

PANEL1:

Prediction of failures in the industrial sector

For several years, there have been numerous press articles relating the setbacks of companies in all sectors combined, but also of institutions faced with failures in their products or services. Critical issues have led to financial losses and a very serious deterioration of the image for the company, and in the worst cases, caused victims or injuries. Are we facing a paradigm shift or simply global competition becoming increasingly fierce, probably both, competitiveness gains therefore become the ALPHA and OMEGA for business survival and impose ever greater risks. Not to mention, the disruption, both technological and service, which comes to light almost every morning. Just read the press. Industrial hierarchies are made and unmade before our eyes and at high speed. The editorial line of this workshop crystallized in the form of 2 questions, which will be brought by the presentations and answers provided by our speakers.

Topics to be addressed

- Design for PHM + Physics of failure
- Data acquisition (e.g. what data to acquire? type of sensors?)
- Data processing ... for the purpose of developing information, indicators (combination with business knowledge)
- Diagnostic
- Checkup
- Prognosis
- Decision support in predictive maintenance and optimization
- AI as a support technique for a set of processes in Predictive Maintenance
- Predictive maintenance architecture
- Maintenance and Non Destructive Test (NDT)

Moderator

Benjamin Joguet



Naval Group since 2004

Conducted several risk analyses on major equipments for submarine and surface vessels

Combat Systems Safety Manager and Safety expert, based in Ollioules, FR

IEEE FR Reliability chapter chairman

Speakers

Dr Phuc Do



Dr. Phuc Do is currently Associate Professor at Lorraine University (UL/CRAN laboratory) since 2011. He received his PhD in systems optimization and dependability in 2008 from Troyes University of Technology (France). He defended his HDR (Habilitation à diriger des recherches) in 2019 on the subject of “predictive vs. prescriptive maintenance for cyber physical production system”. So, his research interests include stochastic modelling for reliability prognostic, optimization of maintenance policies (prescriptive maintenance, predictive maintenance, prognostics-based maintenance decision-making, opportunistic and dynamic grouping maintenance), reliability importance measures and their related applications.

He is strongly involved in PHM society and MIMAR communities. He is an associate editor of Autonomous Intelligent Systems and co-guest editor of several Special Issues in Reliability Engineering System Safety, journal of risk and reliability, Autonomous Intelligent Systems. He is co-chair of the 9th, 10th and 11th International Conference on Modelling in Industrial Maintenance and Reliability. He has published over 80 research publications in international journals (i.e. RESS, IEEE Transactions on Reliability) and conferences. P. Do is involved as actor but also as scientific leader in contracts with industry such as RENAULT, SECTOR but also in national or European projects (e.g. LabCOM PHM-FACTORY, H2020-ICT AI-PROFICIENT) or international projects (e.g. COFECUB project).

Francis Dupouy



CEO and COO of SERMA Technologies since 6 years and electronic Reliability expert, Health Monitoring (HM), Prognostics & Health Management (PHM), and also on components technologies, manufacturing process PCBA and components, and on electrical tests (« Physics Of Failure »).

More than 30 years of experience in electronic domains and reliability (electronic signal and power electronic) and in HM/PHM for 13 years.

Several projects in progress (Batteries and systems)

10 years (2007 to 2017) as « Reliability Advisor » in SCHLUMBERGER (SLB) Oil and Gas World Wide, located in Texas (US) then in UK, on electronic technologies and reliability for electronic PCBA and components used in very harsh environment downhole (High temp and High shocks level).

Worked with CALCE on HM/PHM and implementation in SCHLUMBERGER (canary, electronic systems and DC motor drive, methodology during design, etc..).

Before 2007, 10 years in SERMA Technologies as reliability expert (aeronautic, automotive, medical, embedded systems, industrial systems, etc...).

Hichame MAANANE



Hichame MAANANE received his PhD from the university of Rouen in 2005. From 2005 to 2007, he was Associate Professor at University of Rouen. From 2007 up today, he works in THALES company. He has authored/co-authored several papers on reliability electronics. He is IEEE Senior member and also a paper reviewer in IEEE Transactions Device Materials and Reliability & IOP journals.

Ramon Salvador Fernandez Orozco



President & CEO - Fercon Group

A civil engineer with a major on structural design from the Autonomous University of Guadalajara.

Dual Degree Master on Business Administration MBA with a specialization in Strategic Business Management from Regis University and technology and innovation management and research processes by ITESO.

34 years of experience in Nondestructive Testing and 32 years of experience in Welding Engineering. Certified as ASNT Level III in RT, UT, MT, PT, VT and LT.

Since 1986, he has coordinated projects and programs focused on quality improvement, automation and innovation for manufacturing and construction projects located projects in Mexico, the United States, Argentina, Chile, El Salvador, Puerto Rico, Dominican Republic, Panama, Spain and Italy.

Within the projects executed in Mexico there are developments for companies from Canada, Japan, South Korea, France and Germany.

His construction experience covers over 350,000 metric tons of structures for bridges, power generation plants, industrial buildings, commercial buildings, high-rise building and offshore platforms.

Coordinator of the first successful project of quality certification by the American Institute of Steel Construction (AISC) for a structural steel fabrication company in Latin America.

Senior Consultant for the CEGINT/ ITESO Business Accelerator Program on corporate governance, family protocol, business models, institutionalization, strategy redefinition and organizational change management processes.

Independent Board Member and Advisor since 2012 to support the operation of companies in the technological, educational and non-destructive testing sector in organizations located in Mexico, the United States, Germany, Spain and Uruguay.

Since 2004, he participates as a volunteer evaluator for state, national, and Iberomeric quality awards and excellence models for private and government organizations in Mexico, Argentina, Spain, and Dominican Republic.

Volunteer committee participation at ASNT, ASME and ICNDT.

He has published articles and research results on the development of his professional work that have been accessed in over 74 countries in four continents and have lectured about them at forums in Mexico, the United States, France, Germany, Chile and Brazil.