

Invited session: “Artificial intelligence for predictive maintenance”

4th IFAC Workshop on Advanced Maintenance Engineering, Services and Technologies, 10-11 September 2020, Cambridge, UK

Session proposers:

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Description and topics:

Artificial intelligence (AI) has been attracted more and more investigations to identify anomalous behaviour of engineering components or systems. As a typical data-driven approach, AI turns equipment sensor data into meaningful, actionable insights for proactive asset maintenance to prevent downtime or accidents. Commonly known as predictive maintenance, this intelligence forecasts when or if functional equipment will fail so its maintenance and repair can be scheduled before the failure occurs. The contributions of this session are focused on AI approaches applied to maintenance in the context of industry 4.0 framework, specifically recent advances and developments in machine learning, deep learning, neural networks and pattern recognition technologies. The interests are the innovative research and novel challenges in bringing different AI approaches to industrial inspections, predictive maintenance and health management, data-driven prognostics, degradation assessment and fault detection. Signal processing, smart sensors, automation and all data-driven developments which enhance the predictive maintenance are also welcomed.

This session directly falls within the scope of the 4th IFAC AMEST’20 Workshop, particularly on Condition Monitoring, Diagnostics and Prognostics, Predictive Maintenance, AI in Maintenance. It will bring experts in AI, data-driven based Structure Health Monitoring (SHM), Non-destructive Testing (NDT) and predictive maintenance from academia and industry to discuss the latest innovative research and challenges within the industry 4.0 framework.

To discuss all aspects of AI in predictive maintenance, this invited session calls for high-quality contributions that investigate main research challenges, technology developments and advancements, case studies, and applications related to the following topics (but not limited to):

- Non-destructive Evaluation/Testing
- Artificial intelligence, Machine Learning, Deep Learning and Neural Networks
- Automation for inspection and maintenance
- Remaining Useful Life Prediction
- Data-driven Diagnosis and Prognostics
- Smart and miniaturised sensors for maintenance.

Contributions consisting either of empirical studies, collaborative projects and action researches in an industrial context are particularly welcome.

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| INVITED SESSION CODE: - 7b71d When you submit your paper to the IFAC system, you will be required this ID number in order to associate your paper to the invited session: https://ifac.papercept.net/conferences/scripts/start.pl | IMPORTANT DATES: 31st Jan 2020: Paper submission 15th Mar 2020: Author notification 10th May 2020: Final paper submission 09th Jun 2020: Early bird registration 10th-11th Sept 2020: Workshop |
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