



**Institute of Industrial and Systems Engineers
Quality Control & Reliability Engineering (QCRE) Division and
Data Analytics and Information Systems (DAIS) Division
2022-2023 Webinar Series**

IISE Quality Control & Reliability Engineering (QCRE) division and Data Analytics and Information Systems (DAIS) Division would like to invite you to attend our webinar on Thursday, March 2, 1 PM – 2 PM, Eastern Time.

Webinar Registration: https://us06web.zoom.us/webinar/register/WN_sT0v0CAxSEiGTyk46G_pNA

Time: Mar 2, 2023, Thursday, 01:00 PM, Eastern Time.

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Title: Do Reliability and Machine Learning Models With Time Delays and Model Selection Matter?

Presenter: Dr. Hoang Pham, Distinguished Professor, Department of Industrial and Systems Engineering, Rutgers University

Abstract: Many criteria and tools for selecting a reliability model or statistical distribution have been studied in the past decades. With the development of various machine learning models, both model-driven and data-driven approaches in recent years, the task of determining an appropriate model which satisfies certain criteria from a set of candidate models given a set of data has become more challenging for engineers and analysts. In addition, many systems in real life such as industrial and biological systems are often encountered with time delay. The reasons the time delay could naturally be that the system itself will need time in gaining the full capacity for the system in order to produce the best results. For example, in reliability the standby system will be the time delay for the system to fully functional. In the biological system, there is the time delay between the decrease in red blood cells number in blood and the release of new ones from bone marrow to fill this loss. In this talk, I will discuss various model selection criteria and some recent modeling studies of systems such as system degradation and body's immune system with time delays.



Biography: Dr. Hoang Pham is a Distinguished Professor and former Chairman (2007-2013) of the Department of Industrial and Systems Engineering at Rutgers University. He received his M.S. in



Statistics from the University of Illinois, Urbana-Champaign, and M.S. and Ph.D. in Industrial Engineering from the State University of New York at Buffalo. Before joining Rutgers, he was a Senior Engineering Specialist with the Boeing Company and the Idaho National Engineering Laboratory. He is the editor-in-chief of the International Journal of Reliability, Quality and Safety Engineering and editor of the Springer Book Series in Reliability Engineering. He is the author/coauthor of 7 books and has published over 200 journal articles and edited 17 books. His research interests include statistical machine learning inferences and reliability modeling for complex system degradation and biological systems with uncertainty and time-delay. He is a Fellow of the IEEE and IISE.

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