



**SDSU**  
presents  
a thesis defense for  
Master of Science  
degree in  
Computer Science

Friday,  
March 29, 2013  
  
1:00pm  
GMCS 555

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# Ashish Tandel

*Coordinated Multi-Robot Security System  
Using Fuzzy Logic Decision Making*

## Abstract

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The thesis studies and develops software for multiple intelligent robots working collaboratively using fuzzy logic for making decisions in order to maintain the security of an environment, inside or outside a building. The available information of environment is used to make intelligent decisions. The information consists of object locations, obstacles, intruder detection, etc. The action taken by an individual security robot depends on current surrounding situation, and internal states of the robot such as remaining battery life, and other aspect formulated as enthusiasm and motivation of the robot to engage in an activity. The activities consist of inspection, patrol, chase, guard, etc. This system is simulated with several robots and shows the human-like decision-making. The system is demonstrated using a graphic environment where the movements of the security robots and intruder robots are shown.

## Thesis Committee

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Mahmoud Tarokh, Thesis Chair, Department of Computer Science  
Carl Eckberg, Department of Computer Science  
Santosh Nagaraj, Department of Electrical and Computer Engineering