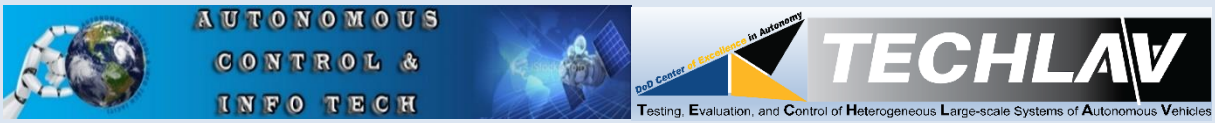

TOPIC	Automatic Identification of Nuisance and Correlated Alarms
ORGANIZERS	Student Leadership Council and Faculty of ACIT Institute and TECHLAV Center
AREA	
SPEAKER	Yash Puranik
DATE	Friday September 08, 2017
TIME	3:00 – 4:00 P.M. (EST)
VENUE	Fort IRC 410, North Carolina A&T State University
FEES	No Charge

SYNOPSIS

Alarm systems are vital for the safety and reliability of process operations. Alarm systems are configured to alert operators in case of unsafe or incorrect operational conditions, and warn operators of impending failures. Well-designed alarm systems provide sufficient advance notifications to operators that will allow them to take suitable remedial actions.

In practice, improperly configured alarm systems lead to several problems including detection delays, alarm chattering, nuisance alarms, and alarm flooding. Often, a 'safety-first' perspective is utilized while configuring alarms, leading to a generation of multiple nuisance alarms that require no action on the part of the operator. An underlying fault in the system typically propagates across various parts and units, leading to the generation of multiple alarms in a very short amount of time. The generation of potentially hundreds of alarms can lead to operator overload, where the operator is unable to successfully respond to the large number of alarms.

In this work, we present a dual methodology for the identification of nuisance alarms and for the correlation of non-nuisance alarms based on historical alarm data. The methods are designed to operate in real-time: newly available labelled data can be consumed immediately to update the machine learning models employed, while ease of deployment over the cloud allows for scaling capabilities to process alarm data at a very high frequency. Our results demonstrate the high accuracy of our method for identification of nuisance and correlated alarms.

ABOUT THE SPEAKER

Yash Puranik completed his Dual Degree (B. Tech + M. Tech) in Chemical Engineering with a specialization in Process Systems Engineering from IIT Bombay, India. He completed his Ph.D. at Carnegie Mellon University with research focusing on global optimization algorithms and their applications in July 2016. Yash's research in diagnosis of infeasibilities in optimization models has culminated in the development of an infeasibility diagnosis tool that has been released through the global solver BARON. Yash currently serves as a Research Scientist at Rockwell Automation. At Rockwell, he is researching the use of data-based analytics for process operations.