Distributed Data Analytics for Real-Time Monitoring and Detection of Flash Floods in Smart City

Challenge:

- Flash floods are instantaneous
- response time is critical
- Real-time decision making
- measure the rising level of water for just-in-time notification and emergency announcement

Solution:

- Fuse social feeds with sensor network data streams
- constrained topic modeling on heterogeneous data streams
- structured & un-structured cross-modal factor analysis
- unsupervised distributed deep learning models

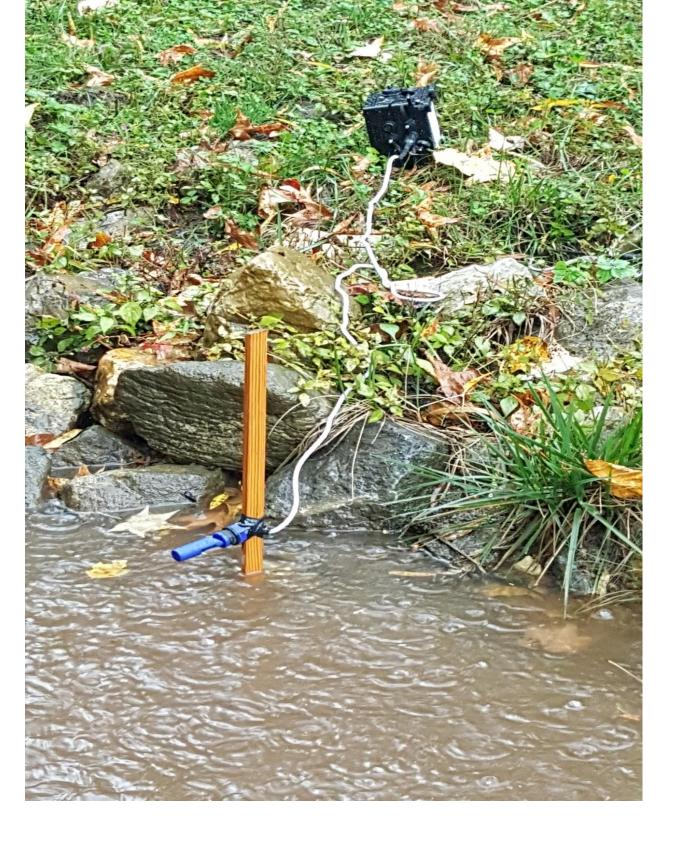
CNS: EAGER: Distributed Data Analytics for Real-Time Monitoring and Detection of Flash Floods in Smart City (CNS 1640625, 9/1/16 – 8/31/18, UMBC, Nirmalya Roy, Aryya Gangopadhyay)











Scientific Impact:

- Real-time situational awareness of physical events
- harnessing the combined power of sensor network data streams
 with social networking feeds
- modeling spatiotemporal and semantic evolvement

Broader Impact:

- City partners
- Baltimore County Dept of Public Works
- Howard County Office of Community
 Sustainability & Bureau of Environmental
 Services
- improve operational efficiency & manpower management
- smartphone based real time notifications to municipal officials
- ensure safety & security of human lives& critical infrastructures

Source of Images: Maryland State Archives, MPSC Lab@UMBC