

2026 IEEE International Conference on Prognostics and Health Management (ICPHM 2026)

**Toronto, ON, Canada
1-3 June 2026**

IEEE Catalog Number: CFP26PHM-POD
ISBN: 979-8-3315-4602-1



Copyright © 2026, IEEE

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:	CFP26PHM-POD
ISBN (Print-On-Demand):	979-8-3315-4602-1
ISBN (Online):	979-8-3315-4601-4
ISSN:	2166-563X

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

TABLE OF CONTENTS

Sensitivity Analysis of Framework for Remaining Useful Lifetime Prediction in Power Electronics	1
<i>Kirill Ivanov, Horst Lewitschnig</i>	
Detecting Relational Anomalies in Industrial Products via Physics-Informed Geometric Consistency	7
<i>Zhandong Shi, Yinghao Ning, Bo Zeng, Chen He, Pengfei Zhang, Congcong Tian</i>	
Automatic Hazard Identification for Industrial Safety using Vision Language Models	15
<i>Shiryu Ueno, Fumiya Kudo, Kazuki Horiwaki, Kazuo Muto</i>	
Machine Learning-Based Performance Prognostics of Gas Turbines: A Review of Recent Advances	23
<i>Houman Hanachi</i>	
Prediction of Axial Buckling Behavior of Thin- Walled Metal Tubes via Internal Pressure Reinforcement	31
<i>Jiarong Jiang, Dahai Zhang, Qingguo Fei</i>	
Qualitative&Quantitative Meta Graph Transformer for Marine Diesel Engine Health Monitoring	38
<i>Xue Bai, Liqian Xu, Zhipeng Wang, Shukai Chen</i>	
Machine Cross-Domain Fault Diagnosis Using A Dual-Dynamic Domain Adaptation Network	45
<i>Xin Wang, Hongkai Jiang, Yuheng Jiao, Haidong Shao, Weiwei Zhang, Jinyang Zhang</i>	
Data-Driven Failure-Time Proxying and RUL Prediction for Robotic Arms and UAVs*	52
<i>S Varshashree, R Yashaswini, Ujwala Shetty, Nikhil Kumarswami Charantimath, Vadiraja Acharya</i>	
A Hybrid Intelligent Framework for Uncertainty-Aware Condition Monitoring of Industrial Systems	59
<i>Maryam Ahang, Todd Charter, Masoud Jalayer, Homayoun Najjaran</i>	
Failure-specific prediction modelling for industrial assets employing survival analysis*	67
<i>Fabian Fingerhut, Elena Tsiporkova</i>	
A Cross-Attention Vision Transformer with Self-Adaptive Multi-Scale Fusion for Fault Diagnosis	75
<i>Xiaoyong Zhong, Qicai Zhou, Xiaolei Xiong, Jiong Zhao</i>	
Continuous-Depth Latent State Modeling for Predicting Turbofan Engine Remaining Useful Life	83
<i>Jia Qi Huang, Alison Lei, Kelly Hong, Mani Majd</i>	
A Pulse-Derived Resistance Ratio Metric for Rapid Battery State-of-Health Assessment	91
<i>Masa Damdoun, Prarthana Pillai, Balakumar Balasingam</i>	
Towards Reliable Intelligent Fault Diagnosis of Rolling Element Bearings: The Role of Signal Quality	98
<i>MohammadReza Torabi, Ali Loghmani, Saeed Ziaei-Rad, Yoojeong Noh, Sayed Jalal Zahabi</i>	
An Embedded Digital Twin for Buck-Boost: Model Decoupling and Hybrid-RLS based Real-Time Monitoring	107
<i>Shaoshuai Wang, Ruiqing Ma, Kuan Cao, Ziqiang Zhang</i>	
Resilience Curves and Metrics for Artificial Intelligence Enabled Prognostics and Health Management Systems	114
<i>Stephen Adams, Dan DeCollo, Peter A. Beling, Sherwood Polter</i>	

Bearing Testbed and Data Set for Out-of-Distribution Machine Learning Development	122
<i>Stephen Adams, Sunil Reddy Tiyyagura, Balaji Veeramani, Don Williams, Derek Snaidauf</i>	
Theoretical Model of the State of Power of a Battery and its Experimental Validation	130
<i>Sam Letwin, Prarthana Pillai, Krishna Pattipati, Balakumar Balasingam</i>	
An Asset Management Model for the Ownership and Operation of Personally Owned Vehicles	138
<i>Christian K. Hansen</i>	
SOLIPHY: A Two-Stage Multi-Task Learning Framework for PV Fault Diagnostics and Severity Assessment	146
<i>Ashkan Safari, Afshin Rahimi</i>	
Fault-Aware RUL Prediction for Diesel Engines Using Physics-Motivated Degradation Models	154
<i>Khushi Ramdhani, Pratham Panchal, Karun Rawat, Anil Kumar</i>	
A Comparative Assessment of Evolutionary Multi-Objective Methods for Cable Fault Diagnosis	160
<i>Rocco Cassandro, Matthew Fleishman, Christian M. Salmon, Zhaojun Steven Li</i>	
Rolling Root Mean Square Based Multimodal Anomaly Detection for Real Time Monitoring of Smart Grid	167
<i>Subrata Mukherjee, Bruce Warmack, Ali Boyaci, Joseph Olatt, Paul Groth, Drew Herron, Kris Villez</i>	
Physics-Informed Modeling of Gas Turbine Compressors for PHM Applications	175
<i>Shazaib Ahsan, Tamiru Alemu Lemma, Jie Zhang, Xihui Liang</i>	
Explainable Residual-Attention BiGRU for Aero-Engine Remaining Useful Life Prediction	183
<i>Sourajit Behera</i>	
Prognostic-Informed Opportunistic Grouping Maintenance Optimization for Multi-Component Systems	191
<i>Yifei Wang, Hao Wu, Zhigang Tian, Rui He</i>	
Spur Gear Fault Diagnosis Using Deep Learning with Wavelet Feature Attention and Spike Encoding	197
<i>Rajeev Kumar, Zhigang Will Tian</i>	
A Data Fusion-Based Hidden Markov Model for Prognostics and Condition Monitoring	204
<i>Abdallah Chehade, Meriam Chelbi</i>	
Self-Supervised Multimodal Masked Autoencoder for Harmonic Drive Fault Diagnosis across Conditions	211
<i>Zhicong Rong, Jihyun Lee</i>	
Information-Theoretic Feature Reduction for Rotorcraft HUMS Predictive Maintenance	219
<i>Nicolò Vallana, Oumaima Afif, Alessandro Scandroglio, Marco Tartagni</i>	
Resilient Multi-Agent Systems Consensus Under Markovian Communication Loss and Heterogeneous Faults	227
<i>Ailin Barzegar, Afshin Rahimi</i>	
Unsupervised Bayesian Health State Modeling for Predictive Reliability of Cryogenic Hydrogen Pumps	235
<i>Rocco Cassandro, Cristian Schaad, Stefano Marchetti, Katrina M. Groth</i>	
Hybrid Quantum LSTM Feature Maps for Bearing Remaining Useful Life Prediction	242
<i>Mohamed Rayen Ouni, Sharareh Taghipour</i>	

Rail Rolling Contact Fatigue Defects Detection and Evaluation Based on Differential Pulsed Eddy Current Method	249
<i>Guanyu Piao, Lin Li, Helena Ramos, Jiaoyang Li</i>	
Enhancing AV Software Reliability via Deep Learning on CAN Bus Data	255
<i>Yamur Al-Douri, Jing Janet Lin</i>	