IEEE International Conference on Prognostics and Health Management (ICPHM2024)

June 17- June19 ,2024

Spokane, WA

Monday 6/17/2024	Monday Sessions - Day 1			
8:00 - 8:30	Welcome and Registration			
8:30 - 9:30	Tutorial 1: "Role of PHM in Autonomous Decision-Making: Aerospace applications" Tutorial speaker: Dr. Portia Banerjee Moderator: Dr. Farnoosh Naderkhani (Room: 304)			
9:30 - 9:45	Coffee Break & Exhibits			
9:45 - 10:45	Tutorial 2: "Personalized Medicine: Deep Learning and Foundation Models for Reliable Medical Diagnosis and Prognosis" Tutorial speaker: Dr. Arash Mohammadi Moderator: Dr. Farnoosh Naderkhani (Room: 304)			
10:45 - 11:00	Coffee Break & Exhibits			
11:00 - 12:00	Tutorial 3: "Improving Source-Code Representations to Enhance Search-based Software Repair" Tutorial speaker: Dr. Antonio Espinoza Moderator: Dr. Christian Hansen (Room: 304)			
12:00 - 13:00	Lunch			
13:00 - 14:30	Workshop: Improving your IEEE PHM 2024 Presentation: Building your Presentation Frame, Refining your Visuals, and Developing Confidence in your Presentation Style for your Upcoming Talk Organizer: Dr. Alan Chong Moderator: Dr. Christian Hansen (Room: 304)			
14:30 - 14:40	Coffee Break and Exhibits			
	Location: 304	Location: 302	Location: 303	Location: 301
14:40 - 16:00	Regular Session (AI and ML for PHM) - In Person Moderator: Dr. Farnoosh Naderkhani	Regular Session (Modeling and Simulations) - Virtual Moderator: Dr. Steven Li	Regular Session (Emerging Methods) - In Person Moderator: Dr. Yiming Deng	PTC Workshop on Digital Twin, IoT, CBM+
	#1: Proposed Model for NEOM City Based on Internet of Things (IoT) and MLC at ED System	#5: A Distributed Hybrid Fault-Tolerant Cooperative Control for Multi-Agent Systems with Actuator Faults	#9: Deployment and Maintenance of Digital Twin in a Secure Industrial Environment	
	#2: Self, Semi and Fully Supervised Learning for Autoencoders using Ternary Classification	#6: Remaining Useful Life Estimation for Lithium-Ion Batteries using Physics-Informed Neural Networks	#10: Empowering smartness in robotics through digital twin design: a reference methodology	
	#3: MNAM: An Interpretable Supervised Learning Method for Gearbox Degradation Detection	#7: A meta-model-based life consumption monitoring method for online planning and scheduling of PSSs	#11: Lessons Learned and Practical Solutions for Equipment Health Management in the Chemical Industry	
	#4: Industrial IoT Approach to Enable Remote Asset Health Monitoring for Short Line Railroad Operators	#8: Fault Diagnosis and Isolation in Cyber-Physical System Using Bayesian Network	#12: Generating Troubleshooting Trees for Industrial Equipment using Large Language Models (LLM)	
16:00 - 16:15	Coffee Break & Exhibits			
16:15- 17:45	Reliability Panel: IEEE PHM Standards Development Status and Plans to Collaborate with SAE Panelist: Lou Gullo, Rex Sallade, John Sheppard Moderator: Lou Gullo (Room: 304)			
17:45 - 19:00	Reception and Networking			

Tuesday 6/18/2024	Tuesday Sessions - Day 2			
8:00 - 8:30	**Conference Opening** Dr. Farnoosh Naderkhani (General Chair) (Room: 304)			
8:30 - 9:30	**Smart Lighting Panel: Illuminating the Future: Smart Lighting and Prognostics Health Management (PHM) Prof. Georges Zissis (Chair), Dr. Barry Preston, Prof. Jiajie Fan, Prof. Nadarajah NarendranGuest Prof. Janet Lin** **Moderator: Prof. Georges Zissis (Room: 304)**			
9:30 - 9:45	**Coffee Break & Exhibits**			
9:45 - 10:45	**Keynote 1** **Prof. John Sheppard** **PHM and ATS – An Unconventional Combination** **Moderator: Dr. Christian Hansen (Room: 304)**			
10:45 - 11:00	**Coffee Break & Exhibits**			
11:00 - 12:00	**Keynote 2** **Dr. Ram D. Sriram** **Transforming Health Care Through Digital Revolutions** **Moderator: Dr. Yiming Deng (Room: 304)**			
12:00 - 13:00	**Lunch**			
	Location: 304	**Location: 302**	**Location: 303**	**Location: 301**
13:00 - 14:20	**Regular Session (Sensors and Devices) - In Person Moderator: Dr. Christian Hansen**	**Regular Session (AI and ML for PHM) - Virtual Moderator: Rocco Cassandro**	**Regular Session (Data Driven Methods and Data Processing) - In Person Moderator: Dr. Yiming Deng**	**PTC Workshop on Digital Twin, IoT, CBM+**
	#13: Chipless passive RFID sensor for structural health monitoring	#17: FaultyVoltaMan: Multi-Modal Ensemble Learning for Accurate Fault Detection and Classification of Pho	#21: Image registration based automated lesion correspondence pipeline for longitudinal CT data	
	#14: Development of a Prognostic Health Monitoring System to enable predictive maintenance in EV	#18: An Integrated Framework of Fourier Transform and Transformer for Rotating Machinery Fault Diagnosis	#22: Comparison of Optimizers for Fault Isolation and Diagnostics of Control Rod Drives	
	#15: Classification of Rotor Imbalance in Trains using Airborne Sound with Real-World Data	#19: Deep Sparse Representation Classification for Aero-engine Inter-shaft Bearing Fault Diagnosis	#23: Enhance Efficiency: Integrating Prognostic and Health Management with Business Intelligence	
	#16: Component-level Wind Farm Maintenance Considering Seasonal Uncertainties	#20: Bi-LSTM Autoencoder SCADA based Unsupervised Anomaly Detection in Real Wind Farm Data	#24: Power Quality Improvement Through a Model Predictive Droop-based Grid-forming Inverter Control	
14:20 - 14:30	**Coffee Break & Exhibits**			
	Location: 304	**Location: 302**	**Location: 303**	**Location: 301**
14:30 - 15:50	**Regular Session (Emerging Methods) - In Person Moderator: Rocco Cassandro**	**Regular Session (AI and ML for PHM) - Virtual Moderator: Eunice Ofori-Addo**	**Regular Session (Sensors and Devices) - Virtual Moderator: Dr. Christian Hansen**	**PTC Workshop on Digital Twin, IoT, CBM+**
	#25: Eight Questions on the Evolution and Impact of Extended Reality Technologies in Engineering Systems	#29: A Bi-Modular Auto Encoder-Based Unsupervised Degradation Detection Methodology for RUL Prediction	#33: Vib-Mixup: augmentation of vibration signals for fault classification in industrial assets	
	#26: Evaluation of Accuracy for Automated Methods of Predicting Capacity Loss in Li-Ion Batteries	#30: Chaos Detection via the Application of Convolutional Neural Networks to PQ-Embeddings	#34: Polymer Materials Characterization Using a Novel C-Shaped Dual-Band Transmission Based Differential	
	#27: Enhancing Artificial Lighting Source's Reliability in Public Libraries	#31: Quantum Kernel Functions for the Prognosis and Health Management of Ball-Bearing Elements	#35: Digital Twin Enabled Asset Management of Machine Tools	
	#28: An IoT Platform Delivers Expectations for Standardize PHM System Framework	#32: Series Arc Fault Detection Method Based on Load Classification and Convolutional Neural Network		
15:50-16:50	**Keynote 3** **Prof. Sanmeet Kaur** **Building Trust through Blockchain: Revolutionizing Healthcare Data and Supply Chain Security** **Moderator: Dr. Christian Hansen (Room: 304)**			
16:50-17:00	**Coffee Break & Exhibits**			
	Location: 304	**Location: 302**	**Location: 303**	**Location: 301**
17:00 - 18:00	**Regular Session (AI and ML for PHM) - Virtual Moderator: Rocco Cassandro**	**Regular Session (Sensors and Devices) - Virtual Moderator: Eunice Ofori-Addo**	**Regular Session (Data Driven Methods and Data Processing) - Virtual Moderator: Dr. Yiming Deng**	**PTC Workshop on Digital Twin, IoT, CBM+**
	#36: Multi-scale Joint Convolution Neural Network integrated CapsNet model for Machinery Fault Diagnosis	#40: Tool remaining life prediction based on edge computing and AT-LSTM recurrent neural network	#44: Parameter Identification/Optimization for State of Lithium-Ion Battery Detection	
	#37: A Sparse Convolutional Autoencoding Fault Diagnosis Method Integrating Multiple Regularizers	#41: Surface roughness prediction in boring of TC4-DT with multi-sensor data and machining parameters	#45: Mitigating Data Scarcity for Satellite Reaction Wheel Fault Diagnosis with Wasserstein Generative Ad	
	#38: Machine Learning based Battery State-of-Health Prediction using Capacity Fade and Resistance Growth	#42: Health Condition Estimation for Discrete Power Electronic Devices under Package Failure	#47: Siamese Networks and Adversarial Attacks: An Overview	
	#39: VoltaVistaMan: Energy Dynamics Intelligent Predictive Analysis Utilizing Bayesian Hyper-Tuned Neural	#43: State of Health Estimation of Li-ion Batteries Using Multiple Linear Regression and PCA		
18:00	**Banquet**			

Wednesday 6/19/2024	Wednesday Sessions - Day 3			Location: 301
8:30 - 9:30	Tutorial 4: Reinforcement Learning in Reliability and Maintenance Optimization Tutorial speaker: Dr. Yu Liu Moderator: Dr. Yiming Deng (Room: 304)			PTC Company overview, product offerings
9:30 - 9:45	Coffee Break & Exhibits			
9:45 - 10:45	Tutorial 5: "Data-Driven Modelling Patterns for Designing and Implementing Digital Twins in Prognostics and Health Management Systems" Tutorial speaker: Dr. Concetta Semeraro Moderator: Dr. Yiming Deng (Room: 304)			
10:45 - 11:00	Coffee Break & Exhibits			
11:00 - 12:00	Tutorial 6: "Communication Matters in Prognostics and Health Management" Tutorial speaker: Dr. Alan Chong Moderator: Dr. Christian Hansen (Room: 304)			
12:00 - 13:00	Lunch			
	Location: 302	Location: 312		
13:00 - 14:40	Regular Session (Modeling and Simulation) - In Person Moderator: Dr. Christian Hansen			
	#48: Physics-Informed Multi-Task Learning for MRR Prediction in Semiconductor CMP Process			
	#49: Addressing Data Scarcity in PEMFC Fault Diagnosis Using Adversarial Learning			
	#50: Physics-Informed Machine Learning for Robust Remaining Useful Life estimation of Power MOSFETs	Starting from 14:00		
	#51: Comprehensive Prognostic Evaluation of Spacecraft Reaction Wheels Post-Fault Occurrences			
	#52: Domain Model Enrichment with Deep Inductive Transfer from Automotive Data			
17:00		Standard working group meeting by invitation only. For invitations, please see Lou Gullo at the conference. (in person meeting)		