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Creating Real-Time Dynamic Knowledge Graphs

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MOTIVATION

- Real world events are dynamic in nature
  - Recurring events e.g. US Presidential Election
  - Non-recurring events e.g. Hurricane Irma
- Need for real-time predictive analysis, trend analysis, public opinion analysis for events.
- Current state-of-the-art curates evolving knowledge graph from structured text but not from incoming real-time user generated unstructured text.

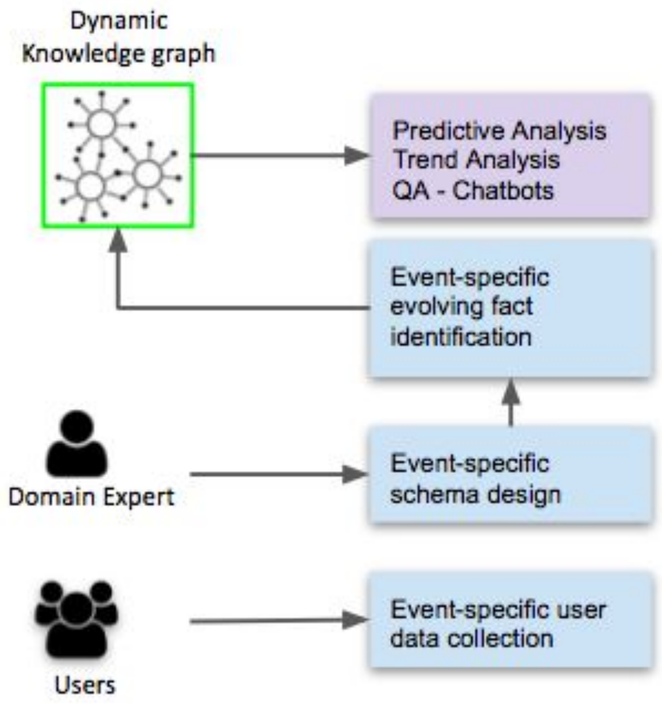
CONTRIBUTIONS

- We address the changing nature of relationships between real-world entities during evolving events.
- We propose to create an evolving event-specific Dynamic Knowledge Graph (DKG) which is complementary to the static information in traditional knowledge graphs such as DBpedia, Freebase and YAGO.

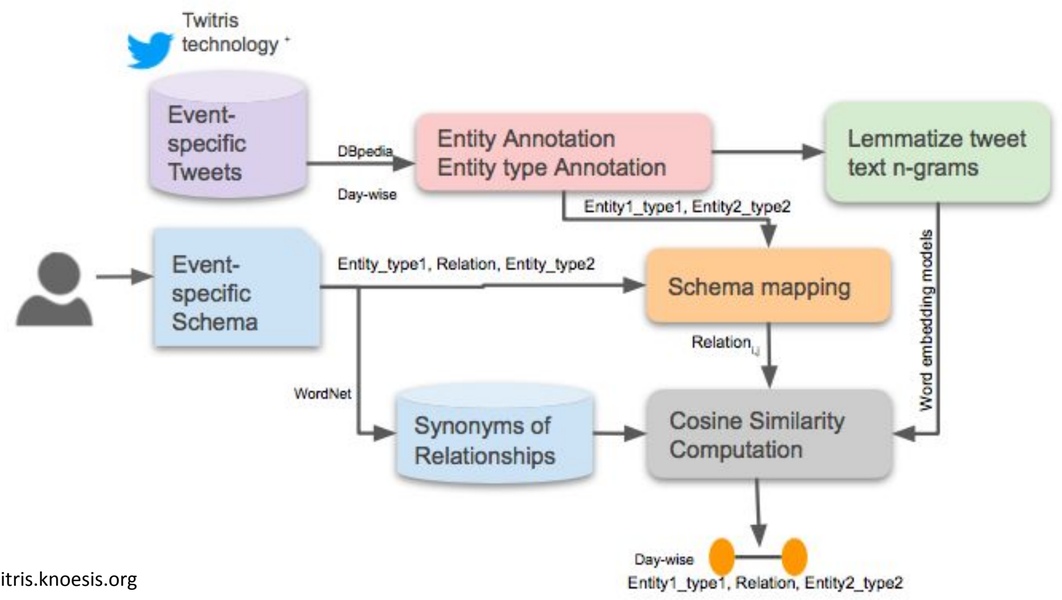
APPLICATIONS

- Question-answering systems: Query responses for temporally changing answers.
- Healthcare: Building disease-specific personalized DKG for patients for health-monitoring.
- Disaster response: Building a machine-understandable semi-structured knowledge repository that represents evolving situational awareness of events during a disaster response.
- Chatbots: DKG can provide a structured platform for the more accurate chatbot responses.

OVERVIEW

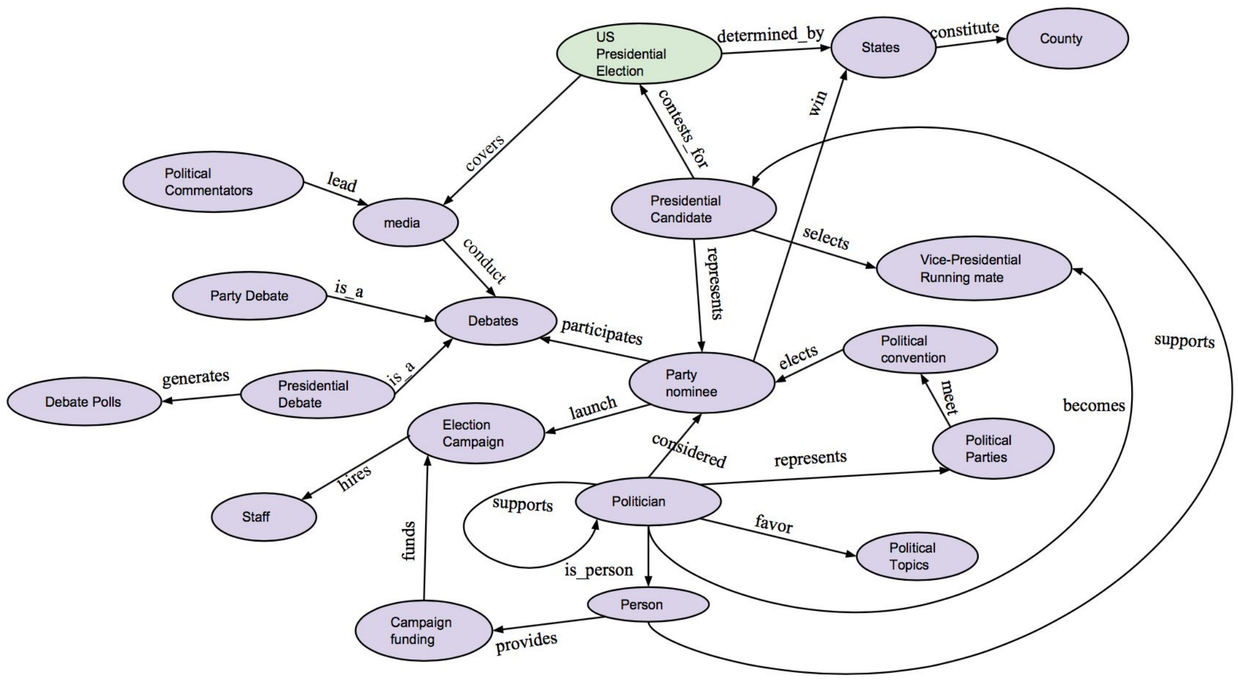


ARCHITECTURE



+ http://twitris.knoesis.org

U S Presidential Election Schema



EVALUATION CRITERIA

SOCIAL -MEDIA TEXT
(July 12,2016)

EVENT-SPECIFIC SCHEMA-BASED KNOWLEDGE

- **July 12** – Bernie Sanders endorses Hillary Clinton

United States Presidential Election 2016 timeline*

We evaluate the performance of our approach with respect to the temporal facts associated with United States Presidential Election 2016 timeline article page from DBpedia.

*https://en.wikipedia.org/wiki/United_States_presidential_election,_2016_timeline

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