
Intelligent Fault Diagnosis Method of Rolling Bearing Based on Active Learning Under Unbalanced Samples .....	832
<i>Jiantao Lu, Wei Wu, Shunming Li, Huijie Ma</i>	
Analysis of Power Cycle Aging Test for SiC MOSFET .....	838
<i>Zhouyou Zheng, Linghui Meng, Xin Li, Bin Ruan, Haotian Cui</i>	
A MP-Based Method for Periodic Fault Impulses Detection in Rotating Machinery .....	843
<i>Sen Li, Shudong Ou, Dexin Chen, Linjiao Wu, Xiaolong Han, Ming Zhao</i>	
Infrared Thermal Imaging-Based Power MOSFET Thermal Resistance Test Method Research .....	849
<i>Hongming Shao, Sujuan Zhang, Bo Wan, Ye Wang, Mengxiang Long</i>	
Remaining Useful Life Prediction of Gearbox Using Discrete Wavelet Transform and BP Neural Network.....	855
<i>Xinyu Ma, Xin Li, Bin Yang, Jianwen Huang, Weinan Li, Mengli Yuan</i>	
Fault Diagnosis Method of Planetary Gearbox Based on Transfer Learning and EfficientNet .....	863
<i>Li Yin, Gu Yiliu, Shi Changwu, Li Jing</i>	
Remaining Useful Life Prediction Method of Rolling Bearing Based on UMDGRU.....	871
<i>Xiao Xisheng, Chen Jiafang, Li Yin, Gu Yingkui</i>	
Reliability-Redundancy Allocation for System Under Mixed Active, Cold and Warm Standby Redundancy with Weibull Distribution .....	878
<i>Lin Zhu, Xiang Jia</i>	
Bearing Fault Diagnosis Based on Deep Residual Network and Particle Swarm Optimization .....	886
<i>Xun Wu, Lei Xiao, Biyue Zhang</i>	
Multi-Source Vibration Signals Fusion-Based Condition Assessment of Francis Turbine Unit Under Complex Operating Conditions .....	894
<i>Yuxin Li, Wei Liu, Jie Liu, Yujie Liu, Fengyuan Zhang, Yongchuan Zhang</i>	
Equation Chapter 1 Section 1A Method for Component Parameter Importance of Phased Mission Systems Based on Kriging Model .....	901
<i>Xiaoyue Wu</i>	
An Effective Task Allocation Algorithm for Unmanned Surface Vehicle System.....	906
<i>Qinghua Luo, Liqi Zhang, Xiaozhen Yan, Di Wu</i>	

Research on Intelligent Assistant Diagnosis System for Wind Turbine Units .....	912
<i>Junjie Zhu, Tong Tong, Jintao Zhu, Xinlong Peng, Zufang Zhou, Zhaoyu Hu</i>	
Intelligent Diagnosis Approach for the Critical Structural Part Based on FSDP Figure and DCNN.....	918
<i>Cheng Zhe, Luo Haoyu, Li Yuehao, Yang Yi, Hu Niaoqing, Shen Guoji, Xu Dong, Huang Jine</i>	
Intelligent Fault Diagnosis of Rotating Machinery Based on Acoustic Field Signal and Domain Adaptation .....	925
<i>Mengyu Liu, Zhe Cheng, Niaoqing Hu, Yi Yang, Junsheng Cheng</i>	
Reweighted Dynamic Mode Decomposition for Fault Feature Extraction of Rolling Element Bearings.....	931
<i>Hao Wu, Shudong Ou, Sen Li, Xiang Cheng, Baitong Cui, Ming Zhao</i>	
Instance Segmentation Method of Tunnel Facility Images Along High-Speed Rail Based on Deep Learning .....	937
<i>Xia Zhao, Yibo Niu, Yong Qin, Chongchong Yu</i>	
An Stepwise Approach for Degenerate Fault Data Generation .....	943
<i>Guanghao Ren, Nan Yang, Ruishi Lin, Dongpeng Li, Guigang Zhang</i>	
A Multi-Domain Feature Separability Analysis Method for Maritime Targets .....	949
<i>Kaixiang Tian, Baozhu Li, Zhongxun Wang, Ningbo Liu</i>	
Unbalanced Data Classification Model in PHM Field Based on Stacking Integration Strategy .....	955
<i>Xuefei Qin, Feng Liu, Feng Duan, Zhiqiang Cai</i>	
Stability Study of Robotic Drilling System Based on Digital Twin .....	963
<i>Hongbo Chen, Xiaohu Zheng, Tengfei Zhang, Guanyao Zhang</i>	
A Lithium-Ion Battery Remaining Useful Life Estimation Method Based on Nonlinear Autoregressive Fusion Model with Exogenous Variables .....	970
<i>Hailin Feng, Ningjuan Li</i>	
Lithium Battery State of Health Prediction Method Based on Online Knee Point Warning Identification of Coupling Temperature .....	977
<i>Hailin Feng, Yatian Liu</i>	
Longitudinal Degradation Data Simulation Method Based on Sequential Statistics.....	985
<i>Anqi Shan, Zengqiang Jiang, Mingcheng E, Qi Li</i>	
Fault Modeling of Harmonic Reducers Based on Current Signal Under Time Varying Conditions .....	990
<i>Yan Jie, Zhang Luyu, Wang Jia, Bai Guanghan</i>	
A Hybrid Method Considering a Novel Health Feature and Uncertainty Quantification for Li-Ion Battery RUL Prediction .....	996
<i>Hailin Feng, Lu Zhang</i>	
Research on Dynamic Characteristics of Gear System with Crack Fault.....	1004
<i>Hu Jiangtao, Chen Ling, Hu Niaoqing, Yang Yi, Yin Zhengyang</i>	
Research on Fault Diagnosis Method of Control Moment Gyroscope Based on Random Forest Algorithm .....	1011
<i>Ruonan Jiang, Mengzhe Jiang, Ti Zhou, Zichen Huang, Jingyu Zhang, Haiping Dong</i>	
Model Based Failure Assessment of Civil Aircraft Operation Phase .....	1017
<i>Sisi Ma, Yongle Zheng, Biao Ma</i>	

Availability Assessment of the LEO Satellite Communication System with the Consideration of Satellite Handover .....	1022
<i>Yu Tian, Ruiying Li, Yuanyuan Wang, Ji Ma, Yeqing Song</i>	
Research on Expansion Neighborhood and Cost Function-Based A* Algorithm.....	1028
<i>Zhimin Zhao, Pengfei He, Caihui Sun, Chenglin Li</i>	
An Improved Automatic Modulation Classification Method Based on Complex-Valued Capsule Network.....	1034
<i>Ruoyu Zhou, Pengfei He, Zhuoran Cai</i>	
Target Detection in Visible and Infrared Image Matching Based on Improved YOLOv7.....	1040
<i>Qingmei Guo, Zhongxun Wang, Yanli Sun, Ningbo Liu</i>	
PB-YOLO for Railway Fastener Detection: A Higher Accuracy and Lightweight Model with PConv and BiFPN .....	1047
<i>Honghui Zhao, Yunpeng Wu, Yong Qin, Changhong Shao, Xingsheng Zhu</i>	
Degradation Modeling Based on Polynomial Uncertain Process: A Case Study on Railway Gyroscope.....	1054
<i>Zongyao Wang, Wei Shangguan, Ziyue Zhu, Cong Peng, Linguo Chai, Weijie Wang</i>	
A Pretrained Significant Sample Generator for Partial Domain Transfer in Rotating Machinery Bearing Fault Diagnosis .....	1059
<i>Xuyan Liu, Mingkuan Shi, Xingxing Jiang, Juanjuan Shi, Changqing Shen, Zhongkui Zhu</i>	
Vibration Analysis of Split-Torque Transmission System with Tooth Crack Fault .....	1064
<i>Yang Yi, Hu Niaoqing, Cheng Junsheng, Yin Zhengyang, Cheng Zhe</i>	
Reliability Evaluation Method of Vehicle On-Board Controller of Train Control System Based on Hawkes Process .....	1072
<i>Cong Peng, Wei Shangguan, Jiali Peng, Zongyao Wang, Linguo Chai, Baigen Cai</i>	
Reliability Modelling Method Based on the Stepwise Refined Performance Surrogate Model.....	1078
<i>Haoran Liu, Qingyuan Zhang, Xiaoyang Li, Li Yu, Jing Yuan, Rui Kang</i>	
Synthetic Data Generation of Complex Machines with Time Series Generative Adversarial Network.....	1085
<i>Zhongyi Zhang, Chun Song, Zhi Zhai, Meng Ma, Anqi He</i>	
Research and Application of Digital Twin Model for Gear Box Operation and Maintenance .....	1090
<i>Chao Liang, Ji Wang, Lijun Sun, Chunyang Ji</i>	
Fault Diagnosis of Aircraft Power Generation System Based on ISSA-SVM.....	1095
<i>Zhiliang Wang, Yuhua Wu, Hongxu Liu, Xiaodong Fan, Yang Zhao, Li Wang</i>	
Research on Methods for Complex Equipment Performance Troubleshooting and Auxiliary Decision-Making .....	1100
<i>Xiao Guo, Yu Cao, Jianjun Yang</i>	
A Novel Fault Diagnosis Method for Planetary Gearbox Under Variable Speed Operating Conditions .....	1107
<i>Huang Yuanyuan, Meng Jin, Zhang Fuhai, Chang Zhengke</i>	
A Novel Hybrid Method for Fault Diagnosis of Industrial Equipment Based on Vibration Signals .....	1113
<i>Sen Tao, Kai Wang, Peng Zeng, Tianda Yu, Hao Wu</i>	

Rotor Dynamic Analysis of Supercritical Carbon Dioxide Bryton Cycle Coaxial Integrated Unit.....	1120
<i>Xiaokang Xu, Yi Yang, Jiangfeng Wang, Juwei Lou, Liangqi Chen</i>	
In-Situ Health Monitoring of UAV Composite Propulsion Propeller Blades Based on a Flexible Sensing System.....	1125
<i>Ran Gu, Jiaye Zhao, Haibin Zhu, Shaomin Zhu, Shufeng Zhang, Yue Li</i>	
Path Planning and Tracking Control of Unmanned Ship Based on Improved Artificial Potential Field Method and A-Star Algorithm.....	1132
<i>Xiaozhen Yan, Ke Xu, Qinghua Luo, Chenxu Wang, Zhiqian Zhou</i>	
A Fault Simulation Analysis Method for Cross Level Modeling .....	1139
<i>Wang Xin, Yan Zhenkai, Gao Hao, Dong Yanhong</i>	
Maximum Spectral Method for Non-Stationary Random Vibration Data .....	1144
<i>Jun Xu, Jianjun Zhang, Xueqing Chen, Jiakang Shen, He Li</i>	
Fault Diagnosis Method for Rolling Bearings Based on Improved Morphological EMD Singular Value Entropy .....	1151
<i>Chen Zhang, Luyan Xu, Baojun Zhang, Feng Gao</i>	
An Analysis Method of System Safety Requirements Based on Usage Scenario .....	1155
<i>Yan Zhenkai, Wang Xin, Gao Hao, Dong Yanhong</i>	
Reconstruction of Non-Uniform Strain Along FBG Based on Dynamic Particle Swarm Optimization .....	1163
<i>Yimin Dang, Liu Hong</i>	
A Continual Learning Framework with Adaptive Synapses for Remaining Useful Life Prediction .....	1170
<i>Xiangyu Ren, Haiquan Qiu, Dawei Chen, Chang Peng, Yong Qin, Biao Wang</i>	
Importance Analysis of Numerical Controlled Rotary Table Base on Bayesian Network.....	1177
<i>Hanzhe Shen, Qingchuan He, Jun Pan, Xiaotian Lyu</i>	
Remaining Useful Life Prediction Based on Sequential Bayesian Approach for Railway Balise.....	1182
<i>Zhengjiao Li, Zishuo Zhao, Jiang Liu, Baigen Cai, Debiao Lu</i>	
Aero Engine Remaining Useful Life Prediction: A Survey .....	1189
<i>Tiantian Xu, Guangjie Han, Hongbo Zhu</i>	
Online Degradation Monitoring Method of PMSM Based on Stator Current.....	1195
<i>Feiyu Wang, Qingchuan He, Weilin Li, Feng Chen</i>	
Fault Diagnosis of Multistage Gearbox Based on Adaboost Ensemble Learning .....	1201
<i>Xiaojian Ding, Ji Wang, Jing Wang, Li Li, Bochen Chen, Naixin Li</i>	
Compound Fault Diagnosis of Gearbox Via Simplifying Graph Convolutional Network .....	1206
<i>Lixiao Cao, Yixu Wang</i>	
Contact Force Analysis of the Aviation Spline Drive System Under the Influence of Misalignment and Unbalanced Faults .....	1213
<i>Shangji Li, Yu Jiang, Zhengwei Fan, Hao Zhang, Shufeng Zhang</i>	
Intelligent Diagnosis of Planetary Gearboxes Based on DAE-CNN.....	1220
<i>Tianbo Kang, Mian Zhang, Ruitong Xie, Jiwei Chen, Hongbiao Xiang, Yuhang Wang</i>	

Condition Monitoring of Wind Turbine Pitch System Based on Informer .....	1227
<i>Lixiao Cao, Zhiqiang Li</i>	
Research on Multi-Objective Replacement Strategy for Railway Freight Car Brake Shoes Based on Monte Carlo Simulation .....	1233
<i>Jiayi Sun, Jing Ma, Qiang Wang, Anqi Shan, Zengqiang Jiang</i>	
A Standard Self-Learning Unsupervised Contrastive Learning Model for Bearing Fault Diagnosis in Imbalanced Datasets.....	1239
<i>Shi Jia, Houliang Wang, Yinglong Yan, Pengfei Zhang, Rui Yang, Zenghui An</i>	
Few-Shot Fault Diagnosis Based on Supervised Contrast Learning .....	1246
<i>Houliang Wang, Yinglong Yan, Shi Jia, Zenghui An</i>	
Rail Corrugation Diagnosis Based on Time-Frequency Demodulation Methods and Dynamic Responses.....	1252
<i>Xuanrui Zhu, Gang Niu</i>	
Fusing Distributed Extended Multi-Model Adaptive Estimation Method for Fault Diagnosis of Coupling Faults in a Liquid Rocket Engine .....	1258
<i>Zhenzhen Zhang, Hui Chen, Xiaoguang Zhang, Meng Ma, Zhizhen Wang</i>	
Domain Adaptive and Adversarial Transformer Networks for Fault Detection of Propulsion Shaft System .....	1264
<i>Qiming Shu, Chengjie Wang, Ke Wu, Jun Wu</i>	
Fault Diagnosis Method for Autonomous Underwater Vehicles Based on Neural Network with Attention Mechanism .....	1269
<i>Yin Yang, Hongchao Wang, Junjie Gao, Xiaoyun Gong, Wenliao Du</i>	
Graph Neural Networks with Adaptive Convolutional ARMA Filters for Fault Diagnosis in Mechanical Complex Systems.....	1276
<i>Zhizhen Wang, Chun Song, Zhenzhen Zhang, Liu Fu, Meng Ma, Hui Chen</i>	
Research on Coal Mine Multi-Stage Drainage System Coordination Control Strategy.....	1282
<i>Shun Jia, Jingyan Zhang</i>	
Fault Diagnosis of Aviation Secondary Power Supply Based on SVM.....	1287
<i>Shuangxi Che, Yanxi Zhang, Runzhe Chen, Yaoxuan Ma, Xing Li, Li Wang</i>	
A Digital Failure Twin Model for PHM: From Concepts to Maturity Levels .....	1292
<i>Xihe Ge, Zhiguo Zeng, Nabil Anwer</i>	
Fault Diagnosis Method Based on Joint Distributional Adaptation for Intelligent Fault Diagnosis Under Different Working Conditions with Imbalanced Data .....	1298
<i>Yinglong Yan, Shi Jia, Houliang Wang, Yuxi Zhang, Zenghui An, Rui Yang</i>	
Graph Model Based Positioning Entropy Feature Extraction for Early Change Detection of Rolling Bearings.....	1306
<i>Ke Li, Xinjie Bi, Guoliang Lu</i>	
Research on Data-Driven Integrated Environment Prediction Method for the Typical Cabin of Helicopter .....	1310
<i>He Li, Jianjun Zhang, Yun Fu, Yujun Hao, Jun Xu, Yong Zhong</i>	

Dynamic Modeling and Vibration Characterization of Cracked Rotor Based on Breathing Crack Function.....	1316
<i>Zhi Wang, Rui Sun, Jun Wang, Zijing Wang, Yu Liu, Shanfu Li</i>	
Fault Prediction for DC-DC Power Converters Based on Sample Entropy and LSTM .....	1323
<i>Quan Sun, Haoran Jiang, Cencen Hong, Jiacai Huang, Lichen Yang</i>	
Inspection of Wire Ropes Based on Magnetic Flux Leakage Images by Using YOLOv5 .....	1329
<i>Feiyang Pan, Yicheng Huang, Liyuan Ren, Zhiliang Liu</i>	
Fault Prognostics of Elevator Door System Based on LSTM-GNN .....	1336
<i>Changxu Shao, Jun Pan, Yimin Wei, Weiliang Zhang, Zheng Lin</i>	
Thermal Simulation Optimization of DC Charger Based on ANSYS Icepak.....	1343
<i>Yu Wang, Feiyu Zhou, Tan Wen, Yan Su, Li Yuan, Ke Wang</i>	
Uncertainty Quantification Based Detection and Diagnosis for Unexpected Accident in Nuclear Energy Systems .....	1347
<i>Yuantao Yao, Song Xu, Nuo Yong, Dongqin Xia, Daochuan Ge, Jie Yu</i>	
Research on Fault Intelligent Reasoning Based on Time Series Data .....	1352
<i>Jun Shi, Hua Ming, Yun Wang, Guigang Zhang, Xing Ai, Benwang Li</i>	
An Innovation of Creating Condition Based Work Items in Continuous Airworthiness Maintenance Program .....	1357
<i>Wenjing Bi, Lizhong Gan, Tong Mu, Tang Li</i>	
A Fault Feature Learning Model for Zero-Shot Intelligent Diagnosis of Compound Faults in Rotating Machinery .....	1363
<i>Shuangyan Yin, Jingli Yang, Qing Tang</i>	
Remaining Useful Life Estimation of Lithium-Ion Batteries Via Hyperparameter Optimized Bi-Long Short-Term Memory Recurrent Neural Networks.....	1370
<i>Rahul Sahay, Karkulali Pugalenth, Nagarajan Raghavan</i>	
Research on the Stator Inter-Turn Short Circuit Fault Diagnosis Method of PMSM Based on the Continuous Spectrum Zoom.....	1378
<i>Jing Tang, Jian Zhou, Chao Liang, Shuhan Lu, Lijun Sun, Chunyang Ji</i>	
Decision Method of Operation and Maintenance of CBTC System Based on Knowledge Graph.....	1383
<i>Linguo Chai, Xiaoyu Li, Wei Shangguan, Baigen Cai, Gaoyun Cheng, Min Nie</i>	
Image Feature Driven Rolling Bearing Intelligent Fault Diagnosis Method Based on DeiT .....	1389
<i>Lu Jiantao, Jia Bin, Li Shunming, Ma Huijie</i>	
Research on Automatic Rotating Robot for Aeroengine Inspection .....	1395
<i>Tengfei Zhang, Guigang Zhang, Jun Shi, Xunkai Wei, Hao Wang</i>	
Techno-Economic Risk Analysis for Onboard Hydrogen Storage by Quantitative Risk Assessment.....	1399
<i>Haji Bahader Khan, Tiebing Zhang</i>	
Detecting Incipient Inter-Turn Short Circuit Faults in DFIGs Based on Magnetic Flux Leakage Theory and MPJ-SVDD Analytical Method.....	1406
<i>Shouwang Zhao, Yu Chen, Feng Liang, Sichao Zhang, Nadeem Shahbaz, Shuang Wang, Yong Zhao, Wei Deng, Yonghong Cheng</i>	

How to Choose Proper Prognostic Knowledge and Transfer it ? a New Deep Sub-Domain Adversarial Adaptation Method for Few-Shot Remaining Useful Life Prediction Based on Wavelet Scattering Network.....	1414
<i>Binkai Zhang, Yanna Zhang, Wentao Mao, Jianing Wu, Wen Zhang</i>	
Correlation Energy Singular Spectrum Decomposition: A New Intelligent Damage Recognition Method for Crane Girder Structure of Engineering Machinery.....	1421
<i>Xiaoli Zhao, Peng Zhang, Yi Zhao, Jianyong Yao, Wenxiang Deng, Jian Hu</i>	
Multiphysics Coupling Simulation for Electrostatic Sensing and Online Monitoring .....	1427
<i>Manthar Ali, Jiaxin He, Asif Ali, Xiaoming Zhou</i>	
A Review of MEMS Reliability Development.....	1433
<i>Ming Zhang, Yunhua Tian, Jiang Shao</i>	
Simulation Analysis and Optimization Design of Hot Carrier Injection Effect in Microcircuit System .....	1438
<i>Ming Zhang, Yubin Hu</i>	
Degradation Modeling and Remaining Useful Life Prediction of Control Moment Gyroscope .....	1442
<i>Limei Tian, Zongpei Wu</i>	
Dynamic Load Identification for Compressor Blades Using Vibration Signals .....	1447
<i>Minghao Pan, Fengjiao Guan, Yongmin Yang, Haifeng Hu, Zifang Bian, Hang Lin</i>	
Remaining Useful Life Prediction of Gearbox Under Variable Operating Conditions Based on KPCA and LSTM .....	1454
<i>Weinan Li, Xin Li, Jianwen Huang, Ruwen Chen, Xinyu Ma, Yunli Li</i>	
A Three-Interface Data-Based Wireless Communication Timeout Fault Diagnosis Method for China Train Control System .....	1462
<i>Anyi Tang, Gang Niu, Xuanrui Zhu, Jianfeng Li, Ningchun Liu</i>	
State Tracking and Fault Diagnosis of Liquid Rocket Engine Based on Reduced-Order Model .....	1466
<i>Zehao Chen, Hui Chen, Zhenli Liu</i>	
A Platform to Verify Life Prediction Algorithms for Spacecraft Complex Equipment .....	1472
<i>Junyi Zhou, Yizhou Ding, Diyin Tang</i>	
Software Reliability Prediction Model Based on Improved Particle Filter Algorithm.....	1477
<i>Qingkang Wen, Zhaojun Steven Li</i>	
Simulation and Calculation of Electrical Properties of Piezoelectric Ceramic Materials Na0.5Bi2.5Nb2O9under High-Temperature Irradiation Coupled Environment.....	1482
<i>Chengning Zhou, Xueying Chen, Zhaoxiang Jiang, Taibo Yang, Caixue Liu</i>	
FFT-Driven Transformer Framework for Autonomous Underwater Vehicles Fault Diagnosis .....	1488
<i>Wang Jing, Xueqing Zhao</i>	
Deep Learning for Wafer Map Defect Detection: A Review .....	1493
<i>Ruixuan Li, Zerui Kang</i>	
Investigation on the Degradation Mechanism of AlGaN/GaN HEMTs Under the Effect of Microwave Pulses at Different Powers.....	1499
<i>Fanfeng Yang, Min Liao, Binjian Zeng, Peiliang Yang, Yiqiang Chen</i>	

Weighted Squared Envelope Dispersion Entropy as a Nonlinear Measure for Dynamic Health Monitoring of Rotating Machineries .....	1504
<i>Khandaker Noman, Hui Li, Xinyue Wang, Yongbo Li</i>	
Fault Diagnosis Algorithm for Power Module Based on a Hybrid Attention Network .....	1509
<i>Lubin Yu, Zhenwei Zhou, Yuhang Huang, Junbin Liu, Shilie He, Pengfei Yu, Linghui Meng, Danni Hong</i>	
A Novel ResMTN-Based Methodology for HVAC AHU Fault Diagnosis.....	1513
<i>Ying Yan, Guanting Liu, Jun Cai, Edmond Qi Wu, Adrian David Cheok, Qiming Sun, Ming Li, Ying Zhou</i>	
Research of Reliability Failure Prediction Method for Civil Aircraft .....	1519
<i>Fan Zhang</i>	
A Novel Learning Approach to MIMO Networked Control Systems with Uncertain Parameters .....	1523
<i>Hanguang Jia</i>	
Research of Definition and Analysis Method for Civil Aircraft Turnaround Time .....	1530
<i>Fan Zhang</i>	
Improved Knowledge Transfer Based on Stacked Denoising Autoencoder and Graph Convolutional Network for Fault Diagnosis of Rolling Bearings .....	1536
<i>Tianyu Yang, Wei Guo</i>	
Coordinated Control of Frequency Restoration of Wind Power Interconnected Power System Based on Distributed Model Prediction .....	1542
<i>Xu Lin, Qiuyu Lu, Peng Zhang, Zejian Liu, Yangbo Liu</i>	
Rapid Evaluation Method of Dynamic Frequency Response of Power System with Wind Power .....	1549
<i>Xu Lin, Li Li, Peng Zhang, Zejian Liu, Junsheng Chen</i>	
Secondary Voltage Control Strategy of Microgrid with Wind Power Based on Distributed Multi-Agent System .....	1553
<i>Zhongquan Wang, Yangbo Liu, Yinguo Yang, Peng Zhang, Zejian Liu</i>	
A Remaining Useful Lifetime Prediction Method Based on Mixture Maximum Correntropy and Improved Unscented Particle Filter for Lithium-Ion Battery .....	1558
<i>Mi Yang, Wei Guo</i>	
Reliability Analysis of Passenger Elevator Block Brake Based on Composite Gamma Crocess .....	1564
<i>Junning Li, Yanjia Chen, Wenxiang Wu, Yimin Wei</i>	
Experimental Study on Multi-Stress Failure Characteristics of Space Station Power Tools Motor .....	1569
<i>Zhaolin Zhang, Shouqing Huang, Fangyong Li, Hao Wang, Qi Yan, Qi Hu, Yong Yang</i>	
An Optimal Design Method of Metal Filter Element Based on Genetic Algorithm.....	1574
<i>Gongyu Wu</i>	
An Improved LBG Clustering Algorithm Based on Bayesian Information Criterion .....	1579
<i>Sisi Wan, Gongyu Wu</i>	
Clustering Features of Lithium-Ion Battery Capacity Degradation Curve .....	1585
<i>Junchang Liu, Shuai Wang, Lifei Chen, Shoubin Zhou</i>	

An Overview of Industry-Related Grid Forming Inverter Controls .....	1590
<i>Daniel O. Williams, Zhaojun S. Li, Xiaochuan Luo, Qiang Zhang, Slava Maslenikov, Ahmad Tbaileh</i>	
Enhancing Impairment Detection in Full-Band Capture (FBC) Downstream Spectrum Data Using Unsupervised Learning Methods.....	1599
<i>Rocco Cassandro, Jason Rupe, Zhaojun Steven Li</i>	
Research on Fault Diagnosis Technology for Unstructured Data Oriented Avionics Systems.....	1606
<i>Junbin Liu, Zhenwei Zhou, Shilie He, Lubin Yu, Pengfei Yu, Linghui Meng, Danni Hong</i>	
Remaining Useful Lifetime Prediction Based on the Fusion of Attention-LSTM and Wiener Process .....	1614
<i>Cai Zhongyi, He Wenbo, Guo Rui, Zhang Kai, Zhang Fuzhi, Wang Zezhou</i>	
Remaining Useful Lifetime Prediction Based on the GRU and Stochastic Degradation Modeling.....	1618
<i>Wang Zezhou, Zhu Jiantai, Wang Liyuan, Feng Shiyu, Cai Zhongyi</i>	
Avionics Equipment Cable Fault Injection Design and Simulation Testing Validation.....	1623
<i>Yangdong Xu, Shilie He</i>	
Reliability Assignment Method for Flight Control Computer Based on Fault Tree and Cost Function.....	1628
<i>Ruicheng Zhao, Jiangtao Si, Peng Lu</i>	
Bearing Fault Diagnosis Method Based on RepVGG Migration Diagnosis Network.....	1635
<i>Huang Yijun, Fang Zhaoyan, Jiang Jueyi, Zeng Zhaoyang, Zhu Qingyu</i>	

## **Author Index**