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Please Join Us as

Dr. Marwan A. Simaan Presents:

**“Control and Optimization in the
Presence of an Adversary”**

Abstract: The performance optimization and control of a dynamic system typically involves applying concepts from optimal control theory. Once the optimization objectives have been defined, the decision making process must take into account the uncertainty associated with the environment in which the system and its control mechanism are to operate. One important type of uncertainty is the presence and impact of an organized intelligent adversary that may also be making decisions to influence the behavior of the system and to achieve its own objectives. We will discuss a game theoretic approach which has shown some promise in guiding the decision-making process for such systems. We will illustrate with an example that involves the use of autonomous entities (unmanned aerial vehicles, robots, mobile sensors networks, etc.) to accomplish a dangerous task in a hostile environment, such as during a military combat. We will then address difficulties and challenges associated with these types of problems such as scalability, computational complexity, and implementation structure of the strategies derived from such an approach.

Marwan Simaan, is the Florida 21st Century Chair and Distinguished Professor of Electrical Engineering & Computer Science at the University of Central Florida. He received a PhD degree in Electrical Engineering from the University of Illinois at Urbana-Champaign in 1972. He is a member of the National Academy of Engineering and a Fellow of the IEEE, AAAS, and ASEE. From 1976 to 2008 he was at the University of Pittsburgh where he served as chair of its EE department and held the position of Bell of PA/Bell Atlantic Professor. He has edited books, published refereed papers in journals and book chapters, and papers in conference proceedings. He has served on editorial boards of numerous journals including The EEE Proceedings, The IEEE Press, Multidimensional Systems and Signal Processing, the Journal of Optimization Theory and Applications and others. He is currently Interim Dean of the College of Engineering & Computer Science at UCF.



Monday, October 19, 2009 - 3:30 PM – 4:30 PM

McArthur Engineering Annex – Room MEA202
Coral Gables

Light Refreshments will be provided

*For more information, please contact Anne Schærli
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