Spatial Data Science for Disaster Resilience

Natural disasters, such as hurricanes, floods, tornados, wildfires, earthquakes, and blizzards, pose significant threats to people and society. With climate change, these disasters are likely to become even more frequent and more costly in the near future. The availability of various geospatial data sources (e.g., drone-collected images, mobile phone location data, social media data, and sensor network data) combined with the advancement of statistical and machine learning models provide great opportunities for understanding human-environment interactions during these catastrophic events. Such understanding can help us further prepare for future disasters and increase the resilience of our communities. This session aims to bring together researchers interested in using spatial data science to answer questions and address issues in any aspect related to disaster management, from mitigation and preparedness to response and recovery. This session will feature a series of research presentation followed by an open discussion with the audience.

Organizers: Yingjie Hu and Andrew Crooks, Department of Geography, University at Buffalo, USA

Tentative schedule:
- 1:30 -1:32 pm: Brief introduction of the session by Yingjie Hu

- 1:32 - 2:00 pm: Keynote presentation by Lei Zou: *Achieving a Smart and Resilient Future with Spatial Data Science*

- 2:00 - 2:15 pm: Lightning presentation series
  - Qunying Huang: *Wildfire Burnt Area Detection with Deep Learning and Sentinel-2 Imagery*
  - Manzhu Yu: *Deciphering Wildfire Dynamics: Spatiotemporal Attention-Based Sequence-to-Sequence Models Using ConvLSTM Networks*
  - Md Zakaria Salim: *Socio-economic Disparities of Property Damage in Hurricane Ian*
  - Qingqing Chen: *Community resilience to wildfire: A network analysis approach by utilizing human mobility data*
  - Kai Sun: *GALLOC: a GeoAnnotator for Labeling LOCation descriptions from disaster-related text messages*

- 2:15 – 2:30 pm: Open discussion with the audience coordinated by Andrew Crooks and Yingjie Hu