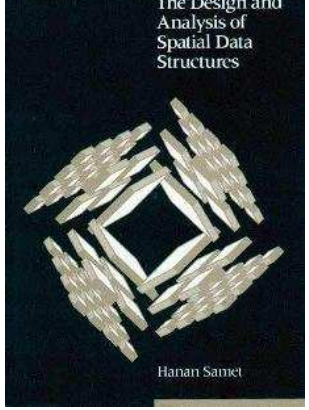

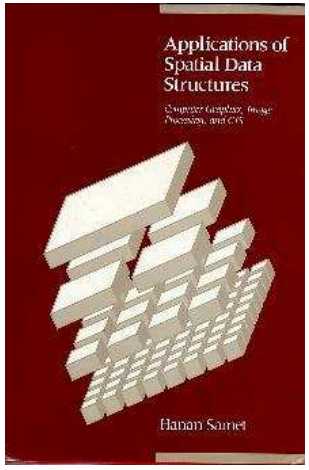

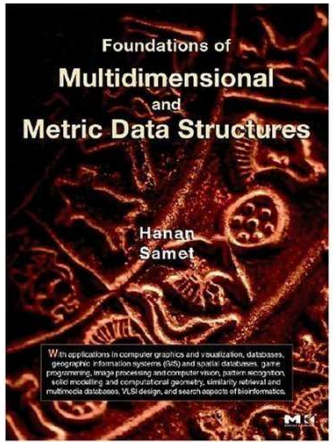

Research Profile for Hanan Samet

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Video Paper Cached Copy

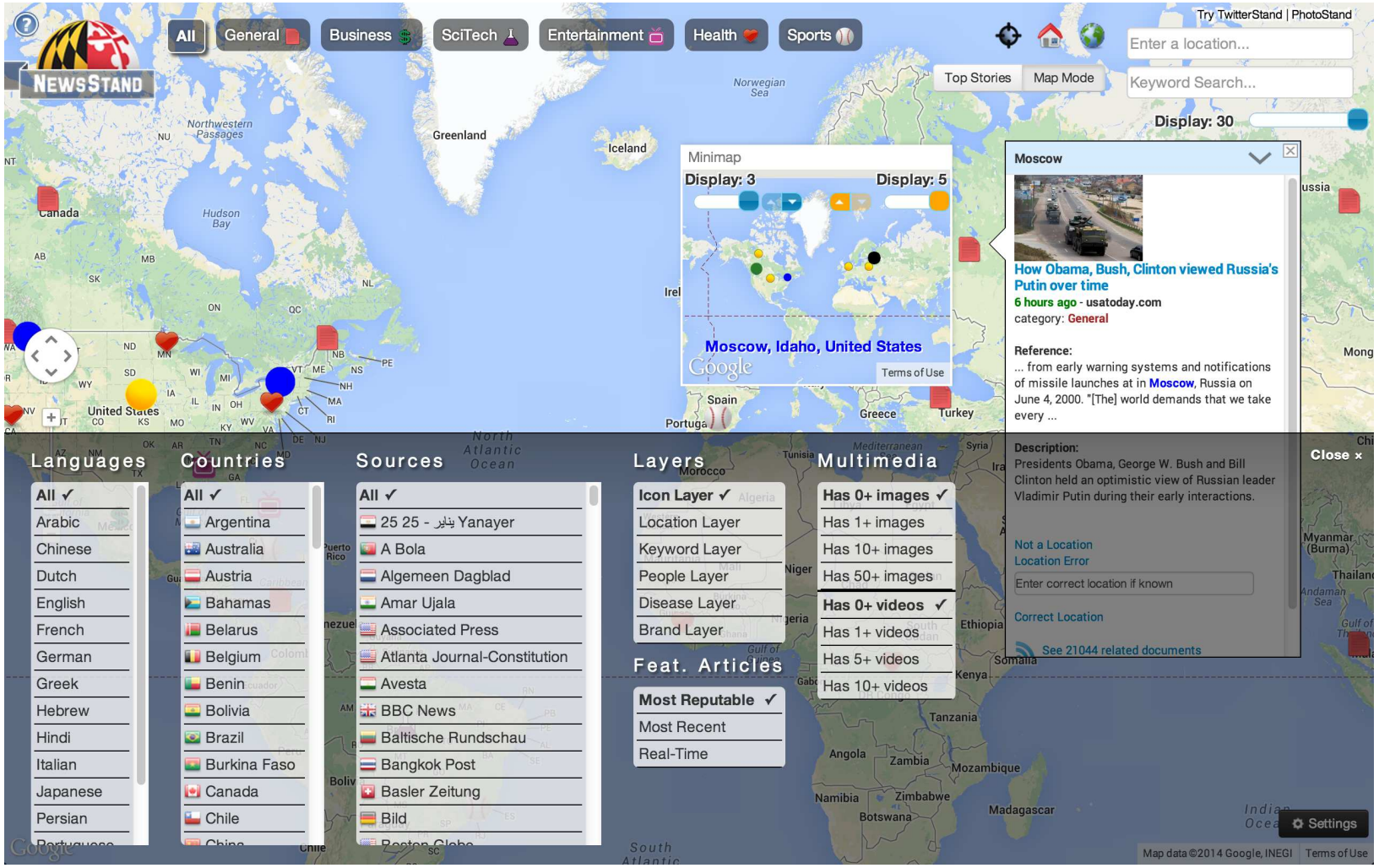
Research Motivation

1. Given prevalence of mobile devices ranging in size from smartphones to tablets, the decisions we make in our daily lives are influenced by our location
   - Easily obtained when devices GPS-enabled
   - Unfortunately, most users disable for privacy reasons
     - Investigate use of location brokers to anonymize by decoupling user location and user identity
2. Location is becoming a first clasthe average drive distance of people residing in the pixels citizen in a database
   - Efficient retrieval requires ability to sort it
3. Location specification
   - Used to express it geometrically (lat-long pairs) which is explicit
   - Increasingly using implicit methods such as touch or text
4. Liberating users from the search box
   - Use a map query interface
   - Ability to pan and zoom is analogous to using spatial synonyms
5. Mobile applications for devices with small form factors
6. Mapping Apps and APIs that obey cartographic principles

Research Activities

1. Resolving ambiguity of non-geometric location specification
   - Is “London” a location or not (toponym recognition)
   - If it is a location, which one (toponym resolution)
   - Use machine learning to improve future performance
   - Evaluate using sampling methods from quality control
2. Approximate road network distance computation
   - Use road network distance instead of Euclidean distance
   - Decouple distance and shortest path computations
   - Compute large origin-destination matrices (e.g., 30,000 by 30,000) in seconds
   - Compute estimated arrival times using traffic information
3. Temporal spatio-temporal data visualization
   - E.g., mentions of diseases, brands, crimes, people, etc.
   - Automatically build given a domain ontology
4. Detecting tweets of local news events

Sample Research Prototypes: NewsStand



- NewsStand is at http://newsstand.umiacs.umd.edu/
- 10,000 RSS News Feeds and approximately 50,000 articles/day
- Query: What is happening at location Y?

Sample Research Prototypes: Driving Distance to Work

- Geographical heat map where each pixel's color denotes the average distance from home to work for all people living in the pixel's region
- Query workload is 13,645,807 shortest distance computations
- Distributed key-value method on Spark with 5 machines took 13 secs
- CH method took 20 mins
- Video Link