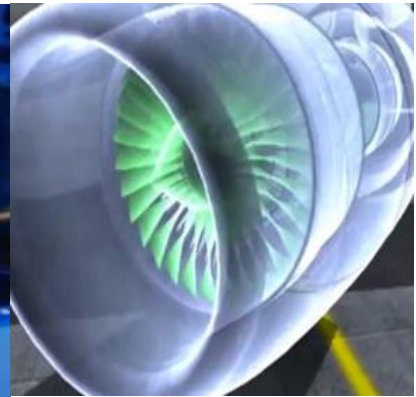


UTC Institute for Advanced Systems Engineering Seminar Series



Ali Bazzi
Department of Electrical and Computer Engineering
University of Connecticut

INTELLIGENT FAULT DIAGNOSIS AND RECOVERY IN POWER ELECTRONIC SYSTEMS

Friday, March 14, 2014 4:00 – 5:00 p.m. Storrs Campus, UTEB 150

Abstract: Power electronic converters are fundamental building blocks in various applications including aerospace, automotive, and other areas where energy availability and continuous operation are critical. This talk will present two methods for fault diagnosis in power electronic converters based on simple and fuzzy logic. The methods utilize basic measurements from which quantities such as mean, peak, and harmonic content are evaluated. These quantities are used to diagnose specific faults and fault locations. A high-level decision maker processes the fault diagnosis information to engage redundant components which are available as “spare” parts on board a power electronic converter. Preliminary results show significant fault diagnosis accuracy and fast recovery using both methods. Diagnosis is faster using fuzzy logic at the cost of added complexity.

Speaker Bio: Dr. Bazzi is an Assistant Professor with the Department of Electrical and Computer Engineering at the University of Connecticut (UConn). He received his PhD in electrical engineering from the University of Illinois at Urbana-Champaign (UIUC), Urbana, IL, USA. He received the B.E. and M.E. degrees in electrical engineering from the American University of Beirut (AUB), Beirut, Lebanon. He was a Visiting Assistant Professor at UIUC during Spring 2011, and an engineer with Bitrode Corporation during the Summers of 2008 and 2009. He was with Delphi Corp. as a Sr. Power Electronics Electrical Engineer before joining UCONN. He established the Advanced Power Electronics and Electric Drives Laboratory (APEDL) at UCONN where he currently directs research in the areas of power electronics applications in motor drive systems, renewable energy systems (especially solar photovoltaics), and micro-grids. His main research interests focus on control, optimization, efficiency enhancement, and reliability modeling of these systems.