NOTICE OF THESIS PROPOSAL PRESENTATION

Geodesy and Geomatics Engineering

Doctor of Philosophy

Bahram Salehi

Thursday, July 2, 2009
Head Hall – Room E-11 @ 10:00 am

Co-Supervisors:	Dr. Yun Zhang
	Dr. Ming Zhong
Supervisory Committee:	Dr. Sue Nichols
	Dr. David Coleman
Chair:	Dr. Marcelo Santos

Urban Land Cover Classification Using Very High Resolution Satellite (VHR) Imagery

ABSTRACT

The primary goal of this research is to develop a land cover classification approach for urban areas by using VHR satellite and other data sources to mitigate the problems of current classification techniques. Focusing on this objective, we first evaluated the performance of two widely used classification methods, a pixel-based and an object-based approach by four sets of satellite imagery, two medium resolution images(Landsat7/ETM+ and SPOT 4) and two very high resolution images(Quickbird and IKONOS). Secondly, we reviewed approximately 70 publications (including books, journal and conference papers and online sources) mostly published in the field of VHR image classification in recent years. Results of software testing in addition to the results of previous researchers in this area proved that between pixel-based and object-based classification approaches, the latter has better performance for our purposes. Furthermore, we conclude that only spectral information, extracted from the image itself dose not provide satisfactory result in terms of separating important classes such as building and traffic areas. Therefore, it is unavoidable to incorporate spatial information from other data sources such as DEM and GIS data layers in addition to contextual, textural and structural information extracted from image itself into segmentation and classification procedures. Another important issue that must be considered in our future research is to develop an appropriate object-based classification algorithm so that can handle the huge amount of spectral and spatial information from the remote sensing images and GIS data layers.

Faculty Members and Graduate Students are invited to attend the 20 minute presentation