

# Geospatial-Based Urban Study Group



Peng Gao, PhD Professor and Chair, Department of Geography and The Environment. Specialties: Geospatial analyses (GIS, Remote Sensing, and UAV data analyses)

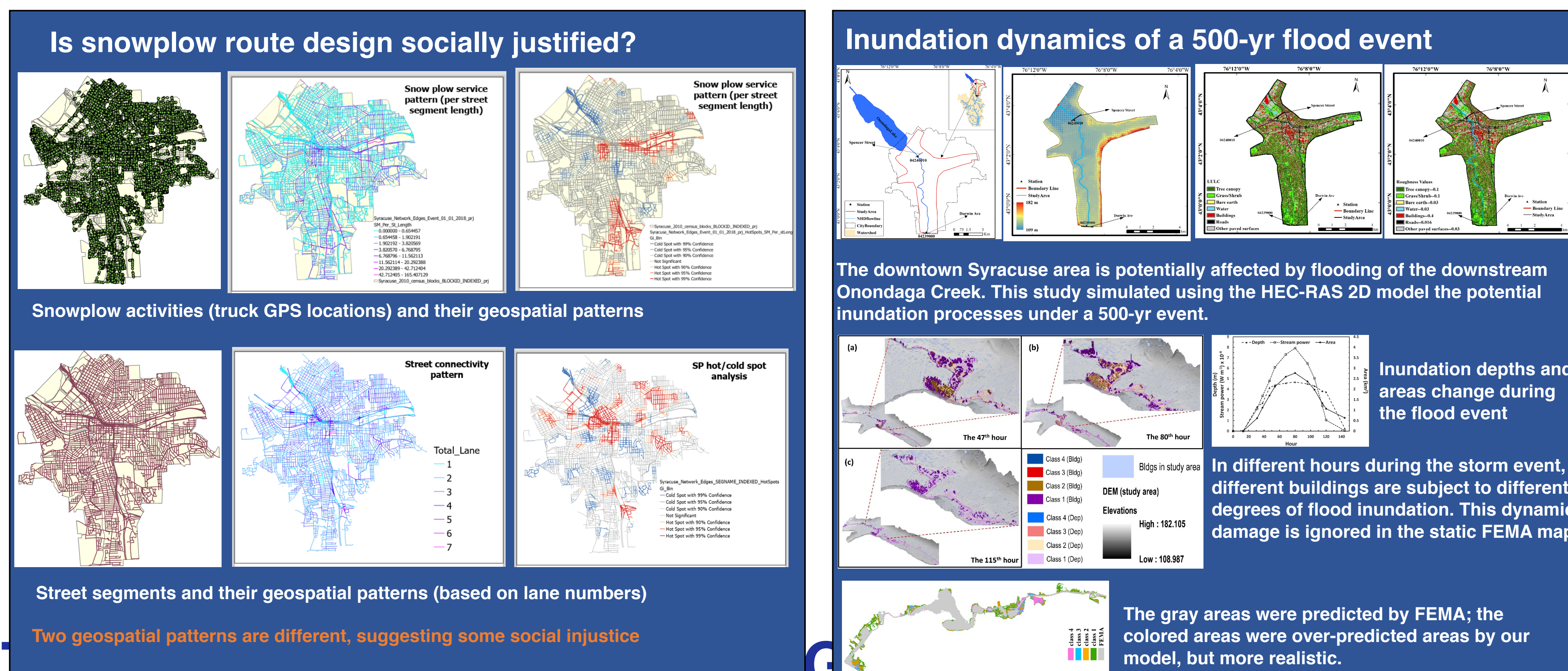
## Purposes

- To improve understandings of human-nature mutual adaptations under the influence of climate change through the lens of geospatial patterns.
- To train graduate and undergraduate students by integrating research into teaching.
- To foster collaboration with location-based business partners for developing novel products in relevant markets

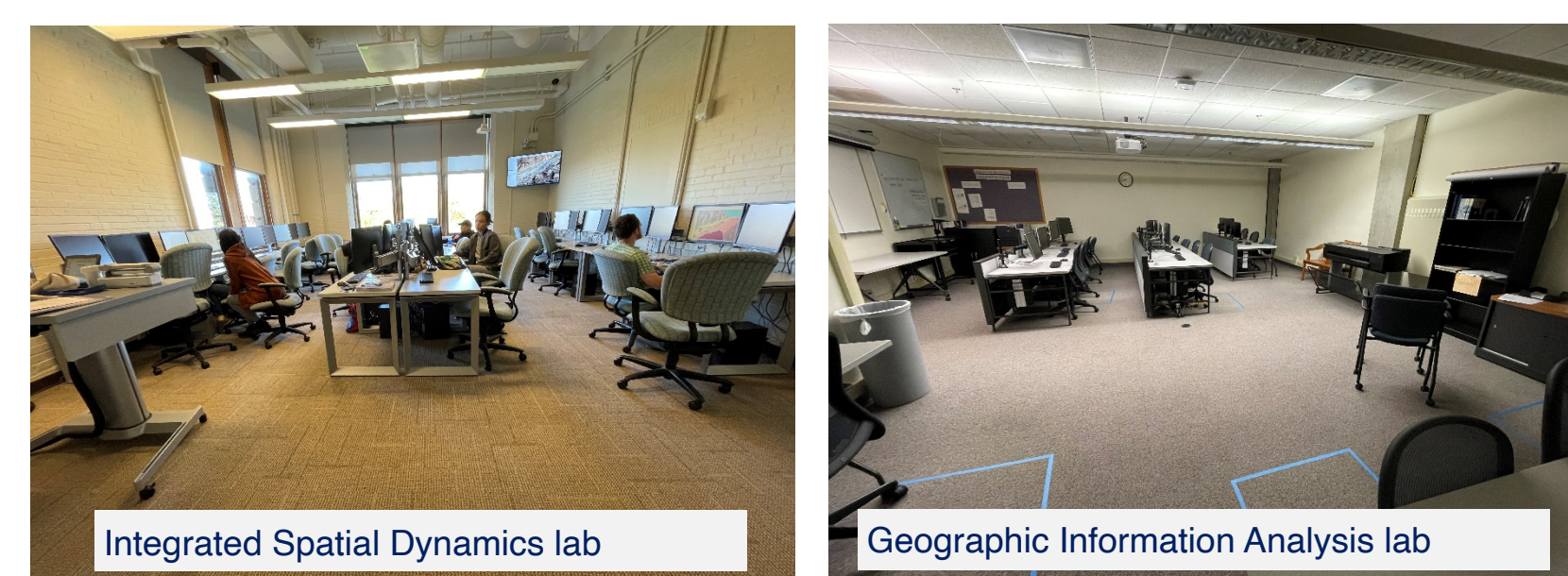
## Scope

Our group aims to quantitatively reveal the complex interaction between spatial structures of urban environment and micro-climate changes, and to provide services for emerging urban needs using a variety of geospatial concepts and techniques.

## Current Research

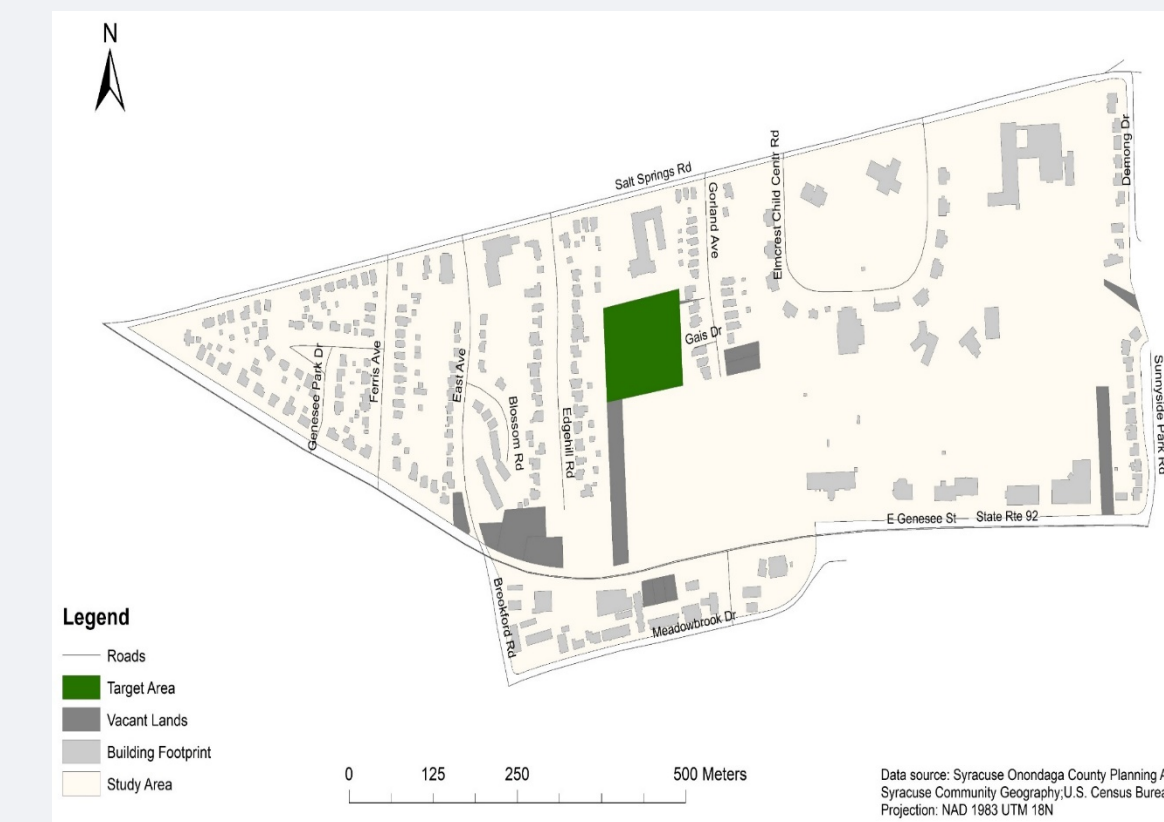


Peng Gao, Professor and advisor  
 Xiwei Guo, PhD Candidate  
 Emmy Halender, PhD candidate  
 Anwasha Majumdar, PhD student  
 Yunrui Si, Master student



## Service examples and scopes

### 1. 2D/3D GIS maps for customer tailored information



Vacant land to garden and the possibly received solar radiation

Vacant land to community and the possibly received solar radiation

Two possible scenarios of utilizing the vacant land (in green)

### 2. 3D GIS-based spatial design and analysis



This one shows how visibility changes looking from the southeastern building to the northwestern one



This one shows the visible lights between the two buildings



This one shows the spatially variable degree of visibility in the first case

## Scopes

- Developing 3D assessment for a variety of urban needs;
- Performing hydrological/geospatial analyses for assisting urban management tasks;
- Designing and producing 3D maps for location-based service.

## Ongoing Project

### Developing a 2D/3D mapping app for UAV delivery services (IUDMS)

