Where are the Academic Jobs?

Interactive Exploration of Job Advertisements in Geospatial and Topical Space

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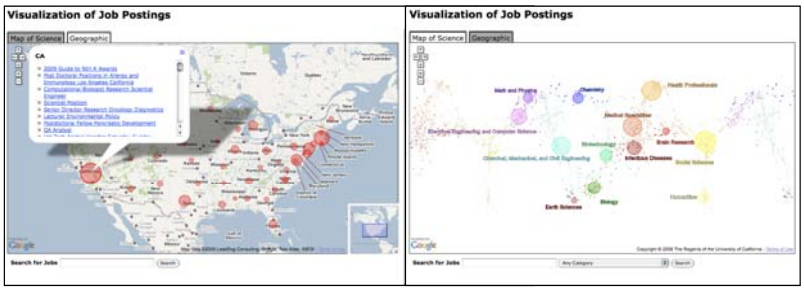

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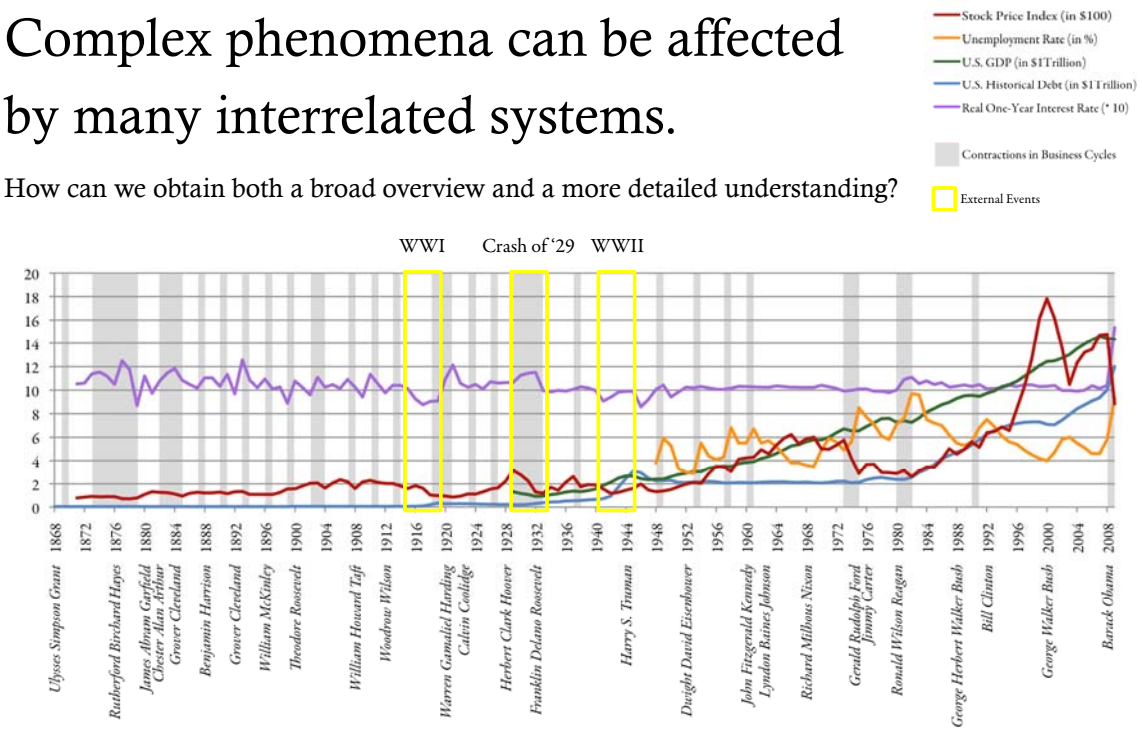
Complex phenomena can be affected by many interrelated systems.

How can we obtain both a broad overview and a more detailed understanding?

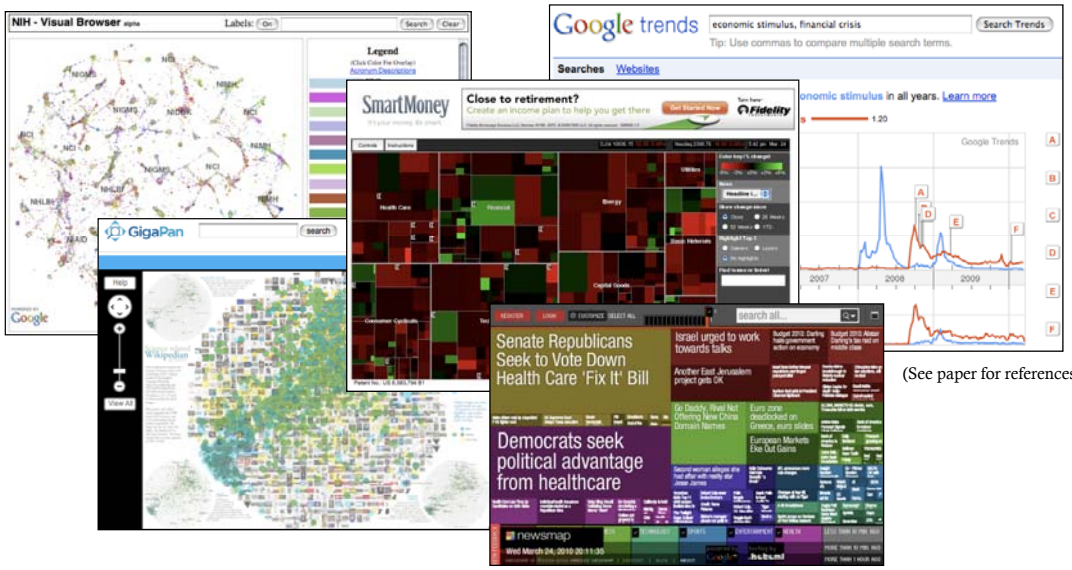


Challenges and Opportunities

- Increases in size and complexity of data sets require new techniques of summary and representation.
- These techniques are critical when data have high social impact, like employment data during times of economic turmoil.
- Visualization of such data can:
  - provide overviews and details of complex phenomena,
  - facilitate trend analysis, and
  - encourage new reactions and interventions in response to system behavior.
- Users include both those who will interact directly with the low-level data (e.g., job seekers) and those who will analyze and respond to changes in high-level data (e.g., policy makers).

Related Work

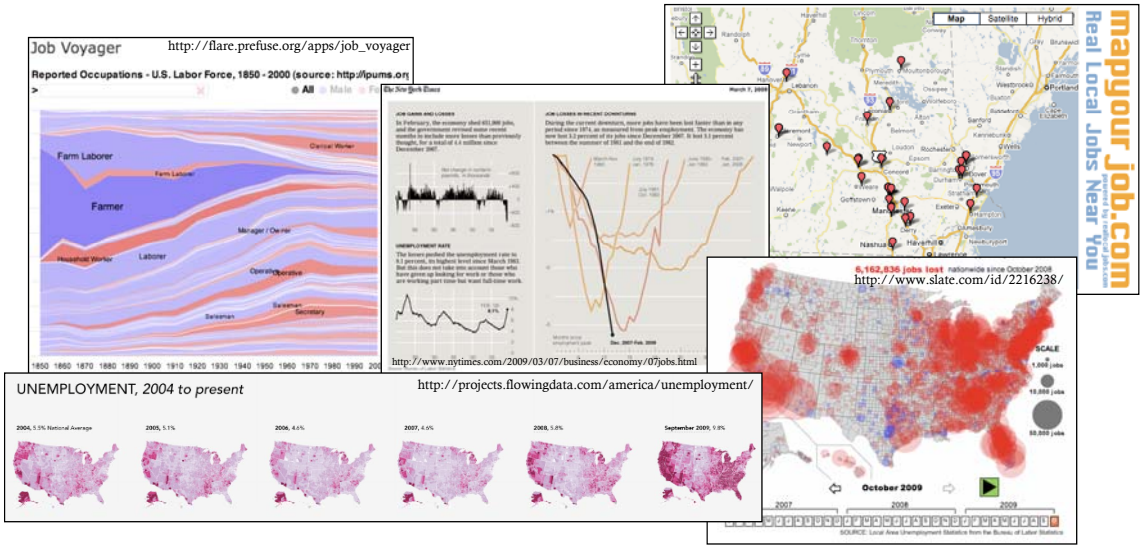
Real-Time Data Analysis and Interactive Visualizations



(See paper for references.)

Related Work

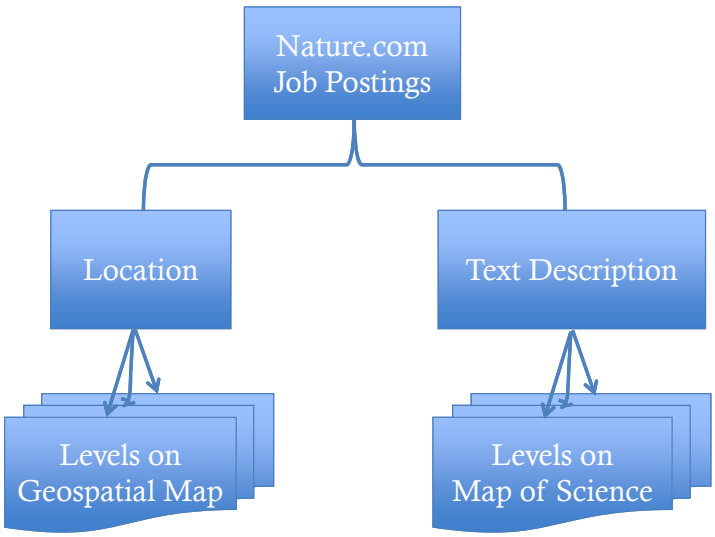
Job Market Data Analysis and Visualizations



Data Sets

- Effective visualizations depend on high quality, well-structured data.
- High value data sets will preserve as much of the complexity of phenomena as possible.
- Trend analysis and interactivity are best supported by data that are continually updated.

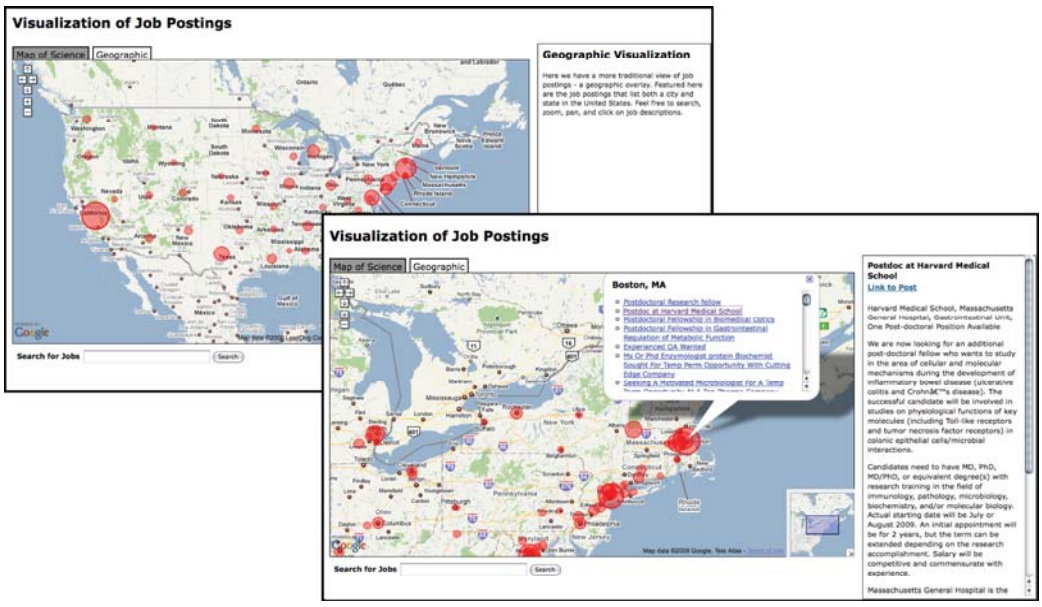
Data Preparation and Analysis



Geospatial Visualization

- We leverage Google maps as a well-known navigation tool.
- The map has customized levels of detail depending on zoom level.
- We add interactivity by giving markers an "information window" that shows what job postings are connected to that location.

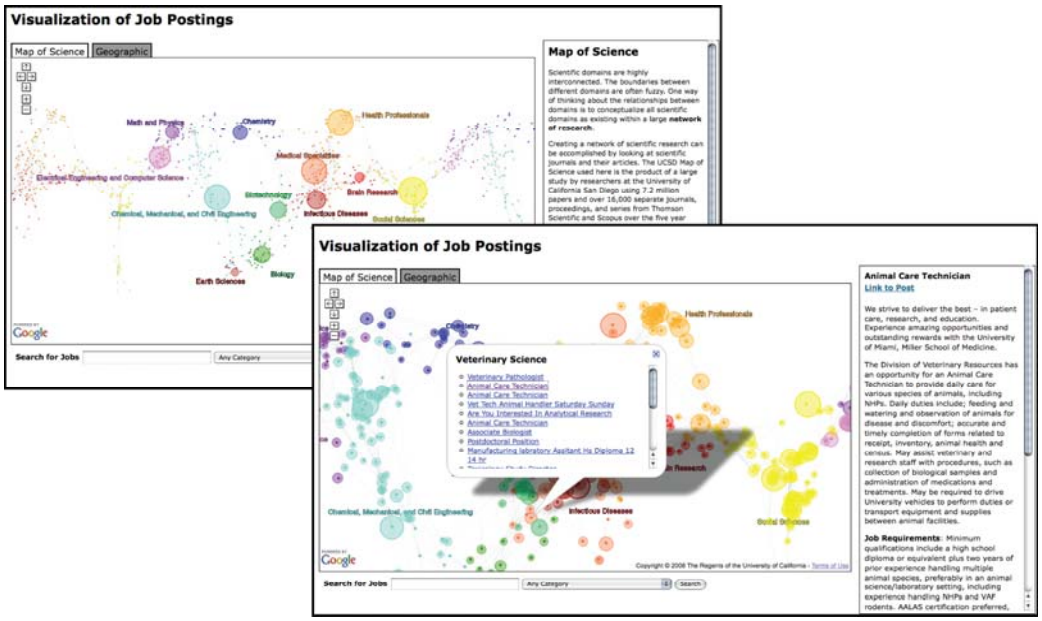
Geospatial Visualization



Map of Science Visualization

- The UCSD Map of Science represents scientific fields as large network.
- The map was created using text and bibliographic data from journal publications.
- The network has 554 nodes (e.g., "plant physiology"), each of which is a subdomain of 13 top-level scientific disciplines (e.g., "Earth Science").
- Each node is also described by keywords, which can be matched to other texts.

Map of Science Visualization



Discussion and Outlook

- Using common navigation metaphor for multiple access points reduces barriers to exploration, analysis, and synthesis.
- Interactivity reduces data overload by enabling users to selectively expand elements.
- Using geospatial and topical representations of job data creates a unique opportunity to examine the activity of fields of science.
- Planned improvements include adding continuously updated, robust data sets; optimizing text matching algorithms; and incorporating timeline control.

Questions?

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Site: http://cns-nd3.slis.indiana.edu/mapjobs/
Paper: http://ivl.slis.indiana.edu/km/pub/zoss-et-al-jobmaps.pdf

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