

FAU CAKE Executive Summary - Project Synopsis		Date: April 3, 2015
Project Title: Fast Violence Detection in Surveillance Scenes	Phone : (561) 297-3180	E-mail : bfurht@fau.edu
Center Director: Borko Furht, Ph.D.		Type: (New or Continuing): New
Project Leaders: B. Furht, Ph.D		Proposed Budget: Phase II – \$65,961
<p>Project Description: There are millions of video surveillance systems in public places, such as streets, prisons, and supermarkets. Existing vision-based methods mainly consider violence using features in a single frame. We propose research to develop a fast and robust framework for detecting and localizing violence in surveillance scenes. Research includes techniques for action recognition, object detection, and surveillance.</p>		
<p>Experimental plan: Our objective is to develop a fast and robust framework for detecting and localizing violence in surveillance scenes. Proposed approach: (a) From the surveillance video extract candidate violence regions, which are adaptively modeled as a deviation from the normal behavior of crowd observed in the scene. (b) Develop techniques to search for violent events in the densely sampled candidate violence regions. (c) Develop a descriptor to distinguish violence from these candidate violence regions.</p>		
<p>Related work elsewhere: Hierarchical approaches describe recognition methods for complex human activities such as Human-object interactions and group activities Nonhierarchical approaches are based on statistical models to recognize activities (Example: Human action recognition method based on Hidden Markov Model (HMM)). Newer approaches for recognizing group of people behaviors are using multiple cameras.</p>		
<p>How this project is different: We will go beyond our previous work to implement real-time algorithms with high detection rate</p>		
<p>Milestones for the current proposed year: The major milestones for this project are to implement new algorithms and compare them with the existing ones in terms of computational speed (real-time) and detection rate.</p>		
<p>Deliverables for the current proposed year: The deliverables are the algorithms and relating software modules, as well as publications detailing our work in testing these implementations in relevant top level SCI listed magazines. We intend to submit an NSF proposal on this topic.</p>		
<p>How the project may be transformative and/or benefit society: Algorithms developed in this project may be used in various surveillance applications at streets, prisons, supermarkets, etc.</p>		
<p>Research areas of expertise needed for project success: Experience in video and image processing, object segmentation, and multimedia in general.</p>		
<p>Potential Member Company Benefits: CAKE member company will gain from this development and advancement by making it more attractive for a number of applications.</p>		
<p>Progress to Date: We have investigated the literature and develop a general framework for the project.</p>		
Estimated Start Date: April 20, 2015	Estimated Knowledge Transfer Date: December 10, 2016	