

IEEE Conference on Prognostics and Health Management (ICPHM2025)
Denver, CO
June 09-11,2025
DRAFT PROGRAM

Monday 6/09/2025	Monday Sessions - Day 1		
8:00 - 8:45	Registration (Christian)		
8:45 - 9:00	Welcome Room 1539 (Farnoosh/Jason)		
9:00 - 10:00	Keynote 1 Prof. Jay Lee "Recent Advances of Industrial AI Augmented Predictive Metrology and Large Knowledge Model for Resilient Industrial Systems" Moderator: Jason (Room: 1539)		
10:00 - 10:30	Break		
10:30 - 11:30	Distinguished Lecture 1 Dr. Angelos Stavrou "Cybersecurity and Reliability in the Era of Agentic AI" Moderator: Steven (Room: 1539)		
11:30 - 12:30	Distinguished Lecture 2 Dr. Paul Gasper "Diagnostics, Prognostics, and Optimization for Lithium-ion Battery Systems" Moderator: Farnoosh (Room: 1539)		
12:30 - 13:30	Lunch		
13:30 - 15:00	Panel 1 Panellists: Dr. Jason R, Dr. Preeti C, Dr. Steven Li, Rick K, Dr. Angelos S "AI Reliability, Explainability, and Trustworthiness - Bridging Innovation and Assurance" Moderator: Ruolin Zhou (Room: 1539)		
15:00 - 15:30	Break		
15:30 - 16:30	Tutorial 1 Dr. Stephen Johnson "Introduction to PHM Theory and Practice" Moderator: Lou (Room: 1539)		
16:30 - 17:30	Session 1 - Virtual Moderator: Ruolin (Room: 1539)	Session 11 - Virtual Moderator: Janet (Room: 1535)	
	#1571123908: An Enhanced Feature Engineering and Stacking Ensemble Framework for Remaining Useful Life Prediction	#1571123314: Unsupervised anomaly clustering via offset alignment in multivariate grid sensing data	
	#1571124760: Improved Cervical Cancer Classification using Generative AI and Language Models	#1571125073: Detection of False Data Injection Attacks on Grid-Connected Type-4 Wind Turbines	

	#1571123966: LiB Capacity Loss Predictions using Domain-Knowledge-Incorporated Model through Bayesian Network	#1571124977: Detecting Surface Cracks on Rail Head Based on The ACFM Array Method	
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Tuesday 6/10/2025	Tuesday Sessions - Day 2		
8:00 - 8:30	Registration (Christian)		
8:30 - 9:30	Keynote 2 Mr. Vartan Piroumian "Why Prognostics and Health Management Needs Digital Twins" Moderator: Farnoosh (Room: 1539)		
9:30 - 10:30	Tutorial 2 Dr. Afshin Rahimi "Hybrid Diagnostic & Prognostic Frameworks for Aerospace Health Management: Integrating Model-Based and Data-Driven Approaches" Moderator: Farnoosh (Room: 1539)		Workshop 2 "Introduction to PHM" Dr. Stephen Johnson (Room: 1525)
10:30 - 11:00	Break		
11:00 - 12:00	Workshop 1 "Integrative Innovations in Personalized Medical Technologies" Dr. Bui ("AIoT-Enabled Portable and Wearable Health Monitoring Systems") Dr. Carpenter ("Investigating the Impact of Porous Coating Extent and Bone Mineral Density on Mechanical Stresses for Patients with Bone-anchored Limbs") (Room: 1539)	Session 2 - Virtual Moderator: Steven (Room: 1535)	
		#1571107891: System Identification Using Kolmogorov-Arnold Networks: A Case Study on Buck Converters	
		#1571124758: Enhancing Cervical Cancer Classification Through Augmented and Synthetic Data in Machine Learning	
		#1571124785: Poincare Features for Estimation of Remaining Useful Life in Roller Bearings	
12:00 - 13:00	Lunch		
13:00 - 14:00	Session 3 Moderator: Ruolin (Room: 1539)	Session 4 Moderator: Jason (Room: 1535)	Workshop 2 "Introduction to PHM" Dr. Stephen Johnson (Room: 1525)
	#1571110075: Using PCTRAN Nuclear Power Plant Accident Simulation Alarm System with Deep Learning for Alarm Flood	#1571117838: A Comprehensive Approach to Gear Fault Classification Leveraging Vibration Data and Neural Network	
	#1571124598: Advancing Industrial Safety Compliance Using YOLOv11 and SH17 Dataset	#1571124434: A Robust Method for Fault Detection and Severity Estimation in Mechanical Vibration Data	
	#1571125063: Generating Troubleshooting Trees With FMEA Using Large Language Models (LLM)	#1571124795: Transfer learning and ensemble learning for fault diagnosis using vibration signals	
	Session 5 Moderator: Angelos (Room: 1539)	Session 6 Moderator: Steven (Room: 1535)	

14:00 - 15:00	#1571114877: Use of acoustic emission for Lithium-ion battery to identify defects, overcharging, and swelling	#1571123383: Bearing Degradation Prediction based on Multi-Scale Mamba-Transformer Model	
	#1571123046: Data-Driven PHM with BDPS Tool Suite: Battery Data Acquisition for Degradation Modeling	#1571123557: A PHM Model for a City Bus Transportation System	
	#1571124979: Machine Learning-Assisted Power Modeling and Simulation of Quantum Cloud Data Centers	#1571124741: An Empirical Study on Predictive Maintenance for Component X in Heavy-Duty Scania Trucks	
15:00 - 15:30	Break		
15:30 - 16:30	Session 7 - Virtual Moderator: Janet (Room: 1535)	Panel 2 Panellists: Stephen Johnson, Jeremiah Stoker, Lou G, Matthew Hu "PHM Standards, Past Present and Future" Moderator: Rex A. Sallade (Room: 1539)	
	#1571124132: Spatio-Temporal Reinforcement Learning for Aero-Engine Remaining Useful Life Prediction		
	#1571124689: A Resonance-Based Inductive-Capacitive Dual Modality Sensing Method for Detecting CFRP Composites		
	#1571125098: Intelligent Fault Diagnosis for Planetary Gearboxes using a Hybrid CNN-Transformer Model with Skip C		
16:30 - 17:30	Session 8 - Virtual Moderator: Ruolin (Room: 1535)		
	#1571124495: Research of Digital Twin-based Monitoring and Simulation System of Port Gantry Cranes for PHM		
	#1571124695: A Chirp-Waveform-Based Eddy Current Method for Defect Detection in Ferromagnetic Materials		
	#1571125072: Friction Modeling and Monitoring for Machine Tool Health Management		
17:30-18:30	Break		
18:30-21:00	Dinner		

Wednesday 6/11/2025	Wednesday Sessions - Day 3		
8:00 - 9:00	Session 9 - Virtual Moderator: Steven (Room: 1539)	Session 10 - Virtual Moderator: Farnoosh (Room: 1535)	
	#1571108146: Anomaly Detection in WBANs using GANs and ConvLSTM	#1571123622: Compound Fault Diagnosis for Train Transmission Systems Using Deep Learning with Fourier-enhanced Re	
	#1571121856: Hypersonic flight vehicle intelligent fault diagnosis with imbalance data	#1571124487: Design of a Low-cost IoT-based Wireless Strain Monitoring System for SHM in Port Portal Cranes	

	#1571124906: Second Life Prognostic for Li-ion Battery: Cases of Missing Data with Polynomial Chaos and Time VAE	#1571124698: Detection of Wood Moisture Content Using Microwave Reflection Method	
9:00 - 10:00	Keynote 3 Prof. Ruqiang Yan "Signal Processing Informed Neural Network for Intelligent Fault Diagnosis" Moderator: Steven (Room: 1539)		
10:00 - 10:30	Break		
10:30 - 11:30	Session 12 Moderator: Jason (Room: 1535)	Tutorial 3 Prof. Nicola Trivellin "Design and reliability of LED based UVC light disinfection systems" Moderator: Janet (Room: 1539)	
	#1571123559: Time-frequency Embedded Self-supervised Contrastive Learning for Fault Diagnosis of High-Speed Train (train bearing)		
	#1571123612: Fault Mitigation for Autonomous Vehicles with Reduced Front Steering Capability		
	#1571121608: Dynamic Modeling and Impact Response Analysis of Multi-Unit Urban Rail Vehicle Post-Derailment		
11:30 - 12:30	Session 13 Moderator: Christian (Room: 1535)	Tutorial 4 Dr. Maher Harb and Nader Foroughi "SPC methodologies for monitoring and optimizing HFC networks" Moderator: Farnoosh (Room: 1539)	
	#1571122834:Using Monte Carlo Simulation with BAT and OCBA for the Binary-state Network Reliability Problem		
	#1571123586: A Bayesian Product Reliability Assessment Approach with Varying Sample Sizes		
	#1571124811: A Study on Distributed Learning for attack Detection in Wireless Sensor Networks		
12:30 - 13:30	Lunch		
13:30 - 14:30	Session 14 Moderator: Jason (Room: 1539)	Session 15 Moderator:Christian (Room: 1535)	
	#1571114151: Mutually Complementary: Physics-informed GAN based on Simulated Model for Fault Diagnosis	#1571124808: A Study of Liquid Networks for Wireless Communications	
	#1571116935: Enhancing System-Level Prognostics with Structural Information: A Graph-Based Approach	#1571125058: Enhancing Grid Power Quality using NILM-Enabled Grid-Forming Inverters	
	#1571125814: Industry 4.0 Technologies for an Observer-Based Fault Detection Architecture	#1571110242: Semi-supervised domain adaptation with auxiliary task learning for RUL prediction	
14:30 - 15:30	Session 16 Moderator: Steven (Room: 1539)	#1571153690: Query based learning via conformal uncertainty for RUL prediction	
	#1571125099: A Practical Design for a Battery Diagnostic and Prognostic System Tool Suite		
	#1571118347: Statistical Process Control Applied to Monitoring of Cable Networks		

	#1571115776: Cost-Effective Active Learning for Cable Network Impairment Data		
15:30 - 17:00	Social Activities & Close		