Topic: **"Mapping Social Media and Diffusion of Innovations on Digital Earth: Revealing the Invisible World"**

Abstract (within 300 words):

By using smart phones, mobile devices, and the Internet, social media and weblogs allow people to communicate, express, and coordinate their activities dynamically and geospatially, and to a significant degree, to accomplish these social functions in near real time. The impacts of these tools were so vividly demonstrated in the most recent anti-government protests in the Middle East (the Arab Spring), Occupy Wall Streets, and the London riots. In order to cope with these new trends, the next generation of Digital Earth should focus more on the analysis of social networks and social media (such as Twitter, Facebook, and on-line forums), and their impacts on our society.

Cyberspace (the invisible world), a powerful platform for collective thinking and idea exchange, provides valuable intelligence to help scientists monitoring social processes and events ranging in diversity from the spread of infectious diseases, to radical social movements, to the structure of terrorist networks. Mapping the information diffusion and cluster patterns in response to various social movements, events, and epidemics can facilitate the study of innovation diffusion. The diffusion of innovations is a dynamic process whereby new concepts, ideas, and technologies spread through our society on the Digital Earth and social networks.

This presentation will introduce a new research method, called the Spatial Web Automatic Reasoning and Mapping System (SWARMS) (http://mappingideas.sdsu.edu). SWARM is designed to track spatial patterns of publically-accessible web pages and social media (Twitter) based upon searching predefined clusters of keywords determined by domain experts. Web pages and tweets associated with the same keywords were converted into visualization maps using GIS functions. Given the extent to which the human population is "plugged into" the online world, this new approach may illustrate a new research direction for social scientists to study human thoughts, behaviors, disease outbreaks, global web contents, and new communication theories.