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Towards an Advanced Technology for Industrial Alarm Monitoring

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Abstract:

In operating industrial facilities, alarm systems are configured to notify operators about any abnormal situation. The industrial standards (EEMUA and ISA) suggest that on average an operator should not receive more than 6 alarms per hour. This is, however, rarely the case in practice as the number of alarms each operator receives is far more than the standard. There exist strong industrial needs and economic benefits for better interpreting and managing the alarms, and redesigning the alarm systems to reduce false and nuisance alarms, and increase the alarm accuracy. In this talk, we plan to summarize our recent work in this new area, targeting a quantitative and data based approach. Topics to be discussed include performance analysis of alarm systems, optimal alarm filter design, delay timers, average detection delay, alarm flood analysis, and industrial case studies.

Biography:

Tongwen Chen is presently a Professor of Electrical and Computer Engineering at the University of Alberta, Edmonton, Canada. He received the B.Eng. degree in Automation and Instrumentation from Tsinghua University (Beijing) in 1984, and the M.A.Sc. and Ph.D. degrees in Electrical Engineering from the University of Toronto in 1988 and 1991, respectively. His research interests include computer and network based control systems, process safety and alarm systems, and their applications to industry. He has served as an Associate Editor for several international journals, including IEEE Transactions on Automatic Control, Automatica, and Systems and Control Letters. He is a Fellow of IEEE, IFAC, as well as Canadian Academy of Engineering.