Create cluster for a geographic area

Perform representative tag extraction

Knowledge Base

FIG. 1
FIG. 2
Knowledge Base

Cluster#1
Metadata
Data: messages
message#1
message#2
message#N
timestamp
tag(s)
spatiotemporality
(date range)
keyword(s)
related word(s)
(+ weight)
timestamp
owner (+ reliability/
prominence)
tag(s)
Cluster#2
Cluster#M

FIG. 3
Knowledge Base

Non-geolocated social media data

Perform location estimation

Append location

FIG. 4
FIG. 5

Creating the Knowledge Base

- Learning Set
- Messages

Image Selected

Extract GeoCoded Information

Send GeoCoding Data to Learning Dataset

Image is evaluated and placed within Clustered Results

Rank Clustered Results

Create Knowledge Base

Geocoding Messages

- Image with Location Unknown

Analyze Text Entity via Recognizer

Analyze Text Associated Keywords

Analyze Results of Keyword Tagged Information to Compute Coordinates, Precision Radius and Probability within Radius

Image Date Information compared against Clustered Database entries

Return Geolocation of image
Knowledge-Base

Cluster #1

Meta-data

Spatiotemporal information
- Spatiotemporality #1
  - Latitude: ...
  - Longitude: ...
- Date-range = 20120115-20120201
- Spatiotemporality #2
- Spatiotemporality # ...

Keywords
- Keyword #1: “revolution”
  - Related-word: “uprising”
  - Relationship-weight = 0.7
- Keyword #2
  - Related-word: “rotation”
  - Relationship-weight = 0.1
  - Related-word # ...

Data

Messages
- Message #1
  - Timestamp:
    - Date = 20120120 Time = 1450
  - Sender:
    - Sender-id = ...
    - Reliability-Prominence = 0.5
  - Tag #1
    - Tag-label: Title
    - Tag-content = ...
  - Tag #2
  - Tag # ...
- Message #2
- Message # ...

Cluster #2

Cluster # ...

FIG. 6
FIG. 7