

2021 Global Reliability and Prognostics and Health Management (PHM-Nanjing 2021)

**Nanjing, China
15 – 17 October 2021**

Pages 1-549



**IEEE Catalog Number: CFP21T22-POD
ISBN: 978-1-6654-2979-5**

**Copyright © 2021 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:	CFP21T22-POD
ISBN (Print-On-Demand):	978-1-6654-2979-5
ISBN (Online):	978-1-6654-0131-9

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
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

EXPLOITING 3D SPATIAL RELATIONSHIPS FOR TARGET-DRIVEN VISUAL NAVIGATION.....	1
<i>Yunlian Lv, Yang Deng, Xianggang Zhang</i>	
A VIBRATION ACCELERATION SENSOR-BASED SHOCK PULSE METHOD FOR CONDITION EVALUATION OF ROLLING BEARINGS.....	7
<i>Ya He, Minghui Hu, Kun Feng, Zhinong Jiang</i>	
FUNCTIONAL FAILURE DIAGNOSIS METHOD OF MULTI-STATE MANUFACTURING SYSTEM BASED ON EXTENDED QUALITY STATE TASK NETWORK	14
<i>Xiuzhen Yang, Yihai He, Ruoyu Liao, Wenzhuo Wang, Yao Li</i>	
HELICOPTER PLANETARY GEAR CRACK FAULT IDENTIFICATION UTILIZING MULTIDOMAIN STACKED CONTRACTIVE AUTOENCODERS BASED DEEP LEARNING FRAMEWORK.....	20
<i>Canfei Sun, Yuefeng Liu, Linran Huang</i>	
RANDOM VIBRATION FATIGUE ANALYSIS OF BASE IN MACRO-MICRO MOTION PLATFORM.....	28
<i>Lu-Fan Zhang, Bo-Shi Jiang, Peng-Qi Zhang, Yan-Bo Hui</i>	
A SIGNAL PROCESSING METHOD FOR EXTRACTING SHAFT SPEED INFORMATION FROM VIBRATION SIGNAL	34
<i>Chuan Li, Zhen Huan Tang, Yong Tang</i>	
EEMD–WAVELET ADAPTIVE THRESHOLD FUNCTION DENOISING AND ITS APPLICATION IN DAMAGE MONITORING OF AVIATION CONNECTION STRUCTURE	40
<i>Yipeng Zong, Fangyi Wan, Yi Hua, Bin Liao, Shenrui Zhu, Sensen Zhu</i>	
A NOVEL FAULT DETECTION METHOD BASED ON MULTIPLE FEATURES FOR ANALOG CIRCUITS.....	46
<i>Tianyu Gao, Jingli Yang, Jianfeng Wang, Shouda Jiang</i>	
A CONVOLUTIONAL TRANSFORMER ARCHITECTURE FOR REMAINING USEFUL LIFE ESTIMATION.....	54
<i>Yifei Ding, Minping Jia</i>	
EMERGENCY CONSTELLATION DESIGN BASED ON MICRO SAR SATELLITES	61
<i>Yang Liu, Zhiqiang Wan, Yuanyuan Dai, Yanyan Zhao, Qi Liu, Cunhui Ji</i>	
FAULT-TOLERANT CONTROL SCHEME FOR THE SENSOR FAULT IN THE TRANSITION PROCESS OF VARIABLE CYCLE ENGINE.....	66
<i>Lingwei Li, Yuan Yuan, Xinglong Zhang, Songwei Wu, Tianhong Zhang</i>	
PRODUCT KEY RELIABILITY CHARACTERISTICS IDENTIFICATION APPROACH USING GA IN MANUFACTURING PROCESS	74
<i>Jishan Zhang, Yihai He, Yuxuan Xie, Anqi Zhang</i>	
MULTILAYER DOMAIN ADAPTATION-BASED CONVOLUTIONAL AUTO ENCODER FOR FAULT DIAGNOSIS UNDER DIFFERENT SPEEDS.....	80
<i>Zhang Xiao, Han Baokun, Wang Jinrui, Ji Shanshan, Zhang Zongzhen, Jia Meixia</i>	

KRCS DRIVEN PRODUCT MANUFACTURING QUALITY IMPROVEMENT APPROACH USING DMAIC	85
<i>Yuxuan Xie, Yihai He, Jishan Zhang, Yuqi Cai, Anqi Zhang</i>	
RESEARCH ON EXTRACTION METHOD OF SENSITIVE FEATURE OF THIN-WALL PLATE CRACK FAULT	91
<i>Qingyu Zhu, Yugang Chen, Yulai Zhao, Qingkai Han</i>	
FAULT DIAGNOSIS BASED ON AGENT SIMULATION OF SYSTEM COMPONENTS	97
<i>Sui Jia-Jun, Hu Tao</i>	
FAULT DIAGNOSIS METHOD OF ANALOG CIRCUIT BASED ON ENHANCED BOUNDARY EQUILIBRIUM GENERATIVE ADVERSARIAL NETWORKS	104
<i>Jingli Yang, Yue Li, Cheng Yang, Tianyu Gao</i>	
ACCELERATED DEGRADATION TEST DESIGN AND DEGRADATION TRAJECTORY PREDICTION OF RADAR GAIN CONTROL MODULE.....	111
<i>Hongda Sun, Bo Jing, Shenglong Wang, Jie Bao, Yu Zhang, Songlin Huang</i>	
FAULT DIAGNOSIS OF MISTUNED PRELOAD IN ROD FASTENED ROTOR IN GAS TURBINE BASED ON CWT	119
<i>Jiaqi Li, Lei Cui, Zhongyu Yang, Guyun Mo, Wenyuan Zhong, Yinli Feng</i>	
FAULT PROGNOSIS OF TRANSMIT-RECEIVE MODULES FOR ACTIVE PHASED ARRAY RADAR.....	125
<i>Gong Wenjun, Sun Bin, Zheng Yuanzhu</i>	
RESEARCH ON ESTABLISHING DATA-DRIVEN DIAGNOSIS SYSTEM OF TRANSFORMER WINDING'S SHORT-CIRCUIT WITHSTAND ABILITY	131
<i>Jiaxu Wang, Jian Guo, Wenze Zhang, Yunshan Zhou</i>	
A BI-LEVEL CONDITION-BASED MAINTENANCE POLICY FOR A TWO-COMPONENT SYSTEM SUBJECT TO STOCHASTIC AND ECONOMIC DEPENDENCIES	136
<i>Yukun Wang, Xiaopeng Li</i>	
AN IMPROVED SIMILARITY MATCHING BIDIRECTIONAL GATED RECURRENT UNIT AUTOENCODER SCHEME FOR REMAINING USEFUL LIFE PREDICTION.....	142
<i>Yuhang Duan, Honghui Li, Ning Zhang, Yanhui Bai</i>	
REMAINING USEFUL LIFE PREDICTION OF PARTS AND COMPONENTS BASED ON BILSTM AUTOENCODER WITH ATTENTION MECHANISM AND SKIP CONNECTION	150
<i>Mengqi He, Honghui Li, Yuhang Duan, Yanhui Bai</i>	
A NOVEL SIMILARITY-BASED METHOD FOR REMAINING USEFUL LIFE PREDICTION UNDER MULTIPLE FAULT MODES	157
<i>Junqing Shu, Yuhui Xu, Xuancheng Jin, Dongyang Han, Tangbin Xia</i>	
CROSS-DOMAIN INTELLIGENT FAULT DIAGNOSIS USING TRANSFERABLE BILINEAR NEURAL NETWORK.....	164
<i>Yimin Jiang, Lei Cao, Rourou Li, Kaigan Zhang, Tangbin Xia</i>	
A COMPARATIVE STUDY ON THE VARIANCE PREMATURE MECHANISM AND EVOLUTIONARY FACTOR PREMATURE MECHANISM OF PARTICLE SWARM OPTIMIZATION	172
<i>Qingwei Li, Zhi Liu, Zhiwen Shen, Zijuan Long</i>	

THE FAULT RE-DECISION METHOD BASED ON THE DIFFERENT DECREASING FUNCTIONS.....	179
<i>Bin Ren, Jian-Yuan Cui, Jia Zhi-Xin, Li Gang</i>	
STIFFNESS ANALYSIS OF HIGH-SPEED CYLINDRICAL ROLLER BEARING SUBJECTED TO COMBINED LOADS.....	186
<i>Yaoyu Han, Lihua Yang, Tengfei Xu, Endian Xu</i>	
RESEARCH ON STATICS MODEL OF AIRCRAFT FUEL TANK INSPECTION ROBOT.....	192
<i>Yun Chen, Hongfu Zuo, Huan Zhang, Juan Xu</i>	
RESEARCH ON REAL-TIME MODEL OF TURBOSHAFT ENGINE WITH SURGE PROCESS.....	198
<i>Xinglong Zhang, Lingwei Li, Tianhong Zhang</i>	
AN OPTIMIZED MULTIVARIATE VARIATIONAL MODE DECOMPOSITION FOR THE FAULT DIAGNOSIS OF ROTATING MACHINERY.....	206
<i>Qiuyu Song, Xingxing Jiang, Qian Wang, Weiguo Huang, Juanjuan Shi, Zhongkui Zhu</i>	
ADS-B SIGNAL RECOGNITION METHOD BASED ON ENTROPY FEATURE FUSION.....	212
<i>Jialan Shen, Jingchao Li, Haijun Wang, Cheng Cong, Yulong Ying, Bin Zhang</i>	
ROLLING BEARING FAULT DIAGNOSIS METHOD BASED ON LMD ENTROPY FEATURE FUSION.....	217
<i>Bo Deng, Jingchao Li, Haijun Wang, Cheng Cong, Yulong Ying, Bin Zhang</i>	
ON-LINE CRACK PROPAGATION PROGNOSTICS USING A RESAMPLE-MOVE PARTICLE FILTER.....	223
<i>Yanwen Wang, Jian Chen, Shenfeng Yuan</i>	
DISTRIBUTED FAULT-TOLERANT ADAPTIVE FLOCKING CONTROL OF MULTI-AGENT SYSTEM WITH MODEL PERTURBATION AND ACTUATOR FAILURE.....	228
<i>Yunpeng Yao, Yuehua Cheng, Ziquan Yu, Zhengyu Ye</i>	
RESEARCH ON BEARING LIFE TREND PREDICTION METHOD BASED ON PRINCIPAL COMPONENT ANALYSIS AND GREY MODEL.....	234
<i>Hailong Ma, Li Zhen</i>	
SIMULATED EXPERIMENTS OF ROTOR-STATOR INTERACTION RUBBING AND SAND INGESTION FAULT BASED ON AERO-ENGINE ELECTROSTATIC SENSOR.....	240
<i>Jiachen Guo, Hongfu Zuo, Zhirong Zhong, Heng Jiang</i>	
A NEW VARIABLE CONDITIONS INTELLIGENT FAULT DIAGNOSIS METHOD FOR ROTOR-BEARING BASED ON VIBRATION IMAGE DATASET.....	245
<i>Xiaoyue Liu, Cong Peng</i>	
FULL-PARAMETERS IDENTIFICATION TECHNIQUE OF ATTENUATED OSCILLATIONS IN POWER SYSTEM MONITORING.....	250
<i>Huan Li, Cheng Lu, Cheng-Wei Fei, Yan Hu, Bo Huang, Liu-Yin Yuan</i>	
DEVELOPMENT OF AN ONLINE FAULT-DIAGNOSTIC-SYSTEM BASED ON STM32 FOR ACTUATORS.....	255
<i>Shaowei Chen, Yanping Huang, Hengyu Liu, Pengfei Wen, Ning Yang, Shuai Zhao</i>	
AN ACCELERATED DEGRADATION TESTING METHOD FOR QUANTIFYING LIFETIME OF DC-DC POWER SUPPLY.....	263
<i>Qingchuan He, Jun Pan, Whenhua Chen</i>	

A NEW DEEP SPARSE FILTERING METHOD APPLIED TO TRANSFER LEARNING	271
<i>Yan Zhenhao, Zhang Zongzhen, Tian Zhiyuan, Wang Jinrui, Bao Huaiqian, Guo Lei</i>	
ROTATING MACHINERY FAULT DIAGNOSIS USING LIGHT GRADIENT BOOSTING MACHINE	276
<i>Guangquan Zhao, Yongning Zhang, Kankan Wu, Jun Zhou</i>	
INDUCTION MOTOR FAULT DIAGNOSIS BASED ON MULTI-SENSOR FUSION UNDER HIGH NOISE AND SENSOR FAILURE CONDITION.....	282
<i>Zhiyu Tao, Pengcheng Xia, Yixiang Huang, Dengyu Xiao, Yuxiang Wuang, Zhiwei Zhong, Chengliang Liu</i>	
RESEARCH ON BEARING INCIPIENT FAILURE DEGRADATION STATE RECOGNITION METHOD BASED ON FAST SPECTRAL KURTOSIS AND MULTI-POINT OPTIMAL MINIMUM ENTROPY DECONVOLUTION ADJUSTED	290
<i>Zixia Fu, Yingjie Zhao, Hao Yin</i>	
RESEARCH ON GROUP PREVENTIVE MAINTENANCE METHOD BASED ON COMPONENTS DEPENDENCE.....	298
<i>Ting Liu, Peng Ye, Tao Hong, Bo Li, Hengchang Liu</i>	
REINFORCEMENT LION SWARM OPTIMIZATION ALGORITHM FOR TOOL WEAR PREDICTION	304
<i>Zixiang Dai, Mingyan Jiang, Xiaogang Li, Dongfeng Yuan, Xiaotian Zhou</i>	
MAINTENANCE OPTIMIZATION DESIGN OF AUTOMOBILE ANTI-LOCK BRAKE SYSTEM BASED ON IMPORTANCE MEASURES	311
<i>Keqi Qu, Lu Kou, Ning Wang</i>	
CONDITION MONITORING OF PERMANENT MAGNET SYNCHRONOUS MOTOR UNDER DIFFERENT STATOR FAULT SEVERITY	319
<i>Jing Tang, Xiaojian Ding, Yuanhang Wang, Dan Li, Boehen Chen, Chunhui Wang</i>	
GENERALIZED CAUCHY FOR PREDICTING RELIABILITY OF POWER SYSTEM.....	323
<i>Gao Jun, Ren Li Jia, Deng Wu Jin, Song Wan Qing</i>	
RESEARCH ON SLAM ALGORITHM OF MOBILE ROBOT VISION BASED ON DEEP LEARNING.....	327
<i>Haili Song, Bin Ren, Zengxu Zhao, Jianyuan Cui</i>	
A BIVARIATE DEGRADATION MODEL BASED ON GAMMA PROCESSES WITH DEPENDENT SCALE PARAMETERS.....	334
<i>Xin Wu, Tingting Huang, Dan Xu</i>	
A FAULT DIAGNOSIS METHOD FOR HYDRAULIC END OF DRILLING PUMP BASED ON DYNAMIC FAULT TREE	341
<i>Xuan He, Bo Li, Tao Hong</i>	
RESEARCH ON FAULT PREDICTION METHOD OF ROLLING BEARING BASED ON HEALTH INDICATOR AND DYNAMIC MODEL	347
<i>Peng Luo, Niaoqing Hu, Zhe Cheng, Bo Xu</i>	
A TWO-STAGE APPROACH FOR MODELING INVERSE S-SHAPED WEAR PROCESSES OF CUTTING TOOLS.....	355
<i>Renyan Jiang</i>	

VISIBILITY GRAPH BASED FEATURE EXTRACTION FOR FAULT DIAGNOSIS OF ROLLING BEARINGS.....	360
<i>Xinjie Bi, Guangyuan Chen, Guoliang Lu</i>	
AN AEROENGINE FAULT DIAGNOSIS METHOD BASED ON UTCA AND DBN.....	366
<i>Ke Yang, Jianguo Xu, Jiacheng Xu, Xingyi Liu</i>	
IMPROVEMENT AND APPLICATION OF GREY WAVE PREDICTION MODEL BASED ON PHM OF CIVIL AIRCRAFT SYSTEM	372
<i>Honglan Wu, Ruiyu Liu, Youchao Sun</i>	
COMPREHENSIVE DESIGN AND INVESTIGATION OF CIVIL AIRCRAFT RELIABILITY /MAINTAINABILITY/SAFETY/TESTABILITY ENGINEERING	380
<i>Qunfeng Ye, Peng Lu</i>	
A NOVEL MODEL OF BEARING FAULT DIAGNOSIS BASED ON CONVOLUTIONAL AUTO-ENCODER AND CAPSULE NETWORK.....	385
<i>Jiangtao Xiao, Liuyang Song, Xudong Guo, Jintao Liu, Huaqing Wang, Fujian Xu</i>	
RESEARCH ON CASCADING EFFECT ANALYSIS OF CIVIL AIRCRAFT SHARED DATA AND RESOURCE SYSTEM FAILURES.....	391
<i>Feng Zhen, Shi Zhijian, Wang Yuqing</i>	
IN-THE-LOOP SIMULATION EXPERIMENT OF AERO-ENGINE FAULT-TOLERANT CONTROL TECHNOLOGY	396
<i>Zhang Mengtian, Huang Xianghua, Wang Shengchao, Luo Liantan</i>	
DESIGN APPROACHES OF A CAN PREMIXED COMBUSTOR FOR A MICRO-GAS TURBINE.....	403
<i>Luyu Wang, Zaiguo Fu, Jiang Liu, Peifen Weng, Yunyun Wang, Wenwei Xiang</i>	
AN OPTIMAL DAG-LSTSVM ALGORITHM BASED ON IMBALANCE FACTOR FOR VEHICLE FAULT DIAGNOSIS.....	411
<i>Haoqiang Liu, Hongbo Zhao, Shuai Yuan, Wenquan Feng</i>	
RESEARCH ON A RELIABILITY PREDICTION METHOD BASED ON FUZZY COGNITIVE MAP	417
<i>Beibei Huang, Shunong Zhang, Xuesong Yang, Yingying Liu</i>	
AN UNCERTAINTY CORRELATION METRIC IN GRADUAL INFERENCE TO IMPROVE DOMAIN ADAPTATION FOR CROSS-LOCATION FAULT DIAGNOSIS.....	421
<i>Qing Zhang, Menglin Sun, Lv Tang, Jianping Xuan</i>	
A MULTI-CHANNEL TRANSFER LEARNING FRAMEWORK FOR FAULT DIAGNOSIS OF AXIAL PISTON PUMP.....	428
<i>You He, Hesheng Tang, Yan Ren</i>	
OPTIMIZATION OF AXIAL CONTACT STIFFNESS OF PRECISION BALL SCREWS BASED ON HERTZIAN THEORY	435
<i>Tiewei Sun, Xiangsheng Gao, Minda Wang, Yingjie Zhao, Min Wang</i>	
INTELLIGENT ROLLING BEARING FAULT DIAGNOSIS UNDER VARIABLE SPEED CONDITIONS WITHOUT TACHOMETERS.....	440
<i>Yuan Jiang, Hongyang Zhao, Gang Niu</i>	

STUDY ON DYNAMICS CHARACTERISTICS OF LABYRINTH-SEAL-ROTOR SYSTEM WITH PEDESTAL LOOSENESS	447
<i>Tao Zhou, Fengchao Huang, Yunteng Han, Yuegang Luo</i>	
SIMULATION ANALYSIS AND BELIEF RELIABILITY EVALUATION OF ELECTROMAGNETIC PERFORMANCE OF ELECTRONIC PRODUCTS	455
<i>Qiaohui Chu, Ying Chen</i>	
RELIABILITY ANALYSIS AND NOISE PREDICTION OF SMALL HIGH-SPEED CENTRIFUGAL FAN WITH IMPROVED VOLUTE TONGUE	461
<i>Lele Dai, Hexiang Zhang, Yingbin Li, Wenxin Li, Wenjin Shang, Tongyu Liu, Baolu Shi, Jiang Luo</i>	
FAILURE ANALYSIS OF ELECTROMAGNETIC-PNEUMATIC VALVE IN BOGIE-BASED BRAKING CONTROL SYSTEM	469
<i>Liuqing Xiong, Zheng Liu, Gang Niu</i>	
DEMAGNETIZATION FAULT DETECTION IN SURFACE-MOUNTED PERMANENT MAGNET SYNCHRONOUS MACHINE.....	475
<i>Bozheng Wang, Niaoqing Hu, Ling Chen, Yi Yang, Zhengyang Yin, Yang Zhou</i>	
RESEARCH ON KEY TECHNOLOGIES OF HEALTH ASSESSMENT FOR MULTI-EQUIPMENT PRODUCTION LINE	480
<i>Lele Feng, Bo Li, Minmin Liu, Tao Hong</i>	
RESEARCH ON CIVIL AIRCRAFT MAINTENANCE MAN-HOUR EVALUATION METHOD BASED ON MAINTENANCE SEQUENCE	485
<i>Xiang Wei, Zheng Youshi</i>	
RESEARCH ON SAFETY ANALYSIS METHOD BASED ON CIVIL AIRCRAFT MAINTENANCE OPERATION	492
<i>Xiang Wei, Zheng Youshi</i>	
THE COMPARATIVE EXPERIMENTS BETWEEN THE VIBRATION SIGNAL AND THE CURRENT SIGNAL OF ROTOR SYSTEM BASED ON DEEP LEARNING METHOD.....	500
<i>Haihong Tang, Peng Chen, Dunwen Zuo, Yi Sheng, Qingping Mei</i>	
ANALYTICAL REDUNDANCY ESTIMATION OF AEROENGINE BASED ON SANN	508
<i>Chen Gao, Xianghua Huang, Runmin Ji, Yan Zhang</i>	
DENSELY CONNECTED FULLY CONVOLUTIONAL AUTO-ENCODER BASED SLEWING BEARING DEGRADATION TREND PREDICTION METHOD.....	516
<i>Lianhua Liu, Jie Chen, Zhupeng Wen, Dianzheng Zhang, Lingling Jiao</i>	
REMAINING USEFUL LIFE PREDICTION USING DYNAMIC PRINCIPAL COMPONENT ANALYSIS AND DEEP GATED RECURRENT UNIT NETWORK	523
<i>Liudong Gu, Yifan Zhou, Zhisheng Zhang, Hao Li, Lei Zhang</i>	
A NETWORK STRUCTURE SEARCH METHOD BASED ON REINFORCEMENT LEARNING FOR ROLLING BEARING FAULT DIAGNOSIS.....	528
<i>Ruixin Wang, Hongkai Jiang, Xingqiu Li, Pei Yao</i>	
RUSHAP: A UNIFIED APPROACH TO INTERPRET DEEP LEARNING MODEL FOR REMAINING USEFUL LIFE ESTIMATION.....	533
<i>Yilin Wang, Yuanxiang Li, Yuxuan Zhang, Yongsheng Yang, Lei Liu</i>	

A NON-INVASIVE ONLINE CONDITION MONITORING METHOD FOR BOTH SIC MOSFET AND DC-LINK CAPACITOR IN A SINGLE-PHASE INVERTER	539
<i>Wanquan Wang, Qunfang Wu, Hang Shi, Qin Wang, Lan Xiao, Yiqing Wu, Shengjian Gu, Jun Liu</i>	
A FUSION METHOD TO ESTIMATE THE STATE-OF-HEALTH OF LITHIUM-ION BATTERIES	544
<i>Yajun Zhang, Mengda Cao, Yu Wang, Tao Zhang, Yajie Liu</i>	
RESEARCH ON PREDICTION OF TURBINE MECHANICAL PERFORMANCE DEGRADATION BASED ON ATTENTION LSTM	550
<i>Guanxiu Yi, Bo Li, Xuesheng Li, Hengchang Liu</i>	
RESEARCH ON KEY TECHNOLOGIES OF HEALTH STATE ASSESSMENT FOR COMPLEX EQUIPMENT	556
<i>Huimin Deng, Bo Li, Minmin Liu, Tao Hong</i>	
THERMAL DESIGN AND THERMAL RELIABILITY ANALYSIS OF SAR ANTENNA SYSTEM UNFOLDING	561
<i>Liu Liu, Zhang Xiaofeng, Liao Xing</i>	
TRILATERATION BASED ON THE COMBINATION AND K-MEANS CLUSTERING	566
<i>Kexin Yang, Qinghua Luo, Xiaozhen Yan</i>	
BELIEF RELIABILITY ANALYSIS OF ELECTRICAL PERFORMANCE BASED ON ANALOG BEHAVIOR MODELING	570
<i>Xiao Hao, Chen Ying, Wang Yujia, Kang Rui</i>	
VIBRATION ANALYSIS OF A MARINE PROPULSION SHAFT SYSTEM WITH THE TORSIONAL-LONGITUDINAL COUPLING EFFECT INDUCED BY PROPELLER AND CRANKSHAFT	574
<i>Yang Yi, Zhang Lun, Yin Zhengyang, Wang Bozheng, Shen Guoji, Zhou Yang, Hu Niaoqing</i>	
RESEARCH ON HEALTH ASSESSMENT SYSTEM OF AIRCRAFT POWER SUPPLY SYSTEM	582
<i>Yan Jun Dong, Xiao Ding Yang, Jiayi Liang, Qin Zhou Lin</i>	
TRANSMISSION SYSTEM BEARING FAULT DETECTION METHOD BASED ON MODULATED SIGNAL BI-SPECTRUM ANALYSIS	590
<i>Lun Zhang, Yi Yang, Zhengyang Yin, Yuehao Li, Ling Chen, Guoji Shen, Niaoqing Hu</i>	
STUDY ON DYNAMIC CHARACTERISTICS OF DOUBLE SPAN ROTOR-BEARING SYSTEM WITH SLOWLY-VARYING EXCITATION FREQUENCY	595
<i>Jiaheng Sun, Tao Zhou, Xiaobei Lu, Yuegang Luo</i>	
OPTIMAL INSPECTION AND MAINTENANCE PLANS FOR CORRODED PIPELINES	602
<i>Yifei Wang, Chun Su, Mingjiang Xie</i>	
EXTRACTION OF SOLAR CELL MODEL PARAMETERS BASED ON QUANTUM WHALE OPTIMIZATION ALGORITHM	608
<i>Hao Xu, Zhendong Yin, Li Wang, Shanshui Yang</i>	
AME-TCN: ATTENTION MECHANISM ENHANCED TEMPORAL CONVOLUTIONAL NETWORK FOR FAULT DIAGNOSIS IN INDUSTRIAL PROCESSES	614
<i>Jiyang Zhang, Yang Chang, Jianxiao Zou, Shicai Fan</i>	

FAULT DIAGNOSIS OF ROLLING BEARINGS BASED ON GA-SVM MODEL	620
<i>Wenqin Zhao, Yaqiong Lv, Jinhua Xiao, Yifan Li</i>	
A NOVEL INTELLIGENT METHOD FOR THE GEAR FAULT QUANTITATIVE DIAGNOSIS BASED ON GVMD AND ADAPTIVE NFV EXTRACTION	626
<i>Jian Shen, Peng Luo, Niaoqing Hu, Lun Zhang</i>	
MODELING AND LIFETIME PREDICTION OF LITHIUM-ION BATTERY	634
<i>Binxin Ge, Zhendong Yin, Zihan Yin, Li Wang, Shanshui Yang</i>	
A METHOD USING QUANTUM GENETIC ALGORITHM OPTIMIZED BP NEURAL NETWORK OF REAL-TIME FAULT DETECTION FOR THE LIQUID ROCKET ENGINE.....	639
<i>Huahuang Yu, Tao Wang, Yong Tang</i>	
QUANTITATIVE IDENTIFICATION OF CRACK FAULTS IN AVIATION HYDRAULIC PIPELINE BASED ON MULTIFRACTAL THEORY	645
<i>Zhengkun Xue, Xiaolong Zhang, Xijin Yu, Xiaoguang Yu, Zihan Wang, Tongguang Yang</i>	
RESEARCH FOR CIVIL AIRCRAFT PROPOSED MASTER MINIMUM EQUIPMENT LIST (PMMEL) ITEMS ANALYSIS METHOD BASED ON SYSTEM SAFETY ASSESSMENT	653
<i>Zheng Youshi, Cheng Kan</i>	
MARINE PROPULSION SHAFT BEARING FAULT FEATURE EXTRACTION AND DIAGNOSIS BASED ON STRONG TRACKING STATE PRINCIPAL COMPONENT	659
<i>Zhiqiang Liao, Xuwei Song, Baozhu Jia, Dunwen Zuo, Yi Sheng, Peng Chen</i>	
A WIENER PROCESS MODEL WITH KERNEL-BASED TIME TRANSFORMATION FOR NONLINEAR DEGRADATION DATA	667
<i>Hanyu Wang, Zhen Chen, Tangbin Xia, Di Zhou, Ershun Pan</i>	
MODULATION SIGNAL BISPECTRUM OPTIMIZATION FOR FAULT DIAGNOSIS OF INTERSHAFT BEARINGS.....	675
<i>Kun Feng, Yezheng Li, Ya He</i>	
EVALUATION OF VIBRATION INDUCED LOCAL FATIGUE IN ALUMINUM ALLOY STRUCTURE BY USING LASER ULTRASONIC TECHNIQUE.....	683
<i>Xia Yunxian, Zhang Chao</i>	
RELIABILITY MODELING OF TWO-UNIT SYSTEM WITH DEGRADATION INTERDEPENDENCE	689
<i>Wenke Gao, Le Chen, Xiwen Zhang, Zhicheng Dong</i>	
APPLICATION OF RELIABILITY TECHNOLOGY IN RAILWAY SYSTEM	694
<i>Hong Yang, Zhou Qi</i>	
KNOWLEDGE GRAPH CONSTRUCTION FOR FAULT DIAGNOSIS OF AIRCRAFT ENVIRONMENTAL CONTROL SYSTEM	698
<i>Shutong Zhang, Yini Zhang, Yongsheng Yang, Wei Cheng, Honghua Zhao, Yuanxiang Li</i>	
STRUCTURE OPTIMIZATION DESIGN AND FAULT SIMULATION OF PERMANENT MAGNET SYNCHRONOUS DIRECT DRIVE MOTOR	703
<i>Zheng Liu, Xutao Yu, Gang Niu</i>	
FAULT ANALYSIS OF TYPICAL STRUCTURE OF HELICOPTER TRANSMISSION SYSTEM BASED ON LUMPED-PARAMETER MODELING.....	710
<i>Jiao Hu, Niaoqing Hu, Zhe Cheng, Yi Yang, Yang Zhou</i>	

DESIGN AND DYNAMIC ANALYSIS OF RANDOM VIBRATION TEST FIXTURE FOR AEROSPACE VALVE	715
<i>Yaojia Han, Weimin Cui, Fangyi Wan, Deyin Jiang, Xiangyang Li, Dingnan He</i>	
A POST-WARRANTY MAINTENANCE STRATEGY CONSIDERING PRODUCT AGE.....	721
<i>Peng Liu, Guanjun Wang, Yixuan Zhang</i>	
DOUBLE-LAYER FUZZY ENHANCED FAILURE MODE AND EFFECTS ANALYSIS METHOD FOR AUTOMATIC TRAIN OPERATION SYSTEM	725
<i>Ziqi Wang, Wei Shangguan, Cong Peng, Hongyu Song</i>	
RESEARCH ON OPERATING NURSE ASSIGNMENT BASED ON FATIGUE QUANTIFICATION	732
<i>Li Huang, Jingjing Liu, Po-Chou Shih</i>	
DESIGN OF DIAGNOSIS SERVICE SYSTEM FOR SELF-DRIVING VEHICLES - LEARNINGS FROM THE DRIVER'S ROLE TODAY	740
<i>Lina Rylander, Magnus Eneberg, Jonas Mårtensson, Anna Pernestål</i>	
TWO-PHASE DEGRADATION MODELING AND RESIDUAL LIFE PREDICTION BASED ON NONLINEAR WIENER PROCESS	748
<i>Hu Jiaying, Sun Meng, Jing Bo, Liu Jingyuan, Cao Xin</i>	
FAULT DIAGNOSE OF THE ROLLING BEARINGS VIBRATION SIGNALS BASED ON KALMAN FILTER METHOD	756
<i>Qingpeng Han, Xinhang Shen, Bin Wu, Rui Zhu, Daolei Wang, Binxia Ruan</i>	
THE OPEN SET WEIGHTED DOMAIN ADAPTATION METHOD FOR FAULT DIAGNOSIS OF ROLLING BEARINGS	762
<i>Feng Jia, Shihao Li, Jianjun Shen, Junxing Ma</i>	
STUDY ON VIBRATION OF THE ANISOTROPICALLY ROTOR SYSTEM WITH DIFFERENT SECTIONS BASED ON THE IMPROVED RICCATI TRANSFER MATRIX METHOD.....	768
<i>Pang Guoying, Chen Yushu, Cao Shuqian, Li Bo</i>	
SEQUENTIAL FAULT DIAGNOSIS WITH DOUBLE LAYER UNCERTAINTY	775
<i>Shigang Zhang, Yanfeng Wang, Lei Wang, Xu Luo</i>	
IMBALANCED FAULT DIAGNOSIS OF BEARING-ROTOR SYSTEM VIA NORMALIZED CONDITIONAL VARIATIONAL AUTO-ENCODER WITH ADAPTIVE FOCAL LOSS	780
<i>Xiaoli Zhao, Jianyong Yao, Wenxiang Deng, Minping Jia</i>	
AUGMENTED-REALITY-ASSISTED BEARING FAULT DIAGNOSIS IN INTELLIGENT MANUFACTURING WORKSHOP USING DEEP TRANSFER LEARNING	786
<i>Zhen Wang, Dunbing Tang, Changchun Liu, Xin Xiong, Linqi Zhang, Zhuocheng Zhang, Xuan Liu</i>	
A NEW METHOD OF MULTI-FEATURE FUSION ROLLING BEARING FAULT DIAGNOSIS BASED ON GA-DHMM	792
<i>Liangbo Li, Guangrui Wen, Xin Huang, Zhifen Zhang, Xuefeng Chen</i>	
TOOL WEAR STATE MONITORING BASED ON DIAGONAL SLICE SPECTRUM AMPLITUDE FEATURE.....	799
<i>Bin Yang, Tao Zan, Min Wang, Xiangsheng Gao</i>	

IMPROVED METHOD FOR DETERMINING THE REMAINING USEFUL LIFE OF A COMPONENT	803
<i>Eric Bechhoefer, Lei Xiao, Xinghui Zhang</i>	
ONLINE MILLING CHATTER DETECTION USING DEEP RESIDUAL NETWORK AND TRANSFER LEARNING	810
<i>Junyu Cong, Guofeng Wang, Fei Wang, Jianming Che, Xingchen Yu, He Geng, Wenhua Han</i>	
FAILURE ANALYSIS FOR PRESSURE FLUCTUATION OF OXYGEN PHASE-CHANGE HEAT EXCHANGER IN ROCKET ENGINE.....	818
<i>Li Fangyong, Su Xinming, Huang Shouqing, Zhou Yuan, Li Wenmiao, Hu Fang</i>	
IDENTIFICATION OF FAULT INDICATOR VARIABLES OF WIND TURBINE PITCH SYSTEM BASED ON SGD-R'S IMPROVED K-MEANS ALGORITHM	825
<i>Cheng Xiao, Zhenya Qian, Tieling Zhang, Zuojun Liu</i>	
BEARING INTELLIGENT FAULT DIAGNOSIS UNDER COMPLEX WORKING CONDITION BASED ON SK-ES-CNN	833
<i>Zhengping Li, Kaiqiang Liu, Lei Xiao</i>	
AN ANALYTICAL REPRESENTATION METHOD FOR DYNAMIC BEHAVIOR OF ROTATING BLADE WITH TRANSVERSE CRACK.....	841
<i>Laihao Yang, Xuefeng Chen, Zheshuai Yang, Ruqiang Yan, Zhu Mao, Yu Sun</i>	
STUDY ON TARGET DETECTION AND TRACKING METHOD OF UAV BASED ON LIDAR	847
<i>Hong Wang, Yu Peng, Liansheng Liu, Jun Liang</i>	
STUDY ON PERFORMANCE EVALUATION AND PREDICTION OF MIXED-FLOW HYDRAULIC TURBINE UNITS UNDER VARIABLE OPERATING CONDITIONS	853
<i>Ran Duan, Jie Liu, Wei Liu, Jianzhong Zhou</i>	
UNIFIED FFL MODEL BASED RELIABILITY, SAFETY AND TESTABILITY INTEGRATED ANALYSIS METHOD	859
<i>Wensheng Peng, Jiao Li</i>	
STUDY ON RISK ASSESSMENT OF FLIGHT TEST OF TRANSPORT AIRCRAFT BASED ON IAHP-SPA MODEL	865
<i>Xiangyu Xing, Yan Su, Zisheng Liu, Tan Wen</i>	
COMPARISONS OF DIFFERENT IMPORTANCE MEASURES WITH HIERARCHICAL SYSTEM MARKOV BAYESIAN NETWORK MODEL.....	871
<i>Rentong Chen, Shaoping Wang, Chao Zhang, Yadong Zhang</i>	
PRODUCT KEY RELIABILITY CHARACTERISTICS IDENTIFICATION METHOD BASED ON XGBOOST IN MANUFACTURING PROCESS	878
<i>Zirong Wang, Yihai He, Anqi Zhang, Jishan Zhang, Haifei Liu, Pengyang Shi, Ruoran Han</i>	
EXPERIMENTAL STUDY ON THE EFFECTS OF WEAR AND CLEARANCE IN A 3D REVOLUTE JOINT	884
<i>Li Zhang, Guanghan Bai, Ting Zhang, Yun-An Zhang, Yining Fang, Junyong Tao</i>	
REVIEW OF THE APPLICATION OF DEEP LEARNING IN HEALTH MANAGEMENT.....	891
<i>Zihao Zhang, Xianghua Huang, Tianhong Zhang</i>	
ROBUST VIBRATION SIGNAL DENOISING AND DIAGNOSIS USING ENCODER-DECODER NETWORKS WITH CROSS-LAYER RESIDUAL CONNECTION	898
<i>Ting Ai, Zhiliang Liu, Huan Wang, Haoran Han</i>	

LUNG NODULE CLASSIFICATION OF CT IMAGES USING CHANNEL AND SPATIAL ATTENTION CNN WITH BAYESIAN OPTIMIZATION	903
<i>Hassan Mkindu, Longwen Wu, Yaqin Zhao, Liang Zhao</i>	
POWER SPECTRAL ENTROPY-BASED GRAPH CONSTRUCTION FOR ROTATING MACHINERY DIAGNOSIS USING MULTI-SENSOR	909
<i>Chaoying Yang, Kaibo Zhou, Jie Liu, Qi Xu</i>	
VIBRATION SIGNAL ANALYSIS OF ROLLING BEARING BASED ON PERMUTATION ENTROPY	914
<i>Junjun Dong, Wei Dai</i>	
AN INFORMATION TRANSMISSION MODEL FOR OFFSHORE WIND TURBINES BASED ON MULTI-VARIABLE COUPLING RELATIONSHIP.....	921
<i>Jing Huang, Rongxi Wang, Zhiyong Gao, Jianmin Gao, Wei Deng, Zhen Wang</i>	
DETECTION OF DELAMINATION DEFECTS IN CARBON FIBER COMPOSITES BASED ON INFRARED THERMAL IMAGING	926
<i>Wen Xiao, Hongfu Zuo, Juan Xu, Jiyun Lu, Zifan He</i>	
ADAPTIVE BEAMFORMING OF INTERFERENCE COVARIANCE MATRIX RECONSTRUCTION BASED ON K-MEANS CLUSTERING.....	932
<i>Wangshen Hao, Yuxi Liu, Kewei Ji, Erliang Zhang, Xinmin Dong, Yalei Cao, Yingjun Du, Guang Wei</i>	
AN INTEGRATED MAINTENANCE STRATEGY OF WIND TURBINE BASED ON STATISTIC PROCESS CONTROL	938
<i>Zhenyu Wu, Yanting Li</i>	
RESEARCH ON MAINTAINABILITY VERIFICATION TECHNOLOGY OF CIVIL AIRCRAFT	945
<i>Bin Ren, Zihang Liu, Yin Chen</i>	
THE STUDY OF ENTIRE AIRCRAFT LEVEL DIRECT MAINTENANCE COST ANALYSIS METHOD FOR CIVIL AIRCRAFT	950
<i>Bin Ren, Zihang Liu, Haiyan Zhu</i>	
MODIFIED STACKED CONVOLUTIONAL AUTO-ENCODER FOR HYDRAULIC PUMP FAULT DIAGNOSIS WITH UNBALANCED DATA.....	955
<i>Chao Wang, Yan Zhang, Jian Ma, Laifa Tao, Henghao Zhang, Yu Ding</i>	
INTEGRATED MEASUREMENT SYSTEM OF THREE PARAMETERS OF TURBOPROP ENGINE BASED ON NOVEL PHONIC WHEEL	962
<i>Liantan Luo, Xianghua Huang, Tianhong Zhang</i>	
RESEARCH ON INSPECTION AND DIAGNOSIS ROBOTS FOR PLANT FACILITIES-TRAJECTORY TRACKING CONTROL BY FUZZY GENETIC ALGORITHM AND SELF-POSITIONING CORRECTION METHOD BY DEEP LEARNING.....	970
<i>Shogo Yoshimatsu, Liuyang Song, Dunwen Zuo, Yi Sheng, Peng Chen</i>	
FAULT FEATURE EXTRACTION METHOD OF ROTATING MACHINERY BASED ON DEEPLABV3+ SEMANTIC SEGMENTATION	977
<i>Kai Chen, Minxiang Wei, Xinda Chen, Jiawei Yang, Yuhang Pei, Shunming Li</i>	
RESEARCH ON MULTIPLE CROSS CORRELATION FUSION METHOD OF FAULT VIBRATION SIGNAL	985
<i>Longhuan Cheng, Shunming Li, Jiantao Lu, Weixin Yang</i>	

RESEARCH ON INTELLIGENT VEHICLE PATH PLANNING METHOD BASED ON IMPROVED RRT ALGORITHM.....	991
<i>Chuanhu Niu, Aijuan Li, Xin Huang, Chuanyan Xu</i>	
PATH PLANNING FOR INTELLIGENT VEHICLE BASED ON IMPROVED ANT COLONY ALGORITHM.....	998
<i>Jiaping Cao, Aijuan Li, Zhen Huang, Jinbo Wang</i>	
COMPOUND FAULT RECOGNITION BASED ON WAVELET PACKET TRANSFORM AND THE TRANSFERABLE COMBINATION OF RESNET50 AND MULTI-LABEL CLASSIFIER.....	1006
<i>Zisheng Wang, Jianping Xuan, Tielin Shi</i>	
A METHOD OF DETECTING BEARING FAULT SIGNAL BASED ON DLIA IMPLEMENTED BY FPGA.....	1011
<i>Xinda Chen, Minxiang Wei, Kai Chen, Yuhang Pei, Shunming Li</i>	
AUGMENTED TRANSFER CNN FOR FAULT DIAGNOSIS OF ROLLER BEARING UNDER FREQUENT WORKING CONDITION VARIATION.....	1018
<i>Weiwei Qian, Jiantao Lu</i>	
FAULT SIMULATION AND EXPERIMENTAL VERIFICATION OF AXIAL PISTON PUMP BASED ON AMESIM.....	1024
<i>Xiaojian Ding, Jian Zhou, Zhong Shi, Yuanhang Wang, Yunfan Yang, Ming Deng</i>	
RESEARCH ON VIBRATION REDUCTION OF REGULAR HEXAHEDRAL HONEYCOMB STRUCTURE WITH PERIODIC STRUT.....	1030
<i>Bin Wu, Xinhang Shen, Qingpeng Han, Rui Zhu, Daolei Wang, Binxia Yuan</i>	
INTELLIGENT PHM BASED AUXILIARY DECISION FRAMEWORK OF ADVANCED MODULAR NUCLEAR.....	1037
<i>Yuantaoyao, Jianye Wang, Daochuan Ge, Min Xie</i>	
TRAIN AXLE BEARING FAULT DIAGNOSIS BASED ON TUNABLE Q-FACTOR WAVELET TRANSFORM.....	1042
<i>Huayuan Guo, Dingcheng Zhang, Lanhui Liu, Bin Xing</i>	
RESEARCH ON THE CONTROL METHOD OF ELECTROMECHANICAL ACTION SYSTEM BASED ON IMPROVED SLIDING MODE ALGORITHM.....	1049
<i>Yong Zhou, Jiaying Lou, Shangjun Ma, Qinyu Jiang, Hao Zhou</i>	
CONDITION-BASED MAINTENANCE AND SPARE PARTS ORDERING STRATEGY CONSIDERING THE INFLUENCE OF CONDITION DETECTION.....	1056
<i>Jian Fei Zheng, Qing Dong, Chang Hua Hu, Xin Zhang, Han Xiao Mu</i>	
REMAINING USEFUL LIFE PREDICTION OF MECHANICAL EQUIPMENT BASED ON TEMPORAL CONVOLUTIONAL NETWORK AND ASYMMETRIC LOSS FUNCTION.....	1063
<i>Xudong Guo, Pengxin Wang, Huaqing Wang, Jiangtao Xiao, Song Liuyang</i>	
DEEP CONVOLUTION ADAPTIVE NETWORK-BASED BEARING FAULT DIAGNOSIS UNDER VARIABLE CONDITIONS.....	1068
<i>Zuoyi Chen, Yuanhang Wang, Jun Wu, Chao Deng, Duqing Zhang</i>	
A SIMULATION-BASED STUDY OF THE EFFECTS OF INCOMPLETE DATA ON LIFETIME DISTRIBUTION ESTIMATION DUE TO CENSORSHIP.....	1073
<i>Qi Ye, Zengqiang Jiang, Qi Li, Anqi Shan</i>	

STATE RECOGNITION METHOD OF THE RECOIL SYSTEM OF THE ARTILLERY BASED ON TIME-DOMAIN ENVELOPE ANALYSIS.....	1079
<i>Xiangfei Yang, Faping Zhang, Jianfeng Wei</i>	
A ONE-DIMENSIONAL VISION TRANSFORMER WITH MULTISCALE CONVOLUTION FUSION FOR BEARING FAULT DIAGNOSIS.....	1087
<i>Chaoyang Weng, Baochun Lu, Jiachen Yao</i>	
A HYBRID FAULT DIAGNOSIS METHOD FOR ROLLING BEARING WITH IMPROVED MULTISCALE DISPERSION ENTROPY-BASED STATE PRE-DETECTION AND FEATURE FUSION	1093
<i>Wei Jiang, Zhong Chen, Nan Zhang, Yanhe Xu</i>	
ADVERSARIAL DOMAIN ADAPTATION FOR TRANSFER FAULT DIAGNOSIS OF ROLLER BEARINGS BASED ON MULTI-MMD ALIGNMENT	1097
<i>Ranran Li, Shunming Li, Mengjie Zeng, Jiayang Xiang, Jin Chang, Qijun Wu</i>	
SPARSITY-ASSISTED SUPERVISED CLASSIFICATION APPROACH WITH APPLICATION TO DATA-DRIVEN MACHINE DIAGNOSTICS	1102
<i>Yun Kong, Fulei Chu</i>	
A FAULT DIAGNOSIS METHOD OF ROLLING BEARING BASED ON CEEMDAN AND KFCM.....	1108
<i>Yuhang Pei, Minxiang Wei, Kai Chen, Xinda Chen, Shunming Li</i>	
TEST DESIGN OF SMALL SAMPLE LAUNCH VEHICLE BASED ON COMPOSITE EQUIVALENCY BAYESIAN FUSION	1114
<i>Qizi Huangpeng, Xiaojun Duan, Wenwei Huang, Yinhui Zhang</i>	
BLADE TIP-TIMING MEASUREMENT MATHEMATICAL MODELING AND SIMULATION WITHOUT OPR UNDER THE CONDITION OF ROTATING SPEED FLUCTUATION.....	1119
<i>Zhibo Liu, Fajie Duan, Xiuming Li, Jiajia Jiang, Guangyue Niu, Zhonghai Cheng, Fengyao Zhi, Fangyi Li, Hao Zheng, Xiao Fu</i>	
LABELING DEGRADED FULL OPERATION CYCLE DATA WITH 2ND-LEVEL RELAXATION CLUSTERING.....	1125
<i>Zhouzheng Li, Yuan Xiao, Yezheng Li, Zhaoxi Liang, Kun Feng</i>	
EVALUATION METHOD OF ROTATING MACHINERY HEALTH STATE BASED ON TPE-XGBOOST	1132
<i>Liping Yang, Zhouzheng Li, Yuan Xiao, Kun Feng</i>	
INTELLIGENT FAULT DIAGNOSIS OF ENGINE BOLT TIGHTENING BASED ON ONE-DIMENSIONAL CONVOLUTIONAL NEURAL NETWORK	1138
<i>Chao Wang, Yuanhang Wang, Jun Wu, Xuebing Xu, Xiaoting Li</i>	
PARAMETER ESTIMATION OF MIXED WEIBULL DISTRIBUTION BASED ON GENETIC ALGORITHM AND GRADIENT DESCENT METHOD	1143
<i>Zhengjie Tian, Peiyong Hou, Haitao Zhang, Shubin Si, Zhiqiang Cai</i>	
DATA-DRIVEN METHODOLOGY FOR STATE DETECTION OF GEARBOX IN PHM CONTEXT	1149
<i>Qiuan Chen, Yi Liu, Shengwen Hou, Feng Duan, Zhiqiang Cai</i>	
FAULT DIAGNOSIS OF ROLLING BEARING WITH IMBALANCED SMALL SAMPLE SCENARIOS.....	1155
<i>Yang Guan, Zong Meng, Dengyun Sun</i>	

A WHOLE LIFE CYCLE MAINTENANCE STRATEGY OF CIVIL AIRCRAFT PRECOOLER BASED ON CASE-BASED REASONING AND PROBABILITY MODEL.....	1163
<i>Yin Chen, Haiyan Zhu</i>	
TRACE ABSTRACTION: A NOVEL METHOD TO ENHANCE FAULT DETECTION IN SEMICONDUCTOR MANUFACTURING PROCESSES WITH AN OPTIMIZATION APPROACH.....	1167
<i>Jianshe Feng, Feng Zhu, Zongchang Liu, Jianyu Zhang, Lin Hua, Shaojie Wang, Min Xie</i>	
DOUBLE LAYER FEATURE SELECTION AND FEATURE FUSION METHOD FOR ROLLING BEARING BASED ON AFF-AAKR	1173
<i>Yonghao Zhuang, Jinhua Mi, Lulu Liu, Libing Bai</i>	
A SYSML DESCRIPTION FOR TT&C SYSTEM.....	1178
<i>Zheng-Yin Yao, Xin-Yang Wu, Xiao-Yue Wu</i>	
TOOL RELIABILITY MODELING BASED ON GAMMA PROCESS IN MULTIPLE WORKING CONDITIONS	1182
<i>Fujin Lin, Hui Zhang, Yifan Zhou, Zhangsheng Zhang, Lei Zhang</i>	
THE CORRENTROPY INDUCED METRIC AND CYCLIC CORRENTROPY SPECTRUM METHOD COMBINED WITH SINGULAR VALUE DECOMPOSITION FOR WEAK SIGNAL DETECTION.....	1188
<i>Siqi Gong, Jiantao Lu, Shunming Li, Huijie Ma, Wang Yan-Feng, Teng Guang-Rong</i>	
GEARBOX FAULT DIAGNOSIS USING NOVEL DILATED CNN AND PIECEWISE LOSS FUNCTION UNDER UNBALANCED DATA.....	1195
<i>Songyu Han, Haidong Shao, Tian' Ao Xu, Rongding Zhao</i>	
A MISSION-ORIENTED SHIPBOARD SPARE PARTS ALLOWANCE METHOD USING RELIABILITY SIMULATION	1200
<i>Zhang Yang, Huang Jine</i>	
RESEARCH ON MODEL-DRIVEN ANALYSIS METHOD OF TESTABILITY VERIFICATION REQUIREMENT.....	1205
<i>Chen Chen, Mengmeng Liu, Xiaolong Ma</i>	
RESEARCH ON CONDITION-BASED OPPORTUNISTIC MAINTENANCE STRATEGY FOR MECHANICAL SYSTEM.....	1212
<i>Jun Pan, Yadong Jiang, Yimin Wei, Shengtu Chen, Wenhua Chen</i>	
CONVOLUTION AND LONG SHORT-TERM MEMORY NEURAL NETWORK FOR PECVD PROCESS QUALITY PREDICTION	1218
<i>Mengze Sun, Zhisheng Zhang, Yifan Zhou, Zhijie Xia, Zhiting Zhou, Lei Zhang</i>	
FAULT TOLERANT CONTROL OF ACTUATOR IN INTAKE PRESSURE REGULATION SYSTEM BASED ON WALCOTT-ZAK SLIDING MODE OBSERVER	1223
<i>Lingfei Xiao, Cong Lin, Zheyuan Lai</i>	
RESEARCH ON STRUCTURAL HEALTH MONITORING OF COMPOSITE MATERIAL STRUCTURE BASED ON MACHINE LEARNING METHOD	1228
<i>Junhua Zhang, Zhi Cao, Zhenxiang Li, Hongyong Fu</i>	
PERFORMANCE DEGRADATION STATE RECOGNITION OF SLEWING BEARING BASED ON IMPROVED MULTI-LAYER KERNEL EXTREME LEARNING MACHINE AUTO- ENCODER.....	1235
<i>Yubin Pan, Hua Wang, Jie Chen, Rongqing Hong</i>	

FAULT DIAGNOSIS OF AEROENGINE BALL BEARING SKID USING ADAPTIVE THRESHOLD	1242
<i>Xindi Wang, Bin Jiang, Lingfei Xiao, Wang Zhang</i>	
A DIGITAL TWIN FRAMEWORK AND AN IMPLEMENTATION METHOD FOR URBAN RAIL TRANSIT	1248
<i>Wenjuan Du, Tengfei Zhang, Guigang Zhang, Jian Wang</i>	
FAULT PREDICTION METHOD FOR ON-BOARD EQUIPMENT OF CTCS BASED ON SEQ2SEQ MODEL USING LSTM	1252
<i>Cong Peng, Wei Shangguan, Baigen Cai, Yulong Xing</i>	
DEEP MULTI-TASK SVDD: A NEW ROBUST ONLINE DETECTION METHOD OF BEARINGS EARLY FAULT	1257
<i>Huadong Shi, Wentao Mao, Gangsheng Wang, Keying Liu</i>	
UAV ACTUATOR FAULT DETECTION USING MAXIMAL INFORMATION COEFFICIENT AND 1-D CONVOLUTIONAL NEURAL NETWORK	1264
<i>Na Wang, Jie Ren, Yue Luo, Kai Guo, Datong Liu</i>	
RESEARCH ON BUBBLE MONITORING METHOD OF LUBRICATING OIL SYSTEM BASED ON DPM MODEL	1270
<i>Zhenzhen Liu, Yan Liu, Hongfu Zuo, Han Wang, Hang Fei</i>	
REMAINING USEFUL LIFE PREDICTION FOR REDUCER OF INDUSTRIAL ROBOTS BASED ON MCSA	1275
<i>Lulu Jiang, Yourui Tao, Jia Wang</i>	
A SINGLE-PRESSING POINT SOLAR ARRAY RESTRAINT AND RELEASE SYSTEM BASED ON THERMAL KNIFE	1282
<i>Yanyan Zhao, Dandan Wang, Zhiqiang Wan, Yang Liu</i>	
TOOL REMAINING USEFUL LIFE PREDICTION METHOD BASED ON TIME-FREQUENCY FEATURES FUSION AND LONG SHORT-TERM MEMORY NETWORK	1287
<i>Bei Pang, Dongfeng Yuan, Dongyang Li, Zijun Di</i>	
IMPERFECT-MAINTENANCE OPTIMIZATION MODEL BASED ON SYSTEM RELIABILITY CONSTRAINT	1294
<i>Senyang Bai, Zhijun Cheng, Xiang Jia, Bo Guo, Jian Zhong, Xiaonan Zhang</i>	
A SEMI-MARKOV MAINTENANCE MODEL FOR BRIDGES SYNTHESIZING WITH FOUR TYPES OF UNCERTAINTIES	1302
<i>Chunhui Guo, Zhenglin Liang</i>	
FAST FAULT DIAGNOSIS SYSTEM BASED ON DATA MINING AR ALGORITHM.....	1307
<i>Yahan Yu, Juan Du, Guanghao Ren, Yao Tan, Jian Wang, Guigang Zhang</i>	
RELIABILITY CALCULATION OF SOLID PROPELLANT BASED ON ACCELERATED DEGRADATION TEST	1313
<i>Jingjing Zhang, Jie Wang, Xiaoqin Wei, Wei Zhao, Haiping Dong</i>	
LIFETIME PREDICTION OF TURBINE BLADE OF TURBOCHARGER FOR DIESEL ENGINE BASED ON FATIGUE AND CREEP DAMAGE MODEL	1320
<i>Jie Wang, Jingjing Zhang, Wei Zhao, Haiping Dong</i>	

PERFORMANCE RELIABILITY EVALUATION OF EXPLOSIVE INITIATOR BASED ON BAYES-BOOTSTRAP METHOD	1325
<i>Wei Zhao, Ke Cao, Yuxi Tao, Jingjing Zhang, Xiaozhen Tu, Jie Wang, Haiping Dong</i>	
A STATE-OF-HEALTH ESTIMATION METHOD OF LITHIUM-ION BATTERIES USING ICA AND SVM.....	1331
<i>Lianfeng Li, Weiwei Cui, Xiao Hu, Zhiwei Chen</i>	
EFMEA-BASED DESIGN OF PROGNOSTICS AND HEALTH MANAGEMENT SYSTEM FOR HEAVY VEHICLES	1336
<i>Zeqing Liu, Nian Liu, Chao Zheng, Hao Li, Haotian Zhou, Yang Na, Huixiong Wang</i>	
ANALOG CIRCUIT DEGRADATION LOCATION METHOD BASED ON MULTI-POINT MATCHING VOTING	1344
<i>Junyou Shi, Yingla Wang, Yilei Hou</i>	
A DYNAMIC MODELING AND SIMULATION METHOD OF BUILT-IN TEST(BIT) BASED ON STATE-CHART DIAGRAM.....	1348
<i>Junyou Shi, Yilei Hou, Yingla Wang</i>	
A STUDY ON TORSIONAL STIFFNESS OF RV REDUCER CONSIDERING VARIABLE LOADS AND TOOTH MODIFICATION	1353
<i>Wenlei Song, Xiao Yang, Huan Liu, Xuanyu Gao, Yaguo Lei, Junyi Cao</i>	
EARLY FAULT DETECTION OF GEARBOX USING TSA AND VAR MODEL CONSIDERING LOAD VARIATION.....	1358
<i>Xin Li, Hongfu Zuo, Pengcheng Hao, Ya Su, Haoyue Liu, Cheng Xue</i>	
BAYESIAN ANALYSIS FOR LIFETIME DELAYED DEGRADATION PROCESS.....	1364
<i>Siyi Chen, Yuchen Li, Qifang Liu, Qingpei Hu</i>	
AN INTERMITTENT FAULT DATA GENERATION METHOD BASED ON LSTM AND GAN	1369
<i>Junyou Shi, Yufei Ding, Zhenyang Lv</i>	
A B-SPLINE BASED GAUSSIAN PROCESS REGRESSION APPROACH FOR FATIGUE CRACK LENGTH ESTIMATION USING ULTRASONIC WAVE DATA.....	1373
<i>Rui Wang</i>	
A NOVEL STRATEGY FOR SIGNAL DENOISING USING TWO-LAYER SVD AND ITS APPLICATION TO RUB-IMPACT FAULT DIAGNOSIS OF AERO-ENGINE.....	1379
<i>Peng Zhang, Shunming Li, Kun Xu, Siqu Gong, Keyi Zhan, Maoxian Shen, Jun Tian, Xin Yuan</i>	
ANALYSIS OF UNBALANCE SENSITIVE POSITION OF FLEXIBLE SLENDER SHAFT ROTOR	1386
<i>Shuo Han, Haobo Wang, Tongguang Yang, Qingkai Han, Hao Zhang</i>	
FOUR-PARTY EVOLUTIONARY GAME AND SIMULATION ANALYSIS OF E-COMMERCE MARKET SUPERVISION.....	1394
<i>Xie Jinhao, Lei Bingyin, Zhu Anqi, Shen Linghui, Gao Kaiye</i>	
FEDERATED TRANSFER LEARNING FOR BEARING FAULT DIAGNOSIS BASED ON AVERAGING SHARED LAYERS.....	1402
<i>Wansheng Yang, Junbin Chen, Zhuyun Chen, Yixiao Liao, Weihua Li</i>	
OPTIMAL DESIGN MODEL OF COMPLEX SYSTEM BASED ON MULTI-OBJECTIVE EXTENSION PARTICLE SWARM.....	1409
<i>Tichun Wang, Jin Xie, Jiaqi Qin</i>	

RESEARCH ON MAINTENANCE DECISION OF RAIL TRANSIT SIGNAL POWER SUPPLY SYSTEM.....	1417
<i>Jingyi Zhao, Chunhai Gao, Yingang Yu, Xiao Xiao, Ming Luo, Feng Bao, Tao Tang</i>	
RESEARCH ON FAULT DIAGNOSIS BASED ON TRANSFER LEARNING AND FAULT SENSITIVITY ANALYSIS.....	1423
<i>Guanghao Ren, Nan Yang, Guigang Zhang, Jian Wang</i>	
RESEARCH ON OPTIMIZATION DESIGN OF SHOT BLASTING MACHINE BLADE BASED ON MODAL ANALYSIS.....	1427
<i>Yinhang Zhang, Shuai Wang, Yongzhi Pan, Tianyi Zhang, Zhenfeng Jiang, Xiuli Fu</i>	
A NOVEL METHOD FOR INTER-SHAFT BEARING FAULT FEATURE EXTRACTION BASED GENERALIZED REFINED COMPOSITE MULTISCALE QUANTUM ENTROPY	1432
<i>Yuwei Zhang, Jing Tian, Fengling Zhang, Yanting Ai, Zhi Wang</i>	
INVESTIGATION ON LINEAR AND NONLINEAR THERMAL BUCKLING MODE FOR HIGH-SPEED THIN-WALLED BLADE.....	1439
<i>Xiuhua Men, Tianyi Zhang, Yongzhi Pan, Xiaohui Wang, Shuai Wang, Huiying Zhao</i>	
RELIABILITY EVALUATION OF ELECTRONIC CABIN SMOKE DETECTOR BASED ON FMEA AND ARRHENIUS MODE.....	1447
<i>Yan Su, Xuerui Liang, Tan Wen</i>	
RELIABILITY TEST OF AIRCRAFT INTEGRATED ELECTRONIC ASSEMBLIES BASED ON VIRTUAL QUALIFICATION METHOD.....	1455
<i>Xingliu Zhang, Zhifeng Xie, Zili Wang, Chen Lu</i>	
A PHYSICS-INFORMED TRANSFER LEARNING APPROACH FOR ANOMALY DETECTION OF AEROSPACE CMG WITH LIMITED TELEMETRY DATA.....	1460
<i>Mengtong Gong, Diyin Tang, Jinsong Yu, Limei Tian</i>	
ACCURATE MULTIPLE-SITE DAMAGE LOCALIZATION OF AIRCRAFT COMPOSITE STRUCTURES UNDER ENVIRONMENTAL AND OPERATIONAL CONDITIONS.....	1465
<i>Qi Ye, Yuanqiang Ren, Lei Qiu, Shenfang Yuan</i>	
GYRO ANOMALY DETECTION METHOD BASED ON INFORMATION ENTROPY	1471
<i>Guan Wu, Rui Chen, Hailong Zhang, Jun Chen, Xing Hu</i>	
FAULT ANALYSIS AND CALCULATION OF AERO-ENGINE MAIN SHAFT BEARING SLIPPING BASED ON BSS.....	1475
<i>Yongxing Chen, Lingfei Xiao, Leiming Ma, Lu Liu</i>	
FAILURE THRESHOLD SETTING FOR WIENER-PROCESS-BASED REMAINING USEFUL LIFE ESTIMATION	1480
<i>Liu Xingzhi, Fumio Machida</i>	
A DATA-DRIVEN APPROACH TO AIR LEAKAGE DETECTION IN PNEUMATIC SYSTEMS.....	1485
<i>Mohan Rajashekarappa, Johan Lené, Ebru Turanoglu Bekar, Anders Skoogh, Alexander Karlsson</i>	
A PREDICTION METHOD OF LEO SATELLITE ORBIT CONTROL EFFECT BASED ON MULTIPLE REGRESSION ANALYSIS MODEL.....	1492
<i>Bin Du, Fan Liu, Xianwei Sun, Renting Song, Li Wang</i>	

NATURALLY-INDUCED EARLY AVIATION BEARING FAULT TEST AND EARLY BEARING FAULT DETECTION	1498
<i>Feilong Fan, Ming Cao, Qian Liu</i>	
AN IMPROVED MULTIDIMENSIONAL DISTANCE SIAMESE NETWORK FOR BEARING FAULT DIAGNOSIS WITH FEW LABELLED DATA	1504
<i>Xiaosong Xing, Wei Guo, Xuecheng Wan</i>	
A MODIFIED CCN BASED ON EFFICIENT CHANNEL ATTENTION AND RESNET FOR BEARING REMAINING USEFUL LIFE PREDICTION.....	1510
<i>Zhipeng Zhao, Wei Guo</i>	
AN INTELLIGENT BEARING FAULT DIAGNOSIS BASED ON MODIFIED PROBABILISTIC KNOWLEDGE DISTILLATION.....	1517
<i>Ziqian Shen, Wei Guo</i>	
APPLICATION OF DENOISING AUTOENCODER IN INTELLIGENT FAULT DIAGNOSIS FOR BEARINGS UNDER VARYING WORKING CONDITIONS	1523
<i>Haoran Wen, Wei Guo</i>	
VIBRATION CHARACTERISTICS ANALYSIS OF A DOUBLE-SUCTION CENTRIFUGAL PUMP IDENTIFIED BY INTELLIGENT ALGORITHMS.....	1529
<i>Zhenyue Gu, Mian Zhang, Decai Li, Tianbo Kang, Xiuyang Tang, Zhiyuan Wang, Zhenlong Pei, Yiqiao Wang</i>	
DYNAMIC ANALYSIS OF RECIPROCATING COMPRESSOR WITH REVOLUTION JOINT CLEARANCE AND TRANSLATIONAL JOINT CLEARANCE.....	1537
<i>Shouguo Cheng</i>	
RELIABILITY MODEL OF SINGLE INTEMAL AND EXTEMAL MESHING PLANETARY GEAR TRANSMISSION MECHANISM CONSIDERING LOAD CORRELATION.....	1543
<i>Shulin Liu, Qing Tang, Shufei Xue, Zhezhe Wang, Peng Chen, Xiaojian Yi</i>	
A MAINTENANCE ANALYSIS METHOD ASSOCIATED FUNCTIONAL STRUCTURE FOR COMPLEX EQUIPMENT.....	1549
<i>Na Jiao, Qing Tang, Shufei Xue, Meng Zhang, Chenhao Xu, Xiaojian Yi</i>	
RESEARCH ON THE RUBBING FAULT DIAGNOSIS OF ROTOR SHAFTS USING THE DOUBLE-ROTOR TEST BENCH.....	1555
<i>Yulong Yang, Hao Fu, Jianhua Wang, Yongbo Li</i>	
MODELING AND SIMULATION OF EXPLOSIVE DECOMPRESSION TEST FOR UNITS AND DECOMPRESSION TIME ANALYSIS.....	1559
<i>Fang Hu, Xingming Su, Shouqing Huang, Zhiwei Lv, Yanan Wang</i>	
RADAR BROADBAND SIGNAL HIGH-PRECISION ON-LINE TESTING METHOD.....	1566
<i>Wang Ying, Wu Jie</i>	
RESEARCH ON SUB-ARRAY DIGITAL PHASED ARRAY TESTING METHOD.....	1572
<i>Qiao Shujun, Zeng Xin</i>	
DIAGNOSIS METHODOLOGY OF JOINT FAULTS IN SINGLE-STAGE ACTUATION RING-VANES SYSTEM BASED ON FRF CHARACTERIZATION.....	1576
<i>Yulai Zhao, Qingkai Han, Yang Liu, Shaohui Du</i>	

MECHANICAL FAULT DIAGNOSIS BASED ON SELF-SENSING MOTOR DRIVE: REVIEW AND KEY ISSUES.....	1583
<i>Yuan Yao, Yesong Li, Bin Xie, Li Lei, Yaohui Wang</i>	
DYNAMIC DIAGNOSIS METHOD FOR CONTINUOUS AND EQUIDISTANT WHEEL BURN BASED ON AXLE BOX ACCELERATION.....	1591
<i>Xiaodi Xu, Xuegeng Mao, Shanchao Sun, Liubin Niu, Jinzhao Liu, Binghuan Xiao</i>	
PLUNGER PUMP CAVITATION FAULT RECOGNITION BASED ON ANALYSIS OF LOW FREQUENCY ENERGY.....	1596
<i>Zhou Jian, Ding Xiaojian, Yang Yunfan, Jing Tang, Wang Yuanhang, Wang Chunhui</i>	
RESEARCH ON TRACKING THE HEALTH STATUS OF INDUSTRIAL ROBOT.....	1601
<i>Ji Wang, Jian Zhou, Xiaojian Ding, Wenwei Liu, Yuanhang Wang, Chunhui Wang</i>	
STUDY ON STATIC AND DYNAMIC CHARACTERISTICS OF TILTING PAD THRUST BEARINGS WITH JOURNAL INCLINATION.....	1606
<i>Xinkai Feng, Lihua Yang, Bo Yu, Kai Wang</i>	
AN IMPROVED FAULT DIAGNOSIS FRAMEWORK BASED ON DEEP BELIEF NETWORKS.....	1611
<i>Jing Ma, Hongquan Wen, E Mingcheng, Zengqiang Jiang, Qi Li</i>	
RESEARCH ON PASSIVE RFID TAG ANTENNA SENSOR FOR METAL STRUCTURE STRAIN DETECTION.....	1617
<i>Hao Wen, Qiang Li, Liang Zhao</i>	
A DATA-DRIVEN REMAINING USEFUL LIFE PREDICTION METHODOLOGY: OPTIMIZATION BASED ON DIGITAL TWIN.....	1621
<i>Xiaoyan Shao, Baoping Cai, Hongyan Fan, Xuelin Liu</i>	
RELIABILITY EVALUATION OF AIRCRAFT POWER SUPPLY SYSTEM BASED ON FACTORING ALGORITHM.....	1628
<i>Guangyu Miao, Shanshui Yang, Li Wang, Dehong Li, Hongqing Jiang</i>	
FAULT DIAGNOSIS OF GEAR PITTING BASED ON DYNAMIC STRAIN MEASUREMENTS FROM FIBER BRAGG GRATING SENSORS.....	1635
<i>Junquan Yu, Liu Hong, Yongzhi Qu</i>	
OPTIMAL PRICING STRATEGY FOR A FLEXIBLE EXTENDED WARRANTY POLICY.....	1641
<i>Rui Zheng, Yifan Zhou, Lei Zhang</i>	
THE EFFECT OF SURFACE TREATMENT IN LOCAL ZONE ON MODAL FREQUENCY OF THIN PLATE STRUCTURE.....	1646
<i>Jingyuan Liu, Jiaying Hu, Ping Wang, Xin Cao</i>	
DESIGN OF PHM TEST VERIFICATION METHOD AND SYSTEM FOR AVIATION ELECTRICAL SYSTEM.....	1651
<i>Run Dong, Weilin Li, Fengming Ai, Mingming Wan</i>	
A NEW ACFM PROBE FOR INSPECTION OF RAIL CRACK AT HIGH SPEED.....	1656
<i>Yaxiong Chen, Peng Xu</i>	
SYSTEM PROGRAM DESIGN FOR MICRO GENERATOR SET: GASOLINE ENGINE — PMSG — THYRISTOR RECTIFIER WITH LOW COST AND HIGH RELIABILITY.....	1663
<i>Pingping Wen, Tao Guan, Haiping Xu, Zaiyong Jiang</i>	

VIRTUAL-SIGNAL-INJECTION BASED DUAL-PLANE MTPA CONTROL FOR FIVE-PHASE PMSM.....	1668
<i>Yihong Qin, Peng Zhou, Haiping Xu</i>	
NSP-CNN ROLLING BEARING FAULT DIAGNOSIS METHOD.....	1673
<i>Xin-Yu Pang, Yu Tong, Bo-Wen Zhang, Ji-Gui Wei</i>	
A REVIEW OF FAULT DIAGNOSIS METHODS BASED ON MACHINE LEARNING PATTERNS.....	1680
<i>Zhuo Xiao, Zhe Cheng, Yuehao Li</i>	
RELIABILITY ASSESSMENT OF POWER SYSTEMS WITH WARM STANDBY AND ENERGY STORAGE	1684
<i>Heping Jia, Rui Peng, Li Yang, Yanbin Li</i>	
RESEARCH ON RELIABILITY EVALUATION METHOD OF FAN-OUT PACKAGE BASED ON SUB-MODEL.....	1689
<i>Qingsheng Liu, Bo Wan, Zhongqing Zhang, Guicui Fu</i>	
INTEGRATED SYSTEM HEALTH MANAGEMENT RESEARCH AND APPLICATION ON SATELLITE.....	1694
<i>Yufei Xu, Xianglong Kong, Wei Ma, Zhu Zhu, Jianqiao Zhang</i>	
REMAINING USEFUL LIFE ESTIMATION BASED ON FEATURE RECONSTRUCTION AND VARIATIONAL BAYESIAN INFERENCES.....	1699
<i>Baiteng Ma, Xuegong Zhao, Lei Xiao</i>	
ELEVATOR PERFORMANCE EVALUATION BASED ON THE ANALYSIS OF THE RUNNING SOUND.....	1707
<i>Jun Pan, Hui Li, Wenhua Chen, Yimin Wei</i>	
FAULT DIAGNOSIS OF RCV LETDOWN FLOW BASED ON LSTM NETWORK	1713
<i>Duan Pengfei, Li Wanting</i>	
ANALYSIS OF THE EVALUATION INDICATORS' SYSTEM FOR HEALTH MANAGEMENT EFFECTIVENESS OF COMMUNICATION EQUIPMENT.....	1721
<i>Liangqin Yu</i>	
A CROSS-PARALLEL GW SENSOR NETWORK FOR AIRCRAFT SMART SKIN OF STRUCTURAL HEALTH MONITORING	1726
<i>Yu Wang, Shuguang Hu, Lei Qiu, Chongqi Wang</i>	
RESEARCH ON PROGNOSTICS AND HEALTH MANAGEMENT SYSTEM TECHNOLOGY IN THE FIELD OF NUCLEAR POWER PLANT	1731
<i>Liu Fei</i>	
DESIGN OF DIAGNOSTIC REASONING SOFTWARE FOR FLUID SYSTEM.....	1736
<i>Junyou Shi, Zhenyang Lv, Yilei Hou</i>	
AIRWORTHINESS CERTIFICATION OF IMA-BASED OMS ON TRANSPORT CATEGORY AIRPLANE	1740
<i>Guanghua Xing, Xin Gu, Yan Su, Ping Zhang</i>	
THE EFFECTS OF CONSTRUCTING NATIONAL INNOVATIVE CITIES ON FOREIGN DIRECT INVESTMENT	1745
<i>Luoru Ma, Jiaying Ling</i>	

PHM OF RAIL VEHICLE BASED ON DIGITAL TWIN.....	1749
<i>Tengfei Zhang, Wenjuan Du, Guigang Zhang, Jian Wang</i>	
PREVENTIVE PROGNOSIS OF ALUMINUM ELECTROLYTIC CAPACITORS BASED ON SAPSO-LSTM.....	1754
<i>Quan Sun, Lichen Yang, Hongsheng Li</i>	
INDUSTRIAL FAULT DIAGNOSIS BASED ON FEW SHOT LEARNING.....	1759
<i>Liguo Zhao, Zhiming Yang, Yang Yu</i>	
INSULATORS RECOGNITION BASED ON ENHANCEMENT OF HIGH-LEVEL FEATURE WITH IMPROVED ATTENTION METHOD.....	1765
<i>Yixiao Li, Honghao Liu, Huan Wang, Zhiliang Liu</i>	
PROGNOSTICS OF THE ULTRASONIC MOTOR BASED ON AN DEEP LEARNING NETWORK MODEL CONSIDERING WORKING SIGNALS AND ENVIRONMENTAL FACTORS.....	1770
<i>Taichun Qin, Shouqing Huang, Ziwei Liu</i>	
DESIGN OF INTELLIGENT DIAGNOSIS OPERATION AND MAINTENANCE SYSTEM FOR CIRCULATING WATER PUMP.....	1775
<i>Huang Qian, Zhi Yifan, Zhang Rongyong</i>	
A FE-DE-FV PARALLEL COMPUTING METHOD BASED ON OPENMP FOR THE HYDRAULIC FRACTURING.....	1779
<i>Ruiyi Yang, Yiyong Xiao</i>	
SENSOR FAULT MODE AND EFFECT ANALYSIS IN NUCLEAR POWER PLANTS.....	1783
<i>Wenqing Yao, Yurong Li, Lin Guo, Rigang Chen, Tianyu Ma</i>	
RAM DATABASE FOR THE RAILWAY INDUSTRY - STATUS AND DEVELOPMENT.....	1788
<i>Wenxu Li, Richard Dwight, Tieling Zhang, Paul McMahon</i>	
TYPE-I CENSORED RELIABILITY ACCEPTANCE PLAN FOR EXPONENTIALLY DISTRIBUTED PRODUCTS BY FUSING DIFFERENT TYPES OF INFORMATION.....	1796
<i>Yao Tan, Qian Zhao, Ping Jiang</i>	
BEARING FAULT DIAGNOSIS USING FAST TEMPORAL GRAPH CONVOLUTIONAL NETWORKS.....	1801
<i>Jiachen Yao, Baochun Lu, Chaoyang Weng</i>	
A FAULT DIAGNOSIS STUDY OF AERO-ENGINE HYDRAULIC PIPING CLAMP BASED ON DEEP LEARNING.....	1807
<i>Tongguang Yang, Shuo Han, Qingkai Han, Qingyu Zhu, Xiaoguang Yu</i>	
RELIABILITY TEST AND EVALUATION OF SATELLITE BATTERY BYPASS BASED ON STRESS RELAXATION.....	1812
<i>Zongren Wang</i>	
AN ADAPTIVE PREDICTION METHOD OF REMAINING USEFUL LIFETIME FOR THE AVIATION PRODUCT BASED ON THE PROPORTIONAL DEGRADATION MODEL.....	1817
<i>Cai Zhongyi, Wang Zezhou, Zhang Liang</i>	
ARCHITECTURE DESIGN OF INTELLIGENT MAINTENANCE SYSTEM IN PROCESS INDUSTRY.....	1821
<i>Huang Dongming, Zhao Gang, Dai Wanchen, Fan Zhongming, Zhang Bin, Si Wei</i>	

AN ANALYTICAL METHOD FOR THE ELASTIC SUPPORTER DYNAMIC STRESS SIGNALS APPLIED TO AERO-ENGINE FAULT DIAGNOSIS	1829
<i>Wei-Xin Yang, Ya-Nong Chen, Ming Hou, Shun-Ming Li</i>	
AN IMPROVED MARGINAL INDEX METHOD TO DIAGNOSE POOR WELDED JOINTS OF HEAVY-HAUL RAILWAY	1836
<i>Binghuan Xiao, Xuegeng Mao, Jinzhao Liu, Liubin Niu, Xiaodi Xu, Maoxuan Zhang</i>	
OPERATIONAL MODAL ANALYSIS BASED ON NEURAL NETWORK WITH SINGULAR VALUE DECOMPOSITION	1843
<i>Min Qin, Huaihai Chen</i>	
THE WEAR STATUS EVALUATION OF BEARING BASED ON ONLINE OIL PARAMETERS AND VIBRATION SIGNALS	1850
<i>Dingxin Yang, Xiaorong Liu</i>	
SENSOR FAULT DETECTION BASED ON SELF ORGANIZING IMMUNE NETWORK	1855
<i>Sheng-Li Hou, Yang Zhou, Le-Xi Li, Chang-Kai Xu</i>	
AN END-TO-END FAULT DIAGNOSIS METHOD OF ROLLING BEARING BASED ON CONVOLUTION NEURAL NETWORK	1860
<i>Xuejun Liu, Hongkun Li, Wei Sun</i>	
CONTACT DEGRADATION MECHANISM AND TEST STUDY OF ELECTRICAL CONNECTOR UNDER MICROPOROUS CORROSION	1867
<i>Kehong Lyu, Linxiao Wu, Xiaolong Wu, Jing Qiu, Guanjun Liu</i>	
THE ABNORMAL DETECTION STRATEGY FOR SPACECRAFT COMPONENTS WITH MULTI-DIMENSION PARAMETERS	1872
<i>Shouwen Liu, Taichun Qin, Shouqing Huang, Yunfei Jia, Guangyuan Zheng, Wanning Yao, Baohui Wang</i>	
NEURAL NETWORKS BASED IMMUNE RECOGNITION MODEL FOR AEROENGINE COUPLED ROTOR SYSTEM FAULT DETECTION	1877
<i>Yang Zhou, Sheng-Li Hou, Chang-Kai Xu, Jia-Gang Du</i>	
OUTLIER MINING METHOD FOR HIGH DIMENSIONAL MASSIVE DATA BASED ON RBF NEURAL NETWORK	1882
<i>Hong Gan</i>	
DYNAMIC BINARY TRANSLATION CACHE OPTIMIZATION ALGORITHM IN CLOUD COMPUTING ENVIRONMENT	1889
<i>Dajiang Yi</i>	
INTELLIGENT DOCUMENT PROCESSING METHOD BASED ON ROBOT PROCESS AUTOMATION	1894
<i>Jun Li, Can-Ming Lin, Shi-Xi Hu</i>	
EVALUATION METHOD OF ENGLISH LISTENING DISTANCE TEACHING BASED ON ID3 ALGORITHM	1900
<i>Jing Wang, Chunrong Zhou</i>	
RESEARCH ON RELIABILITY TEST OF HYBRID INFORMATION INTELLIGENT RETRIEVAL IN MOBILE ENGLISH TEACHING	1906
<i>Xia Yu, Xiaochao Li</i>	

BRIDGE DECK DRAINAGE SYSTEM DESIGN BASED ON GIS	1912
<i>Wei Wen, Huakui Yang</i>	
RELIABILITY ANALYSIS OF INTELLIGENT BIG DATA HYBRID INFORMATION SYSTEM BASED ON ARTIFICIAL INTELLIGENCE	1918
<i>Xiuzhuo Wei, Huinan Zhao, Lianlian Liu</i>	
DISTRIBUTED TEMPERATURE MONITORING SYSTEM FOR AUTO SPONTANEOUS COMBUSTION BASED ON MULTIPLE SENSOR SIGNALS	1925
<i>Zan Liang, Ling-Ling Luo</i>	
ADAPTIVE NOISE REDUCTION METHOD OF SENSOR SIGNAL FOR HEALTH MONITORING OF CIVIL ENGINEERING STRUCTURE.....	1931
<i>Hao Tang, Xiangji Liu, Rong Zhang</i>	
EXTERNAL FORCE DAMAGE DETECTION METHOD OF BURIED CABLE BASED ON OPTICAL FIBER SENSING TECHNOLOGY	1937
<i>Jin-Hui Chen</i>	
DESIGN OF MULTIOBJECTIVE PATH PLANNING SYSTEM FOR INTELLIGENT TRANSPORTATION BASED ON ZIGBEE TECHNOLOGY	1943
<i>Jian Zhang, Jia-Jia Qian, Hai-Yan Zhao</i>	
VISUAL INTEGRATION OF MENTAL HEALTH INFORMATION OF COLLEGE STUDENTS BASED ON FUZZY-GREY	1949
<i>Haiyan Zhao, Jian Zhang</i>	
MAGNETO-OPTICAL IMAGING FEATURE EXTRACTION OF ANGLE WELDING DEFECTS BASED ON POLARIZATION INFORMATION	1955
<i>Shilin Zheng, Xiaotong Liu, Zhengxu Zhang</i>	
THE FACTORS AFFECTING THE QUALITY OF TEACHING ON THE INTERNET BACKGROUND.....	1961
<i>Wen Wen</i>	
ABILITY ORIENTED MODULAR TALENT TRAINING PLAN – TAKING ARCHITECTURE AS AN EXAMPLE	1965
<i>Wen Wen</i>	
RESEARCH ON DYNAMIC RISK ASSESSMENT METHOD FOR CONSTRUCTION SAFETY OF FABRICATED CONSTRUCTION PROJECTS	1969
<i>Luyao Wei</i>	
RESEARCH ON THE APPLICATION OF VIRTUAL REALITY TECHNOLOGY IN THE INTEGRATED DESIGN OF ARCHITECTURAL LANDSCAPE.....	1976
<i>Han Wang</i>	
NONLINEAR FEATURE EXTRACTION METHOD OF PITCH CONTROL SIGNAL IN ERHU WORKS BASED ON GRAPH CONVOLUTIONAL NEURAL NETWORK	1983
<i>Xiaofeng Du</i>	
INTELLIGENT WAREHOUSE INFORMATION MANAGEMENT SYSTEM BASED ON HYBRID GENETIC ALGORITHM.....	1989
<i>Lingling Luo, Zan Liang</i>	

DESIGN OF HUMAN RESOURCE MANAGEMENT INFORMATION SYSTEM BASED ON DECISION TREE ALGORITHM.....	1994
<i>Li Liu</i>	
RESEARCH ON NETWORK NEWS INFORMATION DISSEMINATION PLANNING PATH BASED ON KNOWLEDGE MAP	2000
<i>Jin Li, Shao Jin, Li Liu</i>	
RESEARCH ON CARBON EMISSION CONTROL METHOD OF CONSTRUCTION BASED ON WHOLE LIFE CYCLE	2006
<i>Yang Ji, Chang-Yuan Chen, Li-Fan Huang</i>	
INTELLIGENT ACQUISITION METHOD OF ENGLISH ONLINE VOICE TEACHING INFORMATION BASED ON PRAAT SYSTEM.....	2012
<i>Ye Wang</i>	
THREE-DIMENSIONAL RECONSTRUCTION METHOD OF HIGH-RESOLUTION IMAGE BASED ON INDEPENDENTLY ADJUSTABLE SPARSE COEFFICIENT	2018
<i>Haixiao Gong, Jie He, Wenyan Wang</i>	
OPTIMIZATION METHOD OF VIRTUAL SAND TABLE BACKGROUND SERVER BASED ON UNITY 3D.....	2025
<i>Jie Bin, Jinjie Huang, Hongyan Lu, Jie He</i>	
OBE-CDIO-BASED DIGITAL MEDIA TECHNOLOGY PROFESSIONAL TALENT SKILL TRAINING SYSTEM.....	2031
<i>Lianlian Liu, Xiuzhuo Wei</i>	
ONLINE TEACHING SYSTEM OF JAPANESE TRANSLATION COURSE BASED ON P2P NETWORK.....	2038
<i>Yanhua Wang</i>	
NUMERICAL SIMULATION ANALYSIS OF HIGHWAY TUNNEL EXCAVATION BASED ON ARTIFICIAL INTELLIGENCE ALGORITHM.....	2045
<i>Dong-Xia Liu</i>	
HEALTH MONITORING SYSTEM OF LARGE BRIDGE ENGINEERING BASED ON WIRELESS SENSOR NETWORK	2051
<i>Dong-Xia Liu</i>	
SETTLEMENT PREDICTION METHOD OF BRIDGE PILE FOUNDATION ON SOFT SOIL FOUNDATION BASED ON HYPERBOLIC METHOD	2058
<i>Weiwei Zhan</i>	
RESEARCH ON QUALITY CONTROL METHOD OF ROAD ENGINEERING CONSTRUCTION BASED ON GENETIC ALGORITHM.....	2065
<i>Weiwei Zhan</i>	
DESIGN OF HIGH-PRECISION INDOOR 3D SPACE POSITIONING SYSTEM BASED ON RAY TRACING.....	2072
<i>Jing He</i>	
CONSTRUCTION OF INDOOR ENVIRONMENT SPATIAL LAYOUT PLANNING MODEL BASED ON 3D VIRTUAL SIMULATION TECHNOLOGY	2079
<i>Jing He</i>	

LASER SCANNING-BASED METHOD FOR IDENTIFYING DAMAGE LOCATION OF CIVIL CONSTRUCTION NODE STRUCTURE	2085
<i>Qiang Chen</i>	
PREDICTION METHOD OF HIGH-RISE BUILDING FOUNDATION SETTLEMENT BASED ON GPS BASELINE SOLUTION.....	2091
<i>Qiang Chen</i>	
MOVING LOAD IDENTIFICATION METHOD OF COMPLEX BRIDGE STRUCTURE BASED ON INFORMATION PLATFORM	2097
<i>Hongyan Yin</i>	
DESIGN OF INTELLIGENT HEALTH MONITORING HYBRID INFORMATION SYSTEM FOR LARGE BRIDGE STRUCTURES.....	2104
<i>Hongyan Yin</i>	
FAST DETECTION METHOD OF URBAN ROAD ASPHALT PAVEMENT CRACK BASED ON IMAGE RECOGNITION	2110
<i>Li Tang</i>	
NON-DESTRUCTIVE TESTING METHOD OF BRIDGE PILE FOUNDATION BASED ON ELASTIC WAVE REFLECTION METHOD	2116
<i>Li Tang</i>	
RESEARCH ON INTELLIGENT DETECTION METHOD OF ANCIENT BUILDING DAMAGE CHARACTERISTICS IN DEEP LEARNING ENVIRONMENT	2122
<i>Enmao Qiao, Qi Ding</i>	
DEFORMATION MONITORING METHOD OF CONNECTION STRUCTURE OF PREFABRICATED BUILDING BASED ON RBF NETWORK	2128
<i>Bing Liu</i>	
AUTOMATIC DETECTION METHOD OF CONCRETE CRACKS IN CONSTRUCTION ENGINEERING BASED ON IMPROVED WATERSHED ALGORITHM	2135
<i>Bing Liu</i>	
ANONYMOUS ACCESS CONTROL MODEL OF MOBILE RFID SYSTEM IN INTERNET OF THINGS	2141
<i>Zheng-Hong Jiang, Chun-Rong Zhou</i>	
ORTHOGONAL MATCHING PURSUIT HYBRID PRECODING ALGORITHM BASED ON MULTI SOURCE SECURITY INFORMATION	2147
<i>Zheng-Hong Jiang, Chun-Rong Zhou</i>	
LOW-SPEED ENERGY FEEDBACK BRAKING METHOD FOR MOTOR SYSTEM OF ROD PUMPING EQUIPMENT	2153
<i>Xiang Liu</i>	
RESEARCH ON HOT NEWS INFORMATION DISCOVERY AND DEVELOPMENT TREND PREDICTION BASED ON DECISION TREE	2159
<i>Shigui Ci</i>	
DESIGN OF ECONOMIC MANAGEMENT COURSE NETWORK CONSTRUCTION SYSTEM BASED ON BIG DATA TECHNOLOGY	2165
<i>Guizhen Meng, Jing Zhang</i>	

ONLINE COLLECTING METHOD OF REAL-TIME SITUATION INFORMATION OF NEV OPERATION	2171
<i>Huizhen Dong</i>	
DESIGN OF ELECTRONIC SAND TABLE INTERACTIVE SYSTEM BASED ON DEPTH ENHANCEMENT ALGORITHM.....	2177
<i>Chunke Zhou, Hongyan Lu, Haixiao Gong</i>	
RETRIEVAL METHOD OF POOR STUDENTS SUBSIDY RESOURCE DATABASE BASED ON IMPROVED GREY CORRELATION DEGREE.....	2184
<i>Xu Pang, Xiaoling Zhang, Luyao Wei</i>	
EVALUATION MODEL OF NEW ENGLISH TALENTS TRAINING MODEL BASED ON AHP-ENTROPY METHOD	2191
<i>Xiao-Chao Li, Xia Yu</i>	
EVALUATION MODEL OF PRACTICAL EFFECT OF IDEOLOGICAL AND POLITICAL EDUCATION BASED ON DEEP DATA MINING	2198
<i>Jing Zhang, Guizhen Meng</i>	
DESIGN OF MULTIMEDIA ASSISTED ENGLISH ONLINE TEACHING MODEL BASED ON FLIPPED CLASSROOM.....	2204
<i>Yingying Wu</i>	
RESEARCH ON REVERSIBLE CIPHERTEXT FIELD INFORMATION HIDING ALGORITHM BASED ON DATA STREAM.....	2211
<i>Chunrong Zhou, Zhenghong Jiang</i>	
RESEARCH ON FAST ENHANCEMENT OF MOTION BLURRED IMAGE BASED ON IMPROVED DEEP LEARNING	2218
<i>Ming Han, Han Liu</i>	
RESEARCH ON SINGLE IMAGE SUPER RESOLUTION ENHANCEMENT ALGORITHM BASED ON DEEP LEARNING.....	2223
<i>Ming Han, Han Liu</i>	
STUDENT ONLINE LEARNING BEHAVIOR MANAGEMENT SYSTEM BASED ON DEEP DATA MINING	2229
<i>Yunxue Yan, Huizhen Dong</i>	
COMPONENT DETECTION OF ELECTRONIC CERAMIC COMPOSITE IN BATTERY BASED ON CNN CONVOLUTION NEURAL NETWORK.....	2236
<i>Chunmei Wang, Jie Zhang, Wei Wen</i>	
FAST FUSION METHOD OF MARINE ENVIRONMENT VECTOR DATA BASED ON BP NEURAL NETWORK.....	2243
<i>Wenyan Wang, Haixiao Gong</i>	
A RELIABILITY-RELATED OPTIMIZATION PROBLEM IN MULTIDISTRIBUTION MULTI- STATE LOGISTICS NETWORK	2250
<i>Yi-Fan Song, Yi-Feng Niu</i>	
ESTIMATION OF REMAINING USEFUL LIFE OF LI-ION BATTERY BASED ON CHARGING CHARACTERISTIC DATA.....	2256
<i>Bi Jikai, Liu Hao, Lee Jae-Cheon</i>	

A MULTI-SYNCHROSCQUEEZING RIDGE EXTRACTION TRANSFORM FOR THE ANALYSIS OF NON-STATIONARY MULTI-COMPONENT SIGNALS.....	2261
<i>Jiaxin Li, Kewen Wang, Chao Ni, Tian Ran Lin</i>	
SATELLITE REACTION WHEEL FAULT DETECTION BASED ON ADAPTIVE THRESHOLD OBSERVER	2266
<i>Zihan Chen</i>	
REAL-TIME PREDICTION MODEL FOR SATELLITE TELEMETRY PARAMETER BASED ON PSRT-RVM	2272
<i>Jiahui He, Zhijun Cheng, Hongbin Liu, Bowen Li, Bo Guo</i>	
STATE EVALUATION OF LONG-TERM STORAGE PRODUCT BASED ON CLOUD MODEL AND TFN-AHP	2279
<i>Renqing Li, Jin Li, Jiale Lu, Yan Song</i>	
DESIGN OF WIRELESS TRANSMITTING POWER AMPLIFIER CHIP APPLIED TO THE INTERNET OF THINGS IN SMART CITIES.....	2285
<i>Zhong Cheng, Li Jing, Long Qiang, Li Jin, Su Kaixin</i>	
A LOW NOISE AMPLIFIER OF WIRELESS RECEIVER FOR INTERNET OF THINGS TOWARDS A SMART CITY	2289
<i>Zhong Cheng, Li Jing, Long Qiang, Li Jin, Wang Gaojie</i>	
A UNIVERSAL HIGH PERFORMANCE INTELLIGENT PROCESSOR OF SATELLITE.....	2293
<i>Dakan Zhou, Yang Liu, Junwang He, Xiaosong Yao, Uongfei Tian, Denghui Hu, Yan Cao</i>	
RELIABILITY ANALYSIS OF POWER ELECTRONIC TOPOLOGY BASED ON BAYESIAN NETWORK.....	2298
<i>Weiwei Hu, Ming Li, Tianyu Si, Xulan Zhu, Li Zhao</i>	
A FAULT DIAGNOSIS METHOD COMPOSED OF GAUSSIAN CLOUD MODEL AND DOMAIN-INVARIANT FEATURES EXTRACTION.....	2305
<i>Wei Dou, Xiaoyang Liu, Ruixue Sun, Di Zhang</i>	
DEGRADATION BEHAVIOR AND MECHANISMS OF E-MODE GAN HEMTS WITH P-GAN GATE UNDER HIGH TEMPERATURE GATE BIAS STRESS	2313
<i>Wenyang Chen, Y. Q. Chen, Kuiwei Geng</i>	
DYNAMIC ANALYSIS AND SIMULATION FOR UNDER WATER ENGINEERING ROBOT	2317
<i>Weiyan Shang, Shunming Li, Jiang Hui Xin, Xinhua Yi, Xiaohu Chen</i>	
DEMAND ANALYSIS OF JOINT DECISION-MAKING MODELING OF EQUIPMENT MAINTENANCE AND SPARE PARTS INVENTORY BASED ON PHM	2322
<i>Ruifeng Yang, Wangchi Cheng</i>	
WAVELET ENTROPY APPLIED IN GEARBOX FAULT DIAGNOSIS.....	2328
<i>Zhang Wenjun, Sun Yuping, Liu Yilin, Cheng Limin, Liu Hongmei</i>	

Author Index