



TOPIC	Learning a Partially-Known Discrete Event System
ORGANIZERS	Student Leadership Council and Faculty of the ACIT Institute and TECHLAV Center
AREA	Discrete Event Systems, Automata, Learning
SPEAKER	Wendell Bates
DATE	Friday November 13, 2020
TIME	3:00 – 4:00 P.M. (EST)
VENUE	Webex video-conferencing
FEES	No Charge

SYNOPSIS

In many instances, complete insight and understanding of a system is limited due its complex nature or insufficient access to the system in its entirety; thus leaving us with only partial knowledge of the system. This seminar will give a brief overview of a novel active-learning technique for fault diagnosis of a partially-known system modeled as a finite-state Discrete Event System (DES). The proposed technique first tabularly gathers information from a diagnosis tool, termed diagnoser, constructed from the available information of the known part of the system. An active-learning technique is then executed to iteratively capture information regarding the unknown portion of the system to construct the remaining part of the diagnoser. The final constructed diagnoser is ultimately able to detect and identify occurred faults through the examination of the observable behavior of the system. In order to display the details of this method, we have applied this method to a real-world case study concerning the Boeing 737-MAX and the implementation of the Maneuvering Characteristics Augmentation System (MCAS).

ABOUT THE SPEAKER



Wendell Bates received his Bachelor of Science in Computer and Electrical Engineering from Florida Agricultural and Mechanical University in 2008 and his Master of Science in Electrical Engineering from Florida Agricultural and Mechanical University in 2011. He then joined BMW Manufacturing, Inc. as a Quality/Electrical Systems Integration Engineer for BMW prototype builds. In 2016, he joined North Carolina A&T State University to pursue his Ph.D. degree in Electrical Engineering under the advisement of Associate Professor Dr. Ali Karimoddini and successfully defended his dissertation on October 21, 2020. His research interests include Safe, Robust, and Reliable Control Systems, Hybrid Control Systems, Discrete Event Systems, and Robotics. He is also a member of the Autonomous Cooperative Control of Emergent Systems of Systems (ACCESS) Lab as well as the Testing, Evaluation and Control of Heterogeneous Large-scale systems of Autonomous Vehicles (TECHLAV) Center.