Categorization & Visualization: The Basics

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Beyond Search & Browse

- Search
  - Precise, but brittle ... leaves users searching, not finding ...
- Browse
  - Robust, but vague ... leaves users wandering & lost, not found ...
- Opportunity is to blend Browsing & Search
  - Categorization
  - Information Extraction
  - Information Visualization

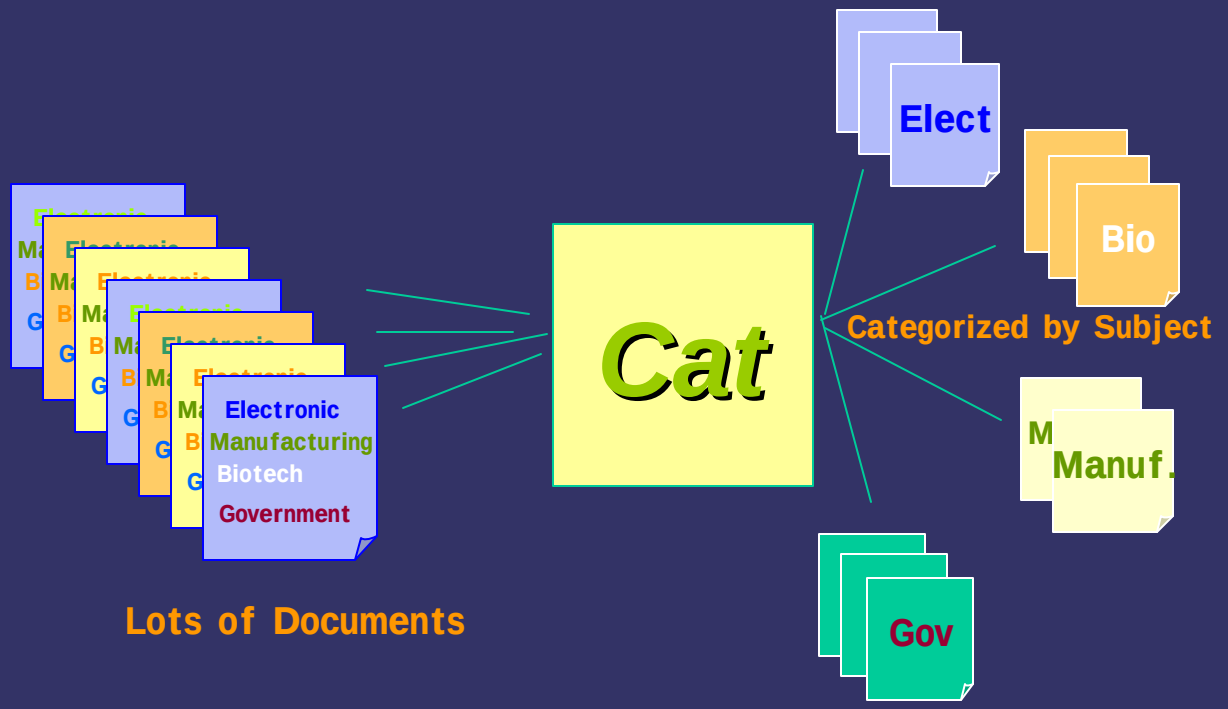
Automatic Categorization

What:

Subject Categorization classifies textual documents into categories based on what they are about.

Why:

Increases Efficiency & Effectiveness of Systems and People that utilize the content



Information Extraction

- Information extraction is about pulling elements out of documents and collections that guides the more intelligent use of content
- Often characterized as metadata that provides context
- Types of metadata include:
  - Noun phrases
  - Named entities (e.g., people, companies, places, products)
  - Key sentences
  - Concepts and topic relationships
  - Similarity between documents, paragraphs and phrases

MetaData from Information Extraction ...

...and Search Categorization, Clustering Etc

Summary
- Wall Street is optimistic as Fed cuts rates.
- Stocks Soar with Dow up 130 points.
- NASDAQ gains 2 %.

Similar Docs
- Document 1
- Document 176
- Document 3456

Embedded Entities
- Companies
  - IBM
  - Aventis
  - Goldman Sachs
- People
  - Alan Greenspan
  - George Bush

Optimism that Wall Street is indeed emerging from its slump sent technology stocks higher Thursday, adding to the previous session's triple-digit surge. Blue chips struggled to keep up, fluctuating in light profit-taking. ``The market's beginning to buy the scenario that the interest rate cuts by the Federal Reserve are going to help,'' said Gregory Nie, technical analyst at First Union Securities.

Topical categories
- Financial reports
- FDA Approvals

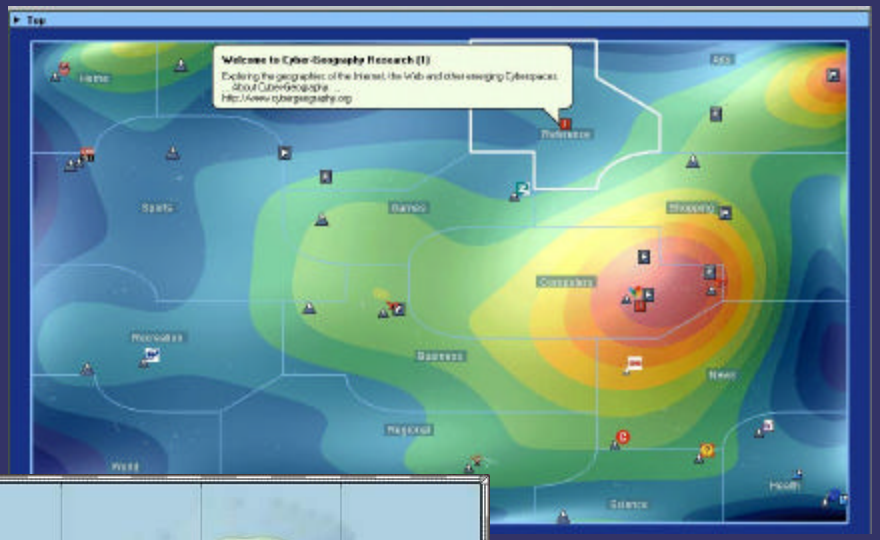
Embedded Concepts
- "...White House source..."
- "...hot and cold running water..."
- "...20 Gb hard drive..."

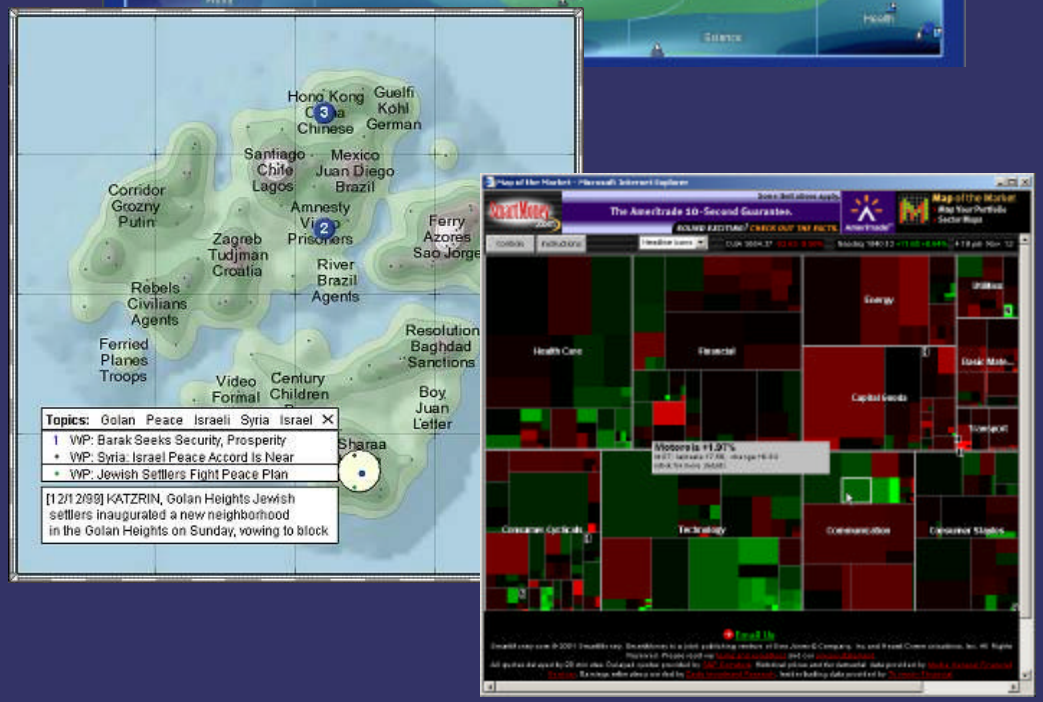
Linked Concepts
- "White House source" & "Environmental Policy"
- "20 Gb hard drive" & "Compaq Computer"

Information Visualization

- The Role of Content Visualization
  - Provides maps of large content spaces ... and also the means for getting to specific documents or items
  - Thus support early or organizing processes like orientation, assessing, survey, etc. ... as well as tune very focused processes like direct walk navigation
- Nature of the Solution
  - Leverage our visual/spatial skills
  - Like browsing, but shows much more, maps not just pages
  - Can eleminate mechanical overheads of browsing
  - Can integrate with searching more tightly
- Two key types of Content Visualizations
  - Content Terrain Maps
  - Wide Widgets

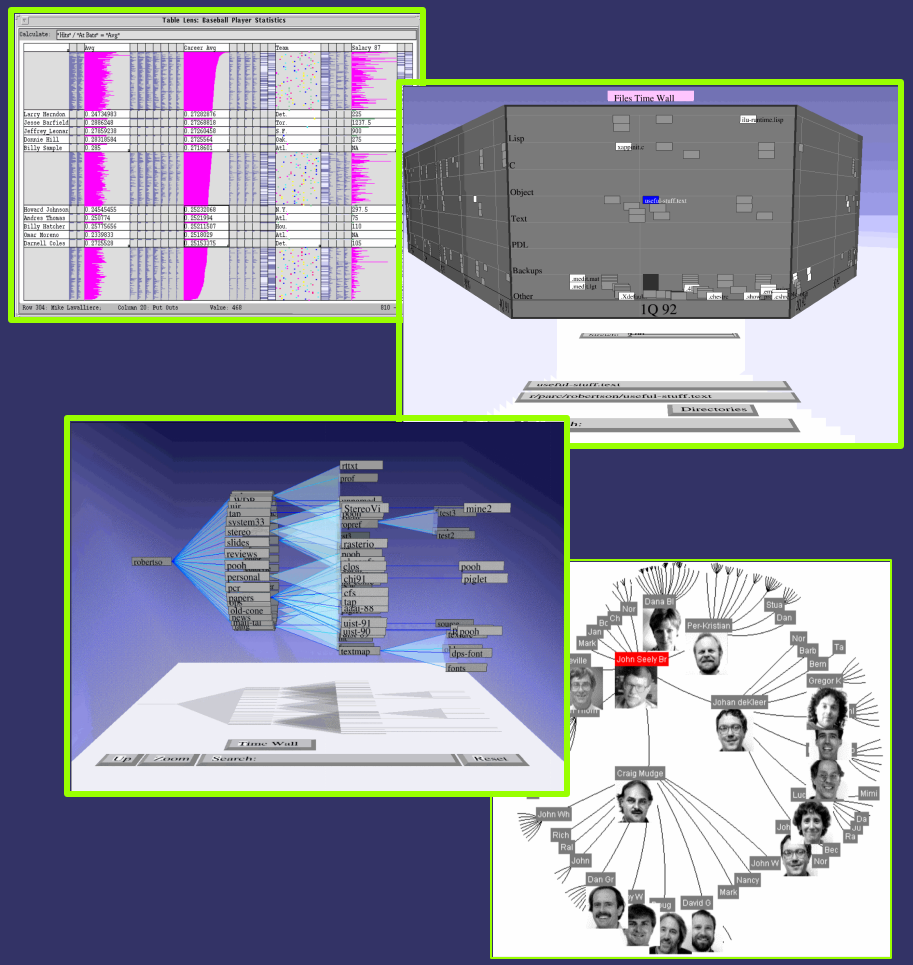
Content Terrain Maps





- Analogy to geographic maps
- Organize on 2-d surface with Terrain created by contours, colors, regions, based on:
  - *Human Design*
  - Categorization
  - Automatic Clustering based on Document Similarity
  - Metadata

Wide Widgets



- high bandwidth widgets for interacting w/ large collections
- arranged on a spine
  - *Hierarchical*
    Cone Tree, Spiral Calendar, Hyperbolic Tree Browser
  - *Temporal*
    Perspective Wall, Time Lens
  - Pages -
    Document Lens, Web Books
  - *Calendars* -
    Spiral Calendar
  - *Tabular* -
    Table Lens, Time Lattice

DEMO

To be continued ...

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