



**2008 - 2009**



**MATHEMATICS COLLOQUIUM SERIES  
UNIVERSITY OF CENTRAL FLORIDA**

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**Dr. Abhijit Mahalanobis  
Lockheed Martin**

will speak on

**Multi-frame Adaptive Object Recognition**

**ABSTRACT:** Many traditional pattern recognition methods produce classification results by processing one image frame at a time. For instance, conventional correlation filters are designed to yield well defined correlation peaks when a pattern or object of interest is present in the input image. However, the decision process is memory-less, and does not take advantage of the history of results on previous frames in a sequence. Recently, Kerekes and Kumar introduced a new Bayesian approach for multi-frame correlation that first produces an estimate of the object's location based on previous results, and then builds up the hypothesis using both the current data as well as the historical estimate. A motion model is used as part of this estimation process to predict the probability of the object at a particular location. Since the movement and behavior of objects can change with time, it may be disadvantageous to use a fixed motion model. In this paper, we show that it is possible to let the motion model vary over time, and adaptively update it based on data. Preliminary analysis shows that the adaptive multi-frame approach has the potential for yielding significant performance improvements over the conventional approach based on individual frames.

**DATE: Thursday, October 30, 2008**

**TIME: 11:30am – 12:30pm**

**PLACE: MAP 318**

**Refreshments will be served.**