Adaptive Knowledge Networks: A Time Capsule

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MOTIVATION
❖ Real world events are dynamic in nature. Periodic events e.g. US Presidential Election. Non-periodic events e.g. Cyclone Idai.
❖ Need for real-time predictive analysis, trend analysis, spatio-temporal decision making, public opinion analysis for events.
❖ Current state-of-the-art curates dynamic knowledge graph from structured text.
❖ We propose creating an Adaptive Knowledge Network from incoming real-time multimodal spatio-temporally evolving data.

HOW
We define two problems:
(1) Automatically extracting and predicting patterns for a class of periodic events (e.g. US Presidential Election).
(2) Inferring temporal information for non-periodic events (e.g. disasters) from real-time multimodal data to create an Adaptive Knowledge Network.

We rely on combining text mining approaches with machine learning and neural networks using knowledge from: (1) hierarchical and non-hierarchical relationships in KGs, (2) unstructured textual event-specific information, and (3) semi-structured collaborative KGs.

OVERVIEW

REFERENCES
2. Lalithsena, Sarasi. Domain-specific knowledge extraction from the web of data. Diss. Wright State University, 2018.

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