

Research Topics in Informatics

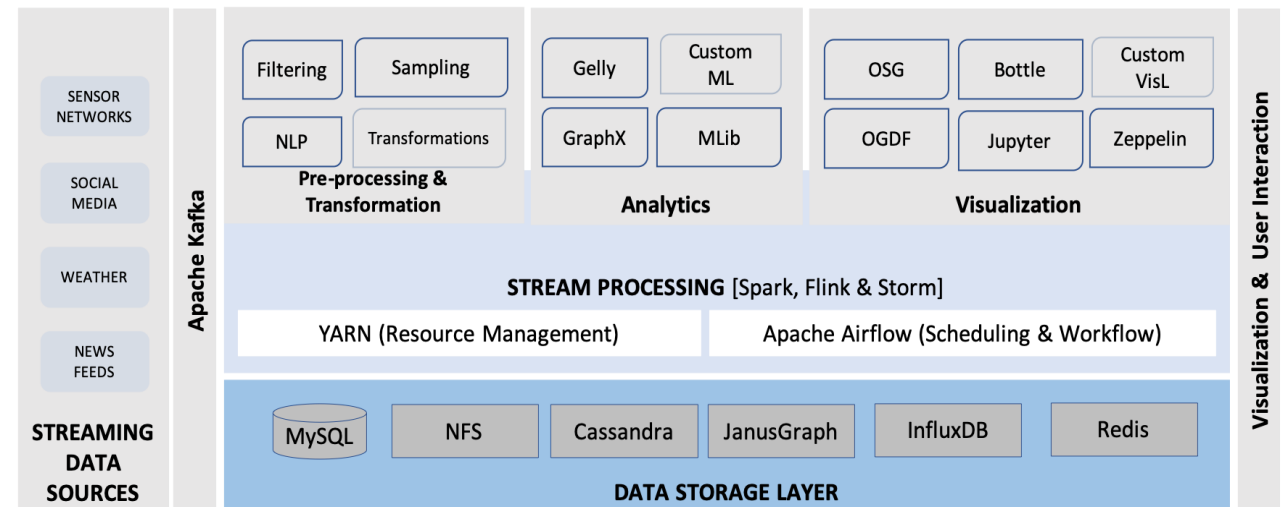
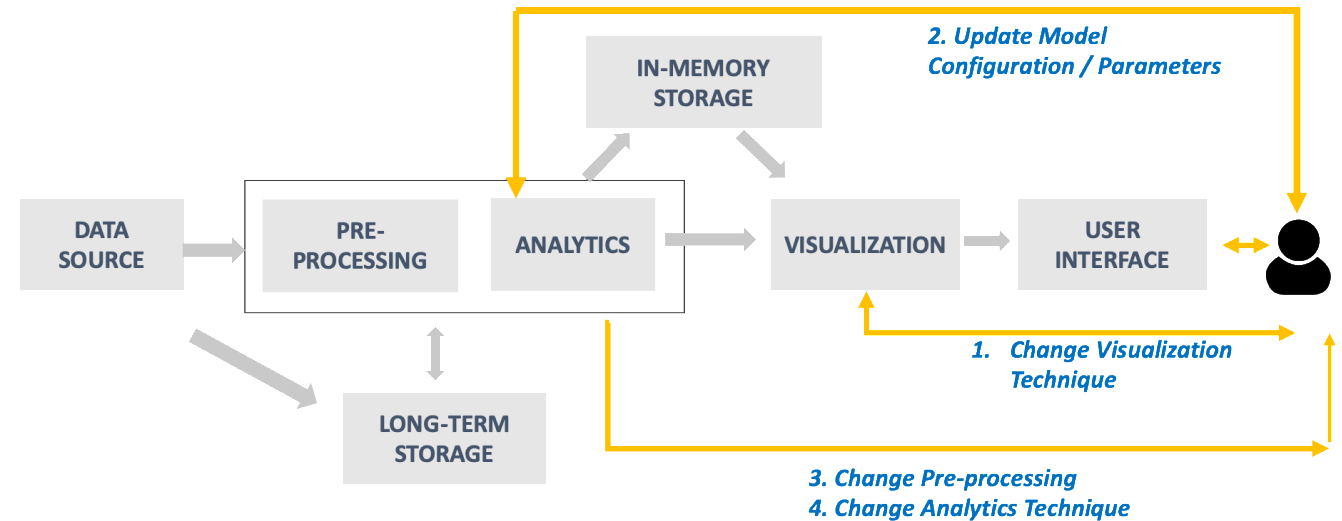
Raju Gottumukkala, Ph.D.

**Assistant Professor, Mechanical Engineering Department
Director of Research, IRI
University of Louisiana at Lafayette**

VASStream

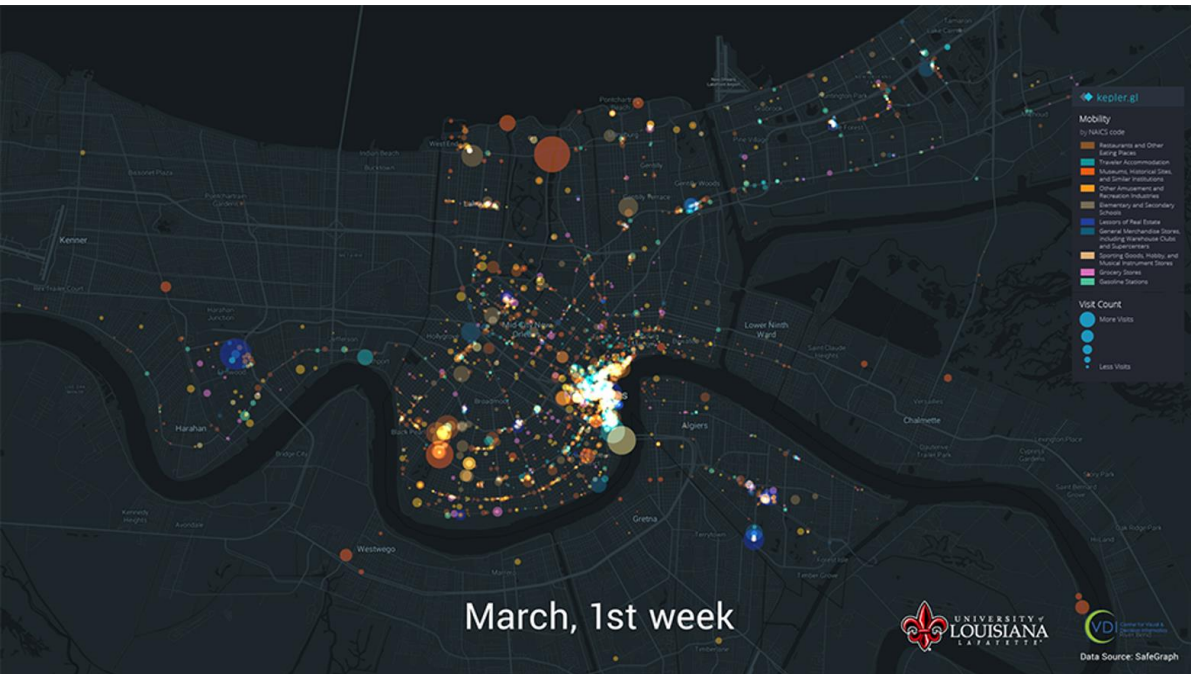
A Visual Analytics System for Fast Data Streams

- NSF funded big data environment to support interactive visualization and analysis of fast data streams
- Tools to support
 - Fast machine learning (classification, clustering, deep learning)
 - Interactive analysis (querying large graphs, fast visualization)
 - Distributed in-memory stream processing
 - Visualization & user interaction across multiple devices
- Middleware tools
 - Cluster management [monitoring, resource management]
 - Manage machine learning workflows
- www.vastream.net
- Katragadda, S et al: VASStream: A Visual Analytics System for Fast Data Streams. In ACM PEARC 2019

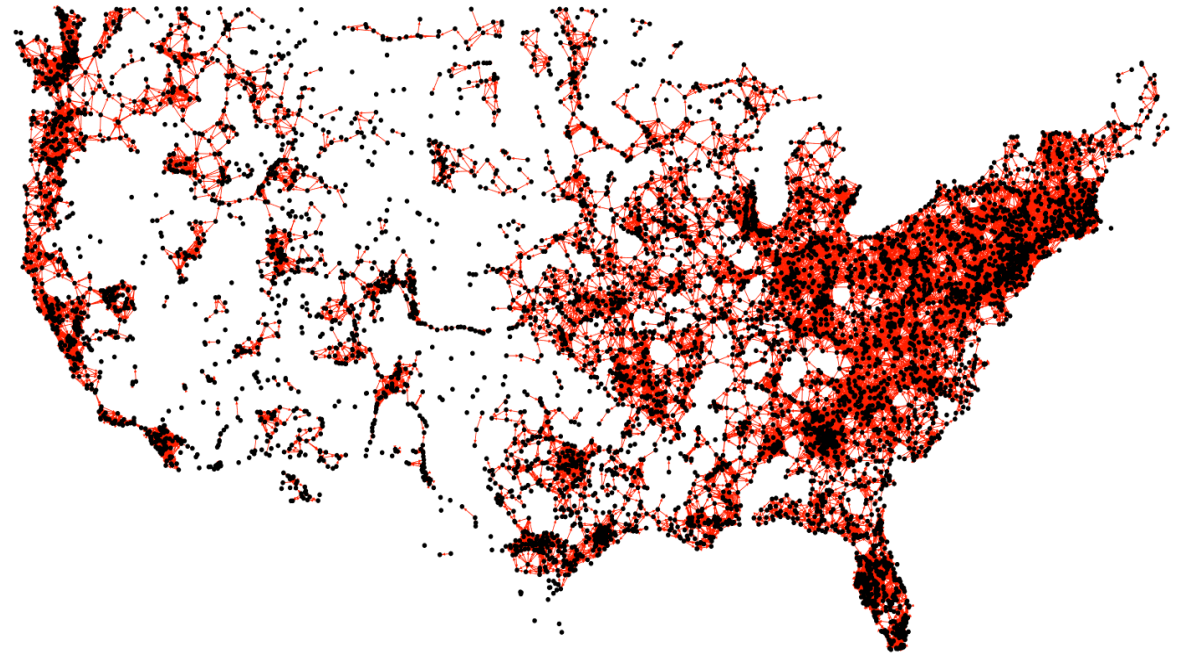


Ongoing Projects

COVID-19 Resilient Economy Support Tool: Visual Analytics Dashboard for COVID-19 Risk Management



River Stage Forecasting using Enhanced Partial Correlation Graph.



NSF RAPID: Visual Analytics Approach to Real-Time Tracking of COVID-19

Venna, S. R., Katragadda, S., Raghavan, V., & Gottumukkala, R. (2021). River Stage Forecasting using Enhanced Partial Correlation Graph. Water Resources Management, 35(12), 4111-4126.



Research Topics

- **Develop new forecasting methods**
 - Hybrid-forecasting methods (deep learning + statistics + physics)
 - Multi-modal methods (learning from multiple sensory sources)
- **Develop methods for dynamic Risk (based on changing nature of environment)**
 - Estimate risk based on the current state of the system and the environment
 - How to capture the changing relationships?
 - How to incorporate ongoing hazard dynamics and propagation?