Transforming Social Big Data into Timely Decisions and Actions for Crisis Mitigation and Coordination

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Abstract:

Crises are imposing massive costs to economies worldwide. Natural disasters caused record \$306 billion in damage to the U.S. in 2017! Real-time gathering of relevant data through ubiquitous presence of mobile technologies and the ability to disseminate them through social media has forever changed how disaster and health crisis monitoring and response are now carried out. Both tradition crisis response organization as well as temporary, informal, self-organized and community-based organizations have come to increasingly rely on social media. Furthermore, ability to collect, repurpose and reuse data from past events is helping with preparedness and planning for future events.

In this talk, I will review our extensive experience on (a) interactions with variety of stakeholders involved in emergency response at city, county, country and international levels, (b) research on real-time social media analysis spanning spatio-temporal-thematic; people-content-network; linguistic-sentiment-emotion-intent analysis dimensions, (c) development and use of crisis response specific tools (location identification, demand-supply match) and the comprehensive <u>Twitris semantic social intelligence system</u> (which is also commercialized as <u>Cognovi Labs</u>), and (d) a variety of real-world evaluations and real-time uses (e.g., supplying data for Google Crisis map during Uttarakhand Floods, rescue during Kashmir Floods, neighborhood image map during Chennai Floods, providing information to FEMA during Oklahoma tornados), spread of disease and epidemiology (e.g., Zika spread), metro-level multi-agency disaster preparedness exercise, etc.

For background, please see (i) <u>Social Media Enhanced Organizational Sensemaking in</u> <u>Emergency Response</u>, (ii) <u>Social and Physical Sensing Enabled Decision Support for Disaster</u> <u>Management and Response</u>, and (iii) <u>Media</u> articles covering some of the real-world engagements.

Speaker Bio:



Amit P. Sheth(http://knoesis.org/amit) is an educator, researcher, and entrepreneur. He is the LexisNexis Eminent Scholar and executive director of the Ohio Center of Excellence in Knowledge-enabled Computing (Kno.e.sis) at Wright State University. Kno.e.sis conducts research in social/sensor/semantic data and Web 3.0 with real-world applications and multidisciplinary solutions for translational research, healthcare and life sciences, cognitive science, etc. Kno.e.sis' activities have resulted in Wright State University being recognized as a top organization in the world on World Wide Web in research impact. In recent years, Prof. Sheth lists among the top 100 authors in Computer Science based on hindex. His research has led to several commercial products, many real-world applications, and four companies including three based on licensing of his university research. He is a fellow of AAAI and IEEE.