

DEPARTMENT OF GEOGRAPHY

Visiting Scholar Presentation

2014-2015 Geography Colloquium Series

Xiang Li

Professor & Associate Dean
School of Geographic Sciences
East China Normal University

**Spatial Operational Research and
Its Application in Emergency Services**

The potential of GIS has been integrated into operational research to facilitate optimally solving problems involving spatial data. In this presentation, some examples in emergency services are given, and a series of algorithms for making evacuation plans are introduced in detail. During a large-scale evacuation in response to extreme disasters, limited traffic infrastructure is often inadequate to entertain extremely large traffic volume generated within a short period, and a simultaneous evacuation accompanied with spontaneous behaviors can lead to disorder and conflict and seriously prolong the process. A pre-defined staged evacuation plan is, therefore, required. This paper presents a method to facilitate making such a plan. Through employing an algorithm to schedule the departure time of each evacuation group, the method can guarantee that the time of completing a large-scale evacuation is very close to its theoretically shortest evacuation time. Additionally, a few more efforts have been made to extend its application to groups with various speeds, to multiple exits, and to indoor space.

**Friday, February 13, 2015
Derby Hall Room 1080
3:30-4:30 p.m.**



THE OHIO STATE UNIVERSITY

COLLEGE OF ARTS AND SCIENCES