Stony Brook University  
The Graduate School  
Doctoral Defense Announcement  

Abstract  
Collaborative and Heterogeneous Signal Processing Methodology for Mobile Sensor Based Applications  
By  
Shung Han Cho  

Multiple object association and identification are key capabilities in mobile sensor based applications (i.e., a large scale flexible surveillance system and multiple robots application system). Such systems track and identify multiple objects autonomously and intelligently without human operators. They also flexibly control deployed sensors to maximize resource utilization as well as system performance. Moreover, methodologies for the tracking and association should be robust against non-ideal phenomena such as false or failed data processing. Locally initiating line-based object association method is proposed to support flexible camera movements and multiple camera collaborations for object association. Also, in order to achieve identifications of tracked objects, identification sensors are incorporated into the multiple cameras based system. The proposed approach utilizes the object dynamics of entering and leaving the coverage of identification sensors, where the location information of identification sensors and objects is available. Finally, a novel self localization method is presented for mobile sensors. The fast and accurately estimated location information can be effectively utilized in the mobile sensor based applications.

Date: May 7, 2010  
Time: 10:30AM  
Place: Light Eng. Rm#250  

Program: Computer Engineering  
Dissertation Advisor: Sangjin Hong